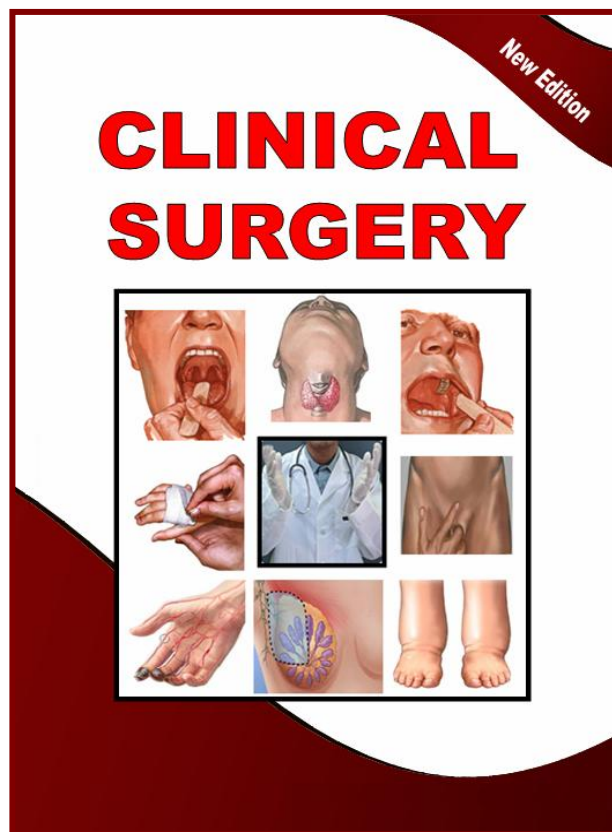


CLINICAL SURGERY



Dr. WAEL METWALY

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا

سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا بِمَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صَدَقَ اللَّهُ الْعَلِيمُ

الآيَة (٢٤) سورة البقرة

اللهم

- ❖ اللهم اجعل هذا العمل خالصاً لوجهك الكريم
- ❖ اللهم زدني علماً واجعل هذا العلم نافعاً لكل من يدرسه
- ❖ اللهم ارزقني من هذا العمل رضا ومغفرة وعتقاً من النار ما حييت وبعد الممات
- ❖ اللهم اجعل هذا العمل صدقة جارية لا ينقطع بها عملي بعد موتي

اللهم آمين

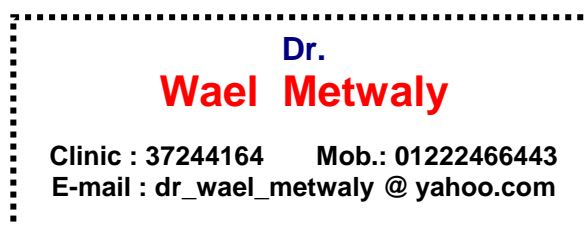
اللهم آمين

وائل متولى

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With my best wishes



Swelling sheet

Chapter 1

SWELLING SHEET

* PERSONAL HISTORY

1. Name (See Q. 1)
2. Age
3. Sex
4. Occupation
5. Residence
6. Marital status
7. Special habits of medical importance

How to Tell

e.g. A Female patient, named....., aged....., from....., housewife,cigarettes per day since..... years.

Q. What are the hazards of smoking? (See Q. 2)

* COMPLAINT

" Must be in patient's words " usually **swelling or pain**

* PRESENT HISTORY

- I. Analysis of complaint (swelling ± Pain)
- II. Analysis of symptoms related to **Part** affected
- III. Analysis of symptoms related to **Other parts** affected

I. Analysis of complaint (swelling ± pain)

SWELLING

1. O.C.D (Onset - Course - Duration)

◆ Onset

- ☆ **Gradual** as lipoma
- ☆ **Sudden** as hematoma
- ☆ **Acute** as inflammation
- ☆ **Insidious** as 2^{ry} toxic goiter
- ☆ **Accidental** as cancer breast

◆ Course

- ☆ **Progressive** as malignancy
- ☆ **Regressive** as inflammation
- ☆ **Stationary** as lipoma
- ☆ **Intermittent** as hernia
- ☆ **Remission & exacerbation** as 1^{ry} toxic goiter

2. Swelling

- ☆ **Site**
- ☆ **Number**
- ☆ **Investigations & treatment**
- ☆ **Associated swelling** (L.Ns)
- ☆ **Pain** " if present"

1. Site
2. Extent
3. Characters as colicky, dull ach, dragging etc..
4. ↑ by
5. ↓ by
6. Associated symptoms..
7. Referred or radiate for difference (See Q. 3)

II. Analysis of Symptoms related to Part affected

i.e. Pressure symptoms = **Local** complications

V ☆ **Vein**: Oedema & varicose vein (*How to ask?*) (See Q. 4)

A ☆ **Artery**: Color & trophic changes

Q. What are the trophic changes? (See Q. 5)

N ☆ **Nerve**: Paraesthesia & deformity

III. Analysis of Symptoms related to Other parts affected

i.e. **General** complications

"Toxic symptoms" (F.H.M.A)

(Fever, Headache, Malaise, Anorexia)

"Metastatic symptoms" (L.B.L.B)

L • Lung : chest pain, dyspnea and haemoptsis

For D.D from hematemesis (See Q:6)

B • Brain : Headache, vomiting , blurring of visionetc.

L • Liver : Pain at Rt. hypochondrium & Jaundice.

B • Bone : Bone ach & pathological fracture (*How to Ask? (See Q:7)*)

* PAST HISTORY

- * **Similar** condition
- * **Diseases** as DM, hypertension, heart diseaseetc.
- * **History** of drug allergy.

* FAMILY HISTORY

- * To exclude any familial tendency as **cancer breast**

I- GENERAL EXAMINATION

A. VITAL SIGNS

1. **T**emp "Normal = **36.5 - 37.2 °C**"
2. **P**ulse **R**ate. "Normal = **60 - 90 / min**"
3. **B**lood **P**ressure. "Normal S/D = **90 - 150 / 60 - 100 mmHg**"
4. **R**espiratory **R**ate. "Normal = **16 - 20 / min**"

B. GENERAL EXAMINATION [A, B, C, D, E & F]

A = Appearance	→ " Healthy or ill "
B = Built	→ " Over, average, or under-weight "
C = Conscious	→ " Conscious or apathy "
D = Decubitus	e.g. " Orthopnic with HF "
E = Emotion	→ "Alert, nervous,etc. "
F = Face	→ Toxic face if inflammationetc.



♦ We comment :

Patient is fully conscious, well oriented to time, place & doctor.
He is of normal memory & mood & co-operative to doctor with average intelligence

C. SYSTEMIC EXAMINATION

For Details : (See each chapter separately)

Head & neck - heart & chest.- upper limb.- abdomen & pelvis.- lower limb

II- LOCAL EXAMINATION

* INSPECTION N S E D

N — ☆ **Number** Usually single *Q. What are multiple swellings in the body ? (See Q: 8)*

S — ☆ **Site** Usually diagnostic

— ☆ **Shape**



Rounded



Ovoid



Butterfly



Horseshoe

— ☆ **Size** The largest 2 diameters in (cm × cm)

— ☆ **Surface**



Smooth



Lobulated



Nodular



Irregular

— ☆ **Skin over** Dilated veins, scar, ulcer, redness as inflammation

— ☆ **Special sign**

1. Pulsation as **aneurysm**.
2. Expansile impulse on cough as **hernia**
3. Move up & down e deglutition as **thyroid swelling**.
4. Move up & down e protrusion of tongue as **thyroglossal cyst**.

E — ☆ **Edge**



Ill-defined

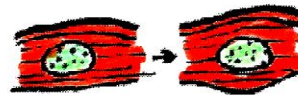


Well-defined

3 D ① **Deep structure**

i.e. Relation to deep muscle.

Ask the patient to contract the muscle against resistance & note the degree of prominence to differentiate between the swelling deep or superficial or within the muscle.



→ The result if

1. **More** prominent → **superficial** to muscle
2. **Same** size → **within** the muscle
3. **Less** prominent → **deep** to muscle

② **Distal effect**

V ☆ **Vein** → Oedema & varicose vein (if lower limb)

A ☆ **Artery** → Color changes & trophic changes

N ☆ **Nerve** → Deformity.

③ **Draining L.Ns** For "metastasis"

* PALPATION T M S E C D

- 3 T**
- ☆ **Temp** By dorsum of hand and not the palm. *Why?* (see Q. 9)
 - ☆ **Tenderness** Palpate during watching patient's face.
 - ☆ **Thrill** If present (systolic or continuous).

- M** — ☆ **Mobility** Grasp the swelling & try to push it in all directions.

Q: When is a swelling mobile in All directions?

Q: When is a swelling mobile in One direction?

Q: When is a swelling Fixed in All directions?

For Answers (see Q: 10 → 12)

- 6 S**
- ☆ **Site**
 - ☆ **Shape**
 - ☆ **Size**
 - ☆ **Surface**
 - ☆ **Skin over**

To know if swelling attached to skin or not by **pinching up** skin (not done), or **sliding** the skin over (see diagrams).

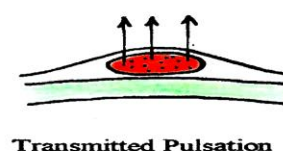
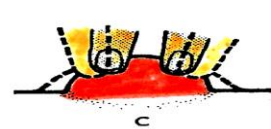
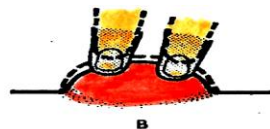


- ☆ **Special sign**

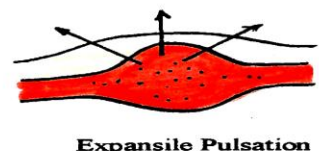
① **Pulsation** : May be ➤

- **Transmitted pulsation**
i.e. over artery
- **Expansile pulsation**
i.e. Aneurysm

How to elicit



Transmitted Pulsation



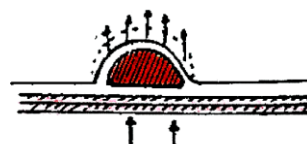
Expansile Pulsation

② **Impulse on cough** : May be ➤

- **Expansible impulse on cough** as hernia.
For other causes (see Q. 13)
- **Transmitted impulse on cough** as varicose Vein



True (Expansile)



False (Transmitted)

- E** ☆ **Edge** Well defined or ill defined.

N.B. : May be **slippery** edge as in **lipoma**

2 C 1. ☆ Consistency 1st solid or cystic (by fluctuation test) see below

Then If solid it may be **Firm** like a **nose** .

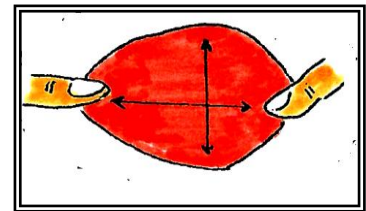
Hard like a **bone**.

Soft like a **lobule of ear**

To Differentiate between solid & cystic mass

FLUCTUATION TEST

- The **2 index** fingers of both hand are applied as far as the swelling allows
- **One finger** is watching finger & **the other** moves towards it.
- **+ve fluctuation test** indicates presence of gas or fluid as in cyst.

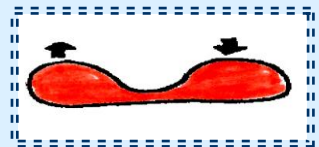


N.B

1. Fluctuation must be done in 2 perpendicular directions *why ? (see Q : 14)*
2. Pseudo-fluctuation can be elicited in lipoma.
3. Other types of fluctuation →

A. Cross fluctuation

← e.g. **Psoas abscess** in Rt. iliac fossa with an extension below inguinal ligament in femoral



B. Bipolar fluctuation e.g. in **Hydrocele**

C. Paget's test: indicated if

- **Too tender.**
- **Too tense.**
- **Too deep.**
- **Too small < 2 cm**

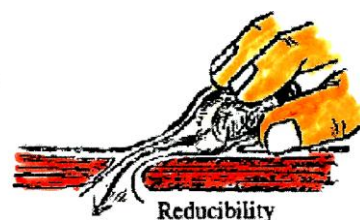
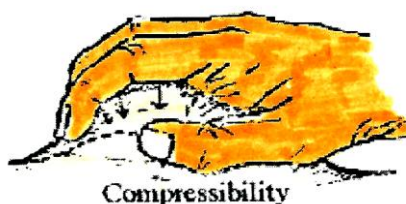
N.B. → When the test inconclusive
The idea is to compare at centre.

1. **Solid:** Center is **Firm**.
2. **Cystic:** Center is **Yield**.



2. ☆ Compressibility & reducibility

"Look for diagram"



★ COMPRESSIBILITY :

" Disappear partially or completely on pressing the whole swelling & return to its normal size on releasing pressure" e.g. **Saphena varix**.

★ REDUCIBILITY:

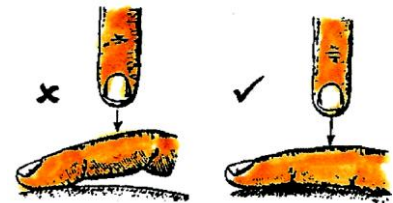
" Decrease in size or disappear when compressed into certain direction & reappear only on cough" e.g. Hernia.

- 3 D**
- ① **Deep structure** i.e (Muscle)
Examine mobility before & after contracting muscle.
 - ② **Distal effect**
 - V** ☆ **V**ein → Oedema (pitting or non pitting).
 - A** ☆ **A**rtery → Pulsation.
 - N** ☆ **N**erve → Sensory & motor examination.
 - ③ **Draining L.Ns** For "metastasis"

* PERCUSSION

Over swelling may be ➤

- **Resonant** = gas swelling e.g. **hernia**.
- **Dullness** = solid or cystic e.g. **lipoma**.



* AUSCULTATION

- **Over vascular swelling** may be ➤
 - **Systolic** murmur as **aneurysm**.
 - **Continuous** murmur as **A-V fistula**
- **Venous hum** as in portal hypertension.
- **Gurgling of intestine** as **enterocele**.



* TRANSILLUMINATION

As **Hydrocele** or **meningocele**

DIAGNOSIS

- [1] **Anatomical** → Site or organ involved.
- [2] **Aetiological** → Congenital, traumatic.
- [3] **Functional** → Complicated or not.

EXAMPLES

The most important clinical cases :



1. **Lipoma**.
2. **Sebaceous cyst**.
3. **Dermoid cyst**



THE MOST IMPORANT "CLINICAL CASES" EXAMINATION

	[1] LIPOMA	[2] SEBACEOUS CYST
	Benign tumor of adipose tissue ورم دهنی	Retention cyst کیس دهنی
★ INSPECTION N ☆ <u>Number</u> 6S ☆ <u>Site</u> ☆ <u>Shape</u> ☆ <u>Size</u> ☆ <u>Surface</u> ☆ <u>Skin over</u> ☆ <u>Special sign</u> E ☆ <u>Edge</u> 3D	NSED Usually single ☆ Sub-cutaneous (the commonest) or sub-fascial (deep to deep fascia) For other sites (see before) ☆ Never in brain or eye lid ☆ Oval or round ☆ Variable ☆ Lobulated surface ☆ Normal or show dimpling ☆ No special sign ----- ☆ Deep muscle → Superficial to it. ☆ No d istal effect → A or V or N ☆ No d rainning L.Ns	Single or multiple ☆ Hairy area as face, scalp, trunk, or scrotum. ☆ Never in palm or sole ☆ "The same" ☆ "The same" ☆ "The same" ☆ Show punctum ☆ "The same" ☆ Well defined edge ☆ "The same" ☆ "The same" ☆ "The same"
★ PALPATION 3T M 6S E C 3D	TMSEC D ☆ Not (tender, hot or thrill). ☆ Mobile (in all directions) ☆ As Inspection + attached to skin by fibrous strand so dimpling ☆ Slippery edge ☆ Soft in consistency (pseudo-fluctuant) ☆ Same as inspection	☆ "The same" ☆ "The same" ☆ As Inspection but no dimpling ☆ Well defined edge ☆ Fluctuant ☆ "The same"

Why lipoma Because of **2P + 5S**

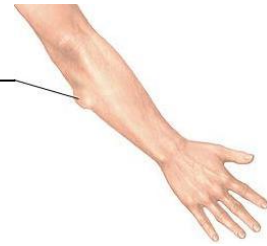
2P → **P**ainless & **P**seudo-fluctuant

5S → **S**lippery edge, **S**oft in consistency, **S**kin shows dimpling, **S**uperficial to muscle & **S**urface is lobulated (sub-cutaneous) or **s**mooth (sub-fascial)

DISEASES OF SKIN & S.C TISSUES

I. BENIGN LESIONS

1- Lipoma



DEFINITION

- **Benign tumor** composed of fatty tissue arranged in lobules.

PATHOLOGY

- It is a yellowish lobulated aggregations of fat cells.

PATHOLOGICAL TYPES

- ① **Pure lipoma** (the commonest)
- ② **Fibrolipoma** i.e. contain excess fibrous tissue.
- ③ **Angiolipoma** i.e. contain angiomatous tissue.



CLINICAL PICTURE

N.B.: Never in brain & eye lid

1- Subcutaneous lipomata the commonest.

- (a) It may present as a solitary or multiple or diffuse = **Dercum's disease**.
- (b) **Lobulated** surface, painless mass, attached to skin i.e. **dimpling**
- (c) **Soft** in consistency & gives **pseudo- fluctuation**
- (d) It has a well defined **slippery** edge
- (e) It is mobile & **superficial** to muscles.



2- Subfascial lipomata This type is deep to deep fascia

3- Subserous lipomata i.e. retroperitoneal. This type may turn to sarcoma.

4- Submucous lipomata e.g. larynx or intestine. This type may cause obstruction.

5- Parosteal lipomata This type arise under the periosteum of the skull.

6- Extradural lipomata This type may cause paraplegia.

7- Intermusclar lipomata This type found in between the muscles

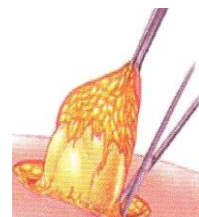
8- Intra-articular lipomata This type arise in relation to the capsule of the joint

COMPLICATIONS

- ① **Compression** manifestations.
- ② **Degenerative changes** leading to liquefaction & calcification.
- ③ **Malignant transformation**, it occur with retroperitoneal lipoma.

TREATMENT

Enucleation of the tumor



2- Sebaceous cyst

DEFINITION

- **Retention cyst** of the sebaceous gland due to obstruction of its duct by inspissated sebum or dirt.

PATHOLOGY

- **The contents** are foul smelling, white, creamy sebum.

CLINICAL PICTURE

Hairy areas never in palm & sole

- (a) **The commonest sites** : scalp, face & scrotum
- (b) Small, well defined, cystic swelling.
- (c) Attached to skin at one point = **Punctum** or **black head**

COMPLICATIONS

- ① Infection & suppurations
- ② Localized **alopecia** : hair loss due to pressure atrophy on hair follicle
- ③ **Sebaceous horn** : the contents become inspissated in successive layers
- ④ **Ulceration (Cock's tumor)** It is not a tumor but mistaken for a carcinoma.

TREATMENT

- **Excision** with skin ellipse over it containing the punctum to avoid recurrence
- **IF 2ry infection** : drainage through skin incision.

.....

3- Dermoid cyst

TYPES

1. Sequestration dermoid cyst

- It is a **congenital inclusion** of a piece of epithelium in the S.C. tissue at line of fusion of the body during the fetal life
- **The commonest sites** :
 1. **Face** : external angular dermoid & root of nose.
 2. **Neck & trunk** : middle line (ant. & post.)

N.B: **Never** appears in upper & lower limbs as they appear as buds & not by fusion.

2. Tubulo-dermoid

- It is a remnants of **embryonic ducts** as thyroglossal cyst & branchial cyst

3. Teratomatous dermoid

- It is a benign teratoma contains teeth, hair & It occurs in ovary & testis.

4. Inclusion dermoid

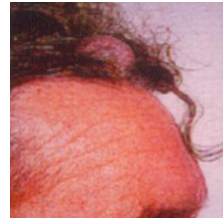
- It occurs during closure of a cavity as supra-sternal cyst

5. implantation dermoid

- It is 2ry to puncture wounds which displace some epithelial cells into S.C. tissue → cyst formation.
It occurs mainly in the sole, palm & fingers →

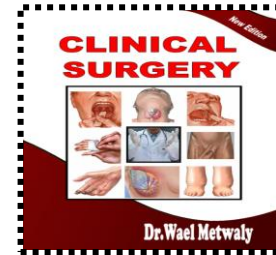
TREATMENT

all cases are treated by **excision**



OSCE EXAM

* WE MUST TO LOOK FOR



Lipoma

(Subcutaneous)

+ve data

1. Mobile in 2 directions
2. **2Ps** - Painless
 - Pseudofluctuant
3. **5S** - Soft in consistency
 - Slippery edge
 - Superficial to muscle
 - Surface = **lobulated**
 - Skin over = **dimpling**
4. **No** inguinal L.Ns

Lipoma

(Subfascial)

+ve data

1. Mobile in 2 directions
2. **2Ps** - Painless
 - Pseudofluctuant
3. **5S** - Soft in consistency
 - Slippery edge
 - Superficial to muscle
 - Surface = **smooth**
 - Skin over = **No** dimpling

Lipoma

(Intermuscular) Back

+ve data

1. Mobile in 2 directions
2. **2Ps** - Painless
 - Pseudofluctuant
3. **5S** - Soft in consistency
 - Slippery edge
 - **Deep** to Latissimus dorsi muscle
 - Surface = **smooth**
 - Skin over = **No** dimpling

Sebaceous cyst

+ve data

1. Mobile in 2 directions
2. **Smooth** surface
3. **No punctum** (previous drainage)
4. **Well defined** edge
5. **Superficial** to muscles
6. **+ ve** Fluctuation test (Paget test)

Dermoid cyst

+ve data

1. Mobile in 2 directions
2. **Smooth** surface
3. **Scar** over (traumatic)
4. **Bony depression**
5. **Well defined** edge
6. **Superficial** to muscles
7. **+ ve** Fluctuation test

ORAL DISCUSSION

SWELLING

Questions on sheet



Q1. What are the values of name ?

- ☆ Familiar to patient
- ☆ Religious
- ☆ Stander of life
- ☆ Fillings

Q2. What are hazards of smoking as special habits ?

- ☆ **CVS** → Atherosclerosis & coronary heart disease.
- ☆ **Chest** → Emphysema & bronchial carcinoma.
- ☆ **GIT** → Peptic ulcer.
- ☆ **Cancer** → Cancer (lip, tongue & oesophagus).
- ☆ **Pregnancy** → Maternal e.g. placenta praevia.
→ Fetus e.g. ↑ Risk of mortality.

Q3. What are the DD between radiated pain & referred pain ?

☆ Radiated pain :

Pain felt in 1^{ry} site & reached to another site. supplied by same dermatomal supply.
e.g. Acute cholecystitis (*pain at Rt. hypochondrium & radiated to Rt. shoulder*).

☆ Referred pain :

Pain felt completely in another area supplied by same dermatomal supply.
e.g. Acute pancreatitis (*pain referred to back*).

Q4. How can you ask about varicose vein in sheet ?

عروق بتنفض

Q5. What are the trophic changes of hand ?

- ☆ Skin is dry.
- ☆ Hair is lost.
- ☆ Nail is brittle & fissured.

Q6. What are the DD between haemoptsis & hematemesis ?

	HEMATHEMESIS	HAEMOPTSIS
HISTORY	G.I.T troubles.	Chest troubles.
PRECEDED BY	Vomiting.	Cough.
FOLLOWED BY	Melena.	Blood stained sputum.
THE BLOOD	Dark red, acidic with food particles.	Bright red, alkaline with frothy sputum.

Q7. How can you ask about pathological fracture ?

- Multiple, recurrent, minor trauma → Pathological fractures



N.B Pathological fracture discovered accidentally by x-ray

Questions on examination

Q8. What are the multiple swellings all over the body ?

- | | |
|---|---|
| <ul style="list-style-type: none"> - Lipoma - Sebaceous cyst - Osteoma - 2 ries | <ul style="list-style-type: none"> - A → Hemangioma - V → Varicose veins. - N → Neurofibroma - L → L.Ns |
|---|---|

Q9. Why do you use the dorsum (Not palm) of hand to elicit temp. ?

- Because the palm is sweaty.

Q10. When is a swelling mobile in all directions ?

- Swelling at **skin** or **S.C.** tissue.

Q11. When is a swelling mobile in one direction ?

- Swelling at
- **Muscle** e.g. Desmoid tumor.
 - **Tendon** e.g. Ganglion.
 - **Nerve** e.g. Neurofibroma.
 - **Artery** e.g. Aneurysm.

Q12. When is a swelling Fixed in all directions ?

- Swelling at **Bone** e.g. osteoma of skull.

Q13. What are the swelling showing expansile impulse on cough ? Why ?

- ☆ **Hernia** : Because of (↑ Intra-abdominal Pressure).
- ☆ **Meningocele** : Because of (↑ Cerebro-spinal Pressure).
- ☆ **Pneumatocele** : Because of (↑ Intra-thoracic Pressure).
- ☆ **Laryngocele** : Because of (↑ Intra-laryngeal Pressure).

Q14. Why is Fluctuation must be done in 2 perpendicular plans ?

- Because, fleshy muscle is fluctuant in one direction i.e. across musk fibers

Questions on lipoma

Q15. What is meant by 'Dercum's disease'?

- It is a **Diffuse** type of lipoma

Q16. Why is lipoma characterized by 'slippery edge' ?

- Because, movement of mass **inside its capsule**.

Q17. Why is lipoma considered 'pseudo-fluctuant' ?

- Because, it is **liquid** under body temp. **only**. i.e. pseudo-cyst.

Q18. When is lipoma becoming firm or Hard ?

- ☆ **Firm** : Sub-fascial lipoma
- ☆ **Hard** : Sub-periosteal lipoma.

Q19. Why is lipoma not aspirated ?

- Because, it is a true **fat cells** i.e. never aspirated.

How can you diagnose (lipoma) & (sebaceous cyst) by one sign ?

☆ **Lipoma** : By slippery edge.

☆ **Sebaceous cyst** : By punctum.

Q21. How can you express the size of lipoma ?

1. In c.m

or 2. Common objects e.g. olive, lemon.....

Q22. Can lipoma kill? How ?

☆ **Yes**, at dangerous sites.

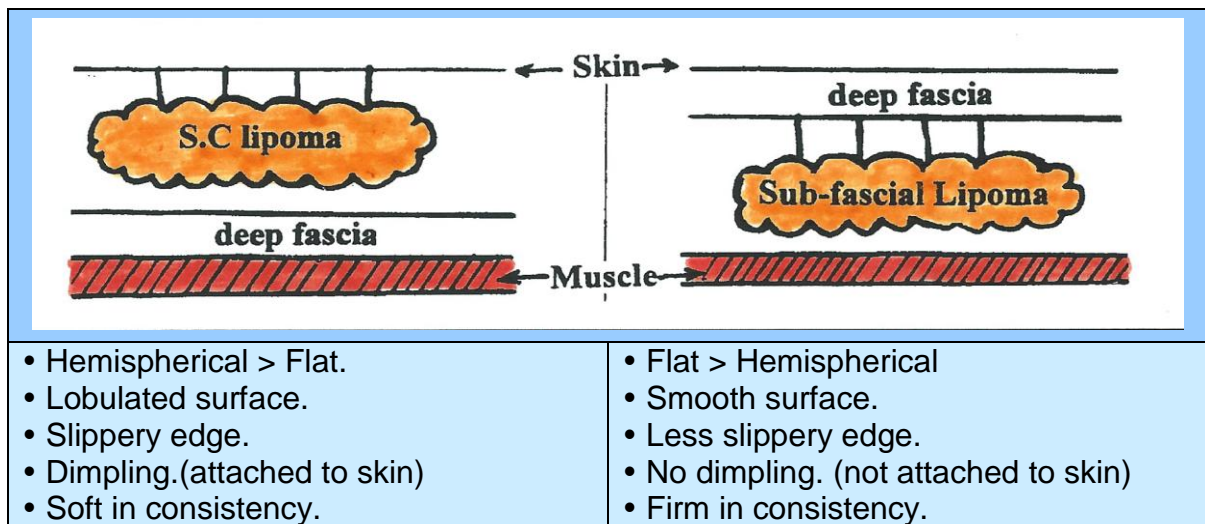
1. **Sub-mucous** → Intestinal obstruction & laryngeal obstruction .

2. **Retroperitoneal** → Liposarcoma.

Q23. Can lipoma lead to urgent abdominal exploration ?

☆ **Yes**, if sub-mucous (Intestinal obstruction)

Q24. What is the difference between S.C lipoma & sub-fascial Lipoma ?



Q25. Which is more large, sub-mucous lipoma of pharynx or subcutaneous lipoma of back ?

☆ Subcutaneous lipoma of the back is much more larger because sub-mucous lipoma intra-oral has earlier presentation.

Good luck

Salivary gland sheet

Chapter 2

SALIVARY GLAND

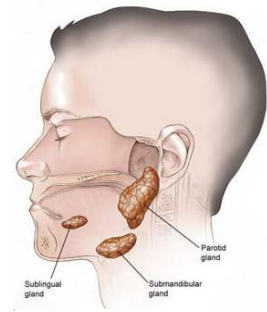
* CAUSES OF PAROTID GLAND ENLARGEMENT

1. Sialadenitis :

- a. **Acute** → Suppurative parotitis.
- b. **Chronic** → Pyogenic parotitis i.e. (oral sepsis).

2. Sjogren's syndrome :

- It is **triad** : 1. Rheumatoid arthritis.
2. Dry eyes (kerato-conjunctivitis sicca)
3. Dry mouth (Xerostomia).



N.B. Mikulicz (autoimmune) disease

It is a clinical variants of **Sjogren's** syndrome, characterized by ➤

- Symmetrical enlargement of all salivary gland
- Narrowing palpebral fissures, i.e. lacrimal gland enlargement

3. Tumors :

EPITHELIAL

- ☆ **Adenoma** ➤ Pleomorphic (mixed).
➤ adenolymphoma
i.e. Adenocystic lymphoma
(Warthin's tumor)
- ☆ **Carcinoma**.

NON EPITHELIAL

- A - Hemangioma.
- L - Lymphangioma.
- N - Neurofibroma.

Q: What the DD Adenolymphoma, lymphadenoma & lymphadenoid ? (See Q: 1)

* HOW CAN YOU REACH DIAGNOSIS

(1) Chronic endemic parotitis :

[Bilateral- soft - not tender - mobile & smooth surface].

D.D Idiopathic hypertrophy of masseter muscles.

- By hard mass on clenching the teeth only.

(2) Pleomorphic parotid adenoma :

[Unilateral - firm-not tender-mobile & lobulated surface].

(3) Adenocystic lymphoma (Warthin's tumor) lymphadenoma :

As pleomorphic except it is cystic.

(4) Carcinoma :

[Unilateral - tender- hard- irregular surface- enlarged & fixed]

- Also** • Fixed to skin, muscle & T-M joint
- Facial n. affection & L.Ns affection.
 - **[L.B.L.B]** manifestations.

I- PAROTID SWELLING SHEET

* PERSONAL HISTORY

1. Name
2. Age
 - Mumps with children.
 - Malignancy with old age.
3. Sex → Malignancy more common with female
4. Occupation
5. Residence For bad hygiene i.e. bad oral hygiene.
6. Marital status
7. Special habits as alcohol i.e. bad oral hygiene.



* COMPLAINT

- * Swelling ± pain

* PERSONAL HISTORY

- I. Analysis of complaint (Swelling ± Pain)
- II. Analysis of **part** affected
- III. Analysis of **other parts** affected

I. Analysis of complaint (Swelling ± Pain)

1. **O.C.D.** • Gradual onset & progressive course = malignancy.
• Remission with exacerbation course = stone

2. PAINS

- ☆ Site
- ☆ Number
- ☆ Investigations & treatment (done before)
- ☆ Associated swelling as (L.Ns metastasis)
- ☆ Pain if associated

Q: What are the causes? (See Q:2)

1. **O.C.D**
2. Site
3. Extent
4. Characters
5. ↑ by
6. ↓ by
7. Associated symptoms

II. Analysis of part affected

- ☞ To exclude **facial palsy** if malignancy.
so **ask about**: [Inability to close the eyes, accumulation of food between gums & cheek and dripping of saliva from angle of mouth].

III. Analysis of other parts affected

- ☞ Toxic manifestations (**F.H.M.A**)
→ To exclude acute sialadenitis or mumps.
- ☞ Malignant manifestation (**L.B.L.B**)
→ To exclude malignancy.

* PAST HISTORY

- * Similar condition
- * History of diseases as DM, hypertension, heart diseaseetc.
- * History of previous operation

* FAMILY HISTORY

- * Similar condition

II- GENERAL EXAMINATION

AIM : Detection of **L.Ns enlargement** & sign of **metastasis**

III- LOCAL EXAMINATION

* INSPECTION N S E D

N — ☆ **Number** (single mass)

8 S — ☆ **Site** at parotid region which present between ramus of mandible & ant. border of sternomastoid.

For surface anatomy (See Q: 3)

— ☆ **Side** → Rt. or Lt. or bilateral

— ☆ **Shape** → (Oval, rounded or irregular) then look behind

- If **localized** → Not raised the lobule of ear
- If **diffused** → Raise the lobule of ear
i.e. **sulcus** will be seen.

— ☆ **Size** → in (cm×cm)

— ☆ **Surface** → **Smooth** : Chronic Parotitis.

→ **Lobulated** : Pleomorphic or adenocystic lymphoma.

→ **Irregular** : Carcinoma of the parotid.

— ☆ **Skin over** → for redness or fistula

— ☆ **Special sign** [Inspect the orifice of parotid duct & tonsil].

(1) Inspect the orifice of parotid duct :

- Inside the cheek opposite the 2nd upper molar tooth.
- Using torch to show hyperemia.
- Do genital pressure from outside if purulent discharge → acute parotitis.

(2) Inspect the tonsil :

If pushed medially = Enlarged deep part of the gland .

— ☆ **Other swellings** look for ➤

1. **Opposite parotid gland**

2. **Submandibular gland :**

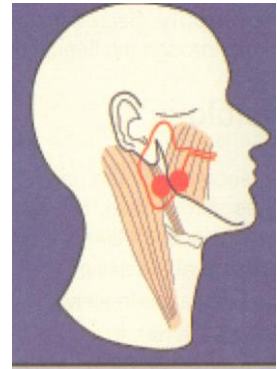
At submandibular triangle & it's ducts which open in the floor of the mouth on either side of the frenulum of the tongue.

3. **Lacrimal gland** : (Narrow palpebral fissure)

May be enlarged with (**Sjogren's syndrome**) i.e. **Mikulicz disease**.

E — ☆ **Edge** : • **Well defined** : Inflammatory or benign lesion

• **Ill defined** : Malignant lesion.



3 D ① Deep structure :

[1] **Muscles** : • For masseter : (ask pt. to clench his teeth).

- For sternomastoid : (Ask pt. to turn his face to the opposite side against resistance).

Result : ☆ If **more** prominent :

Superficial (Inflammatory or Benign lesion).

☆ If **less** prominent :

Infiltrate the muscle (Malignancy).

[2] **T.M joint**: If *T..M Joint* restricted this means infiltration by malignancy

② Distal effect : For (**Facial palsy**) so examine facial nerve.

➤ **MOTOR : Examine muscle of expression of the face :**

- Ask pt. to raise his eyebrows i.e. **Frontalis muscle**.
- Ask pt. to close his eyelids i.e. **Orbicularis oculi**.
- Ask pt. to blow his cheek i.e. **Buccinator muscle**.
- Ask pt. to show his teeth i.e. **Retractor anguli oris muscle**.
- Ask pt. to whistle i.e. **Orbicularis oris muscle**.

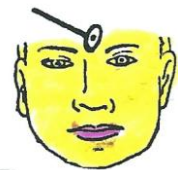
➤ **SENSORY : Examine taste sensation of ant. 2/3 of the tongue :**

☆ **For innervations of the tongue (See Q: 4)**

- By applying drop of sweet, bitter or salty on it's tip.
- **Don't forget:** (1) Dry tongue. (2) No speaking.

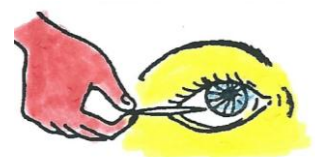
➤ **DEEP REFLEX : [Glabellar reflex] (C7 - C7)**

- While pt.'s eye passively closed, tap the glabella with a hammer.
- Normally : There is bilateral contraction of orbicularis oculi.



➤ **SUPERFICIAL REFLEX : [Corneo - conjunctival reflex] (C5-C7).**

- While pt. looking upwards & inwards (*why?*) ↗ to avoid photic stimulation.
- Touch the corneo -conjunctival junction using piece of cotton.
- **Normally:** Stimulation of one eye result blinking of both eyes.
- **Absent at one side:** denotes facial paralysis at same side [Pt. feel the piece of cotton].
- **Absent at both sides** : denotes :
 - a. Bilateral facial paralysis.
 - b. Ophthalmic affection.



Q: How to differentiate (a) From (b) ? (See Q: 5)

③ Draining LNs Look for enlarged upper or lower deep cervical L.Ns for infection (firm & tender) or malignancy (hard).

* PALPATION TMSEC D

2T — ☆ **Temp** Warm if 2^{ry} infection

☆ **Tenderness** Tender if malignancy.

M — ☆ **Mobility** : Examine in both directions :

- **Mobile** : Inflammatory or benign lesion.
- **Fixed** : Malignancy.

8S — ☆ **Site, Side, Shape, Size, Surface** → [see inspection]

☆ **Skin over** Pinching (not done) or sliding the skin to show whether the parotid attached to skin or not.

☆ **Special sign** Palpate parotid duct (**Stenson's duct**)

N.B. Proximal 2/3 of duct : Not felt.

Distal 1/3 of duct : Felt so examine for stone from (outside) or purulent discharge from (inside).

☆ **Other Swellings** : Palpate other parotid, submandibular region & lacrimal gland.

Q : What is the anatomical site of lacrimal gland ? (See Q: 6)

E — **Edge** • **Well defined** : Inflammatory or benign lesion.

• **Ill defined** : Malignant lesion.

C — **Consistency**:

1. **Soft** = Chronic endemic parotitis.
2. **Firm** = Pleomorphic adenoma.
3. **Cystic** = Adenocystic lymphoma.
4. **Hard** = Carcinoma of parotid.

3 D ① **Deep structure** :

➡ **Muscle** : Examine mobility before & after contraction of masseter & sternomastoid muscles.

➡ **Bone** : If parotid mass fixed before contraction.

➡ **Joint** : If thickening & restriction of T-M. joint.

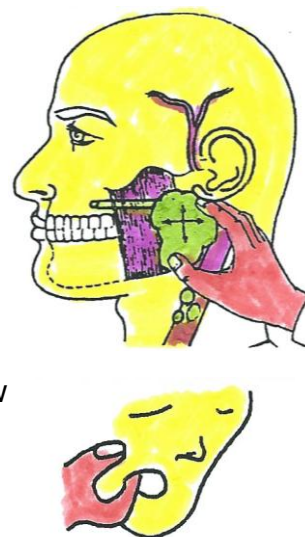
② **Distal effect**:

N ➡ **Facial Nerve** : for **Facial palsy** [see inspection]

A ➡ **Superficial Temporal Artery** :

For pulsation because malignant parotid compress E.C.A.

③ **Draining L.Ns** Palpate upper & lower deep cervical L.Ns **See chapter (13)**



* SPECIAL TEST [Lemon test]

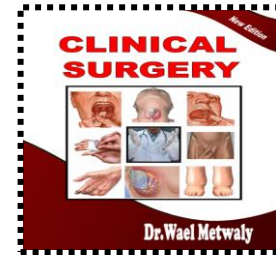
Ask pt. to suck a piece of **lemon** there is may show ↗

① **IF obstruction of duct** : Enlarged & more painful gland .

② **IF salivary fistula** : Discharges of saliva from opening at skin.

③ **Frey's syndrome** : The skin over the temporal region may become flushed with beads of sweats

OSCE EXAM



* **WE MUST TO LOOK FOR**

Bil. Chronic parotitis

+ve data

1. Bil. Swellings Lt. > Rt.
2. Elevated lobules of ears
3. Mobile in 2 directions
4. Soft in consistency
5. Smooth surface
6. Well defined edge
7. Superficial to muscles

Lt. Pelomorphic adenoma of parotid

+ve data

1. Lt. parotid swelling.
2. **Rt. Scar** of previous operation (1ry intension)
2. Elevated lobule of Lt. ear
3. Mobile in 2 directions
4. **Firm** in consistency
5. **Lobulated** surface
6. Well defined edge
7. Superficial to muscles

ORAL DISCUSSION

SALIVARY GLAND

QUESTIONS ON INTRODUCTION



Q1: What are the DD between adenolymphoma, lymphadenoma & lymphadenoid ?

- **Adenolymphoma** = Adenocystic lymphoma (Warthin's tumor) of salivary gland.
- **Lymphadenoma** = Hodgkin's disease.
- **Lymphadenoid** = 2^{ry} T.B.

Q2: What are the causes of painful parotid gland ?

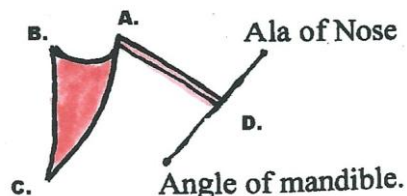
- Malignancy.
- Mumps.
- Autoimmune.
- Sialadenitis.
- Stone of duct.
- Sialectasia.

QUESTIONS ON EXAMINATION

Q3: What is the surface anatomy of parotid gland & duct ?

- **The gland (by 3 points):**

- A • Point on tragus.
- B • Point on mastoid process.
- C • Point on (one inch below & behind angle of the mandible).



- **The duct (Middle 1/3 of a line between)**

- A • Tragus.
- D • Mid-point between ala of nose & angle of mouth

Q4: What is innervation of tongue ?

- **Motor** : Cr I2 (hypoglossal n.).
- **Sensory**
 - Post 1/3 → Cr9 (Glosso-pharyngeal n.).
 - Ant. 2/3 → Cr5 (Trigeminal n.).
 - Cr7 (Facial n.).



Q5: How to DD between bilateral facial paralysis & sensory ophthalmic affection ?

- Bilateral facial affection → حاسس
- Sensory ophthalmic affection → غير حاسس

Q6: What is the anatomical site of lacrimal gland ?

- At upper lateral part of roof of orbit i.e. lacrimal fossa

Good luck

Ulcer sheet

Chapter 3

ULCER SHEET

* PERSONAL HISTORY

1. Name
2. Age
3. Sex
4. Occupation
5. Residence
6. Marital status
7. Special habits of medical importance

* COMPLAINT " Sore at....."



* PERSONAL HISTORY

A → O.C.D

B → Analysis of Complaint:

1. Site: (V. imp for Diagnosis)

3. Pain : (If Inflammatory or Infected)

5. Complication: (as talipes equinus)

7. Investigations

2. Number

4. Discharge

6. Associated swellings

8. Treatment

C → Aetiology

☆ **Congenital** → (Hemolytic anemia) rare

☆ **Traumatic** → (Bed sore or trauma)
i.e. history of trauma

☆ **Inflammatory** → T.B Ulcer (Night sweat & fever + loss of weight & appetite)
→ \$ Ulcer (skin rashes + F H M A)

☆ **Neoplastic** → (Marjolin ulcer)
i.e. **Metastasis** as **L B L B** (Page 2)

A ☆ **Arterial** → Ischemic ulcer.
(i.e. history of claudication pain)

B ☆ **Venous** → Venous ulcer.
(i.e. history of associated V.V)

L ☆ **Lymphatic** → Lymphoma.
(i.e. history of multiple swellings all over the body)

N ☆ **Nervous** → Neurotrophic ulcer as diabetic neuritis.
(i.e. history of numbness or sensory loss)

* **PAST HISTORY** of medical important disease e.g. "D.M"

* **FAMILY HISTORY**

I- GENERAL EXAMINATION

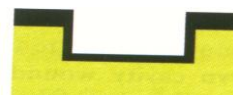
Depends on the cause of ulcer
e.g. Hemolytic ulcer with (splenomegaly)

II- LOCAL EXAMINATION

(Ulcer = Discontinuity of skin or mucous membrane)

* INSPECTION

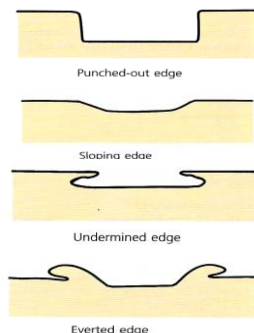
- ☆ **Number** Usually single
- ☆ **Site** Usually diagnostic
"See later"
- ☆ **Shape** Oval, Rounded or Irregular
- ☆ **Size** In (cm×cm)



Edge.
Margin.
Floor
Discharge.
base

- ☆ **Edge** "It is the junction between row area & intact epithelium"

It may be:



- **Punched out** = \$, trauma,etc.
- **Sloping** = Healing ulcer.
- **Undermined** = T.B **Why (See Q: 1)**
- **Raised & Everted** = Malignant ulcer

- ☆ **Margin** " It is the region between the edge & normal epithelium"

It may be:

- **Red** → as Inflammatory ulcer
- **Blue** → as in T.B ulcer (See Q: 2)
- **Brownish** → as Varicose ulcer (See Q: 3)
- **Black** → as Melanoma.

May be also:

- **Oedema & varicosities** → as Venous ulcer.
- **Dilated capillaries** → as Rodent ulcer.
- **Pigments** → as trauma
- **Rashes** → as \$

- ☆ **Floor** "It is the visible area surrounded by the edge"

- **Contain:** granulation tissue, crust, necrotic or casseous material.

Q. What is the granulation tissue formed of ? (See Q: 4)

Then comment on , healthy & unhealthy granulation tissues:

- **Healthy** → Painless, pink, not ooze or bleed easily.
- **Unhealthy** → Painful, yellow, ooze or bleed easily.

- ☆ **Discharge:** "Type (blood, purulent or necrotic), amount, odour"

- **Clinically** : inspected at daily dressers

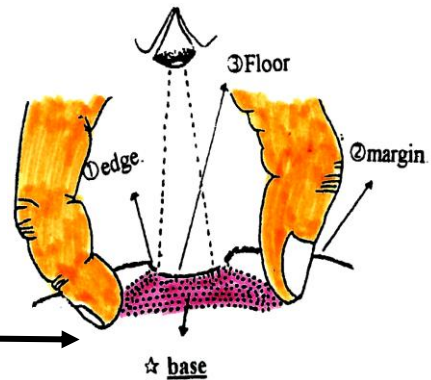
* PALPATION

1. **Temp**
2. **Tenderness** (See Q:5)
3. **Skin around** "soft or hard"
e.g. post-phlebotic limb.

4. **Base:** _____

" It is the zone in which ulcer situated "

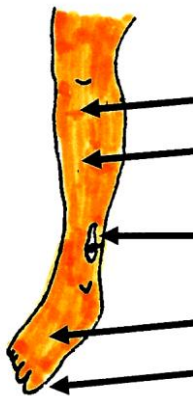
- Soft or hard (indurated)
- Fixed or not



- N.B.:**
1. Indurated **at margin** = Inflammatory or benign ulcer.
 2. Indurated **beyond the margin** = Malignancy.
 3. Indurated **not beyond the margin** = locally malignant.

- A** 5. **Arterial pulsation** : as dorsalis pedis artery
- V** 6. **Venous Oedema**
- L** 7. **Lymph nodes** at the region : firm or hard (See Q: 6)
- N** 8. **Nervous cause** : examine the sensation.

N.B: The site is diagnostic

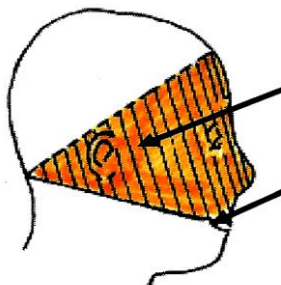


I. Ulcers of leg & foot

- Metaphysis of bone = T.B
- Middle 2/4 of tibia = Trauma , \$ or hemolytic ulcer.
- V** • Gaiter area = Venous ulcer.
- L** • Dorsum of foot = Lymphadema.
- A** • Toes & Foot = Ischemic ulcer.
- N** • Sole = Neuropathic ulcer.

II. Ulcers of head

1. **basal cell carcinoma**: at area above (line between angle of mouth & lobule of ear) & below (hair line)
2. **Epithelioma** : at lower lip.



EXAMINATION OF

VENOUS ULCER



★ Inspection

☆ Number

☆ Site

☆ Shape

☆ Size

☆ Edge

☆ Margin

☆ Floor

☆ Discharge

- Usually single
- **Leg** (ulcer bearing area)
- Rounded or oval
- Variable (in cm)

• Sloping edge or punched out

- Brownish pigment
- Unhealthy granulation tissue
- Pus (purulent discharge)

★ Palpation

1. Temp

2. Tenderness

3. skin around

4. Base

- At Body Temp.
- **Not** except if infected
- Thick, brown & varicosities
- Tender & hard

A 5. Artery

V 6. vein

L 7. L.Ns

N 8. Nervous

- **Normal** pulsation
- **Oedema**
 - IF 1^{ry} V.V → Pitting
 - IF 2^{ry} V.V → Non pitting
- **Not** enlarged except if infected
- Intact sensation

* INVESTIGATIONS

☆ **Lab.** (blood, urine, stool)

☆ **Aspiration Biopsy Cytology**
(A.B.C)

☆ **Biopsy** (must include the edge)

☆ **Specific** as x-ray exclude periosteitis

* TREATMENT

A. Conservative treatment :

as (V.V) , Daily dressing.
& systemic A.B if infected.

B. Surgical treatment :

1. **Covering ulcer by**
Skin graft is done after
subfascial legation in big
ulcers to accelerate healing.

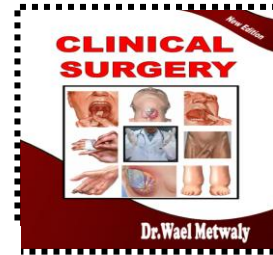
2. Sub-fascial legation of perforators (Cockett) operation

- **By passing** from muscles
to penetrate deep fascia
through postero-medial
incision behind the tibia.
- **Complicated by** ugly scar
& high rate of recurrence

3. Treatment of complications

- **Malignancy :**
excision with safety margin
1 cm & block dissection of
L.Ns.
- **Periosteitis :**
Saucerization
- **Talipes Equinus :**
Physiotherapy

OSCE EXAM



* WE MUST TO LOOK FOR

Venous ulcers

+ve data

1. Ulcers **above** medial malleolus
2. **Non** pitting odema (2ry V.V)
3. Characters :
 - Punched out edge - Brownish margin
 - Unhealthy G.T- Purulent discharge
 - Warm Tender - Indurated skin around - Indurated base at margin
 - & Not fixed to bone
4. Associated Lt. 2ry V.V
5. Lt. **+ve** inguinal L.Ns

ORAL
DISCUSSION

ULCER

ORAL QUESTIONS



Q1. Why is the edge of T.B ulcer being undermined ?

- Because destruction of S.C tissue → skin destruction

Q2. Why is the margin of T.B ulcer being cyanotic ?

- Because of ischemic margin.

Q3. Why is the margin of venous ulcer being brownish ?

- Because of extra-vasation of blood → hemolysis → brownish hemosidren

Q4. What are the granulation tissues formed of ?

- Dilated capillaries & fibroblasts.

Q5. What are the causes of painful ulcer ?

- Inflamed
- Infected
- Late malignant.
- Ischemic ulcer
- Post-phlebotic ulcer.

Q6. What are the characters of infected & malignant L.Ns ?

- Infected L.Ns : Firm & tender.
- Malignant L.Ns : Hard. & not tender

Good luck

Thyroid gland sheet

Chapter 4

THYROID GLAND

I- SHEET

* PERSONAL HISTORY

1. Name

2. Age

1. **Toxic goitre** → 1^{ry} between (20 - 40 years)
→ 2^{ry} between (40 - 50 years)

2. **Malignancy** above (50 years)

3. **Nodular goitre** (SNG) → at **any** age.

3. Sex

Simple goitre more common in female.

Malignancy more common in male.

4. **Residence** for (endemic area) as Wadi el-Natroun.

5. **Occupation** for (exposure to radiation) i.e. malignancy.

6. **Marital status** for (infertility or impotence) i.e. toxic goitre.

7. **Menstrual history** for (disturbance) i.e. toxic goitre.

8. **Special habits of medical importance.**

* COMPLAINT Neck swelling

* PRESENT HISTORY

I. Analysis of **complaint**

II. Analysis of symptoms related to **part** affected

III. Analysis of symptoms related to **other parts** affected

I. Analysis of complaint (Swelling ± pain)

1. **O.C.D** (Onset - Course - Duration)

2. PAINS

☆ **Site**

☆ **Number**

☆ **Investigations & treatment.**

☆ **Associated swelling** as (L.Ns metastasis)

☆ **Pain** " If present"

1. O.C.D

2. Site

3. Extent

4. Characters

5. ↑ by

6. ↓ by

7 Referred or not (See Q: 1)

II. Analysis of symptoms related to **part** affected

☆ **Trachea:** → Dyspnea

☆ **Esophagus:** → Dysphagia but (rare) **why** (See Q: 2)

☆ **Sympathetic chain** (**Horner's** syndrome) = (Ptosis, myosis, enophthalmos, anhidrosis)

Q. Causes of Horner's syndrome? (See Q: 3)

V ☆ **Internal jugular vein** → Oedema of eye lid

A ☆ **Carotid artery** → Postural fainting

N ☆ **Recurrent laryngeal nerve** ① Hoarseness of voice if **unilateral** affection

② Stridor if **bilateral** affection.

III. Analysis of symptoms related to other parts affected



I. Toxic manifestations

- ☆ **Metabolic**
 - Loss of weight inspite of good appetite
(Other causes) (See Q: 4)
 - Intolerance to heat.
 - Excessive sweating.
- ☆ **C.V.S** → Palpitation even (at rest)..
- ☆ **Chest** → Dyspnea
- ☆ **C.N.S**
 - Tremors of tongue & hand
 - Irritability & insomnia.
 - Weakness of proximal limb muscle.
- ☆ **G.I.T** → Polyphagia ± diarrhea
- ☆ **Urinary** → Polyuria
Q: causes of polyuria in this case (See Q: 5)
- ☆ **Skeletal** → Generalized bone ach.
- ☆ **General** → Diplopia of eye.
- ☆ **Gonadal**
 - Impotence in male
 - Menstrual disturbance in female.

II. Malignant manifestations

- ☆ **Rapid** increase in size with **short** duration.
- ☆ **Pain** is related to swelling or referred to ear
Q : Why referred to ear? (See Q: 6)
- ☆ **Metastasis** as LBLB (Page 2)
- ☆ **Symptoms of infiltration** (see pressure symptoms)

* PAST HISTORY

- ★ Similar condition
- ★ Diseases as DM, hypertension, heart diseaseetc.
- ★ History of drug allergy or goiterogenic drugs as (Thiouracil) neomercazole
- ★ History of neck irradiation to exclude risk of malignancy.
- ★ History of neck operation as thyroidectomy or L.N biopsy. (See Q: 7)

* FAMILY HISTORY

- ★ Similar condition as in endemic goitre
- ★ Cancer thyroid as medullary carcinoma
- ★ (Congenital) **Pendred's** syndrome (for clinical picture) (See Q: 8)

EXAMPLE OF

THYROID SHEET

* PERSONAL HISTORY

.....male patient, 48 years old from Giza, He is shoemaker, married since 28 years, has 4 children, the youngest is 14 years old, He is heavy smoker 20 cigarettes per day for 30 years, no other special habits of medical importance.

* COMPLAINT

Diplopia associated with mass at lower part of neck 1 year ago.

* PRESENT HISTORY

- The condition is started 1 years ago (with single swelling at muscular triangle) by gradual onset & slowly progressive course.
- The swelling is not painful & not associated with neck swellings at anatomical site of L.Ns.
- **There are no pressure symptoms as :**
 - Dyspnea, dysphagia, postural fainting, oedema of upper eye lid or hoarseness of voice.
- **There are toxic symptoms as :**
 - Diplopia (exophthalmos), loss of weight inspite of good appetite, intolerance to heat. excessive sweating, palpitation, dyspnea, insomnia & irritability
- **There are no metastatic symptoms as :**
 - Chest pain, cough, haemoptsis, pain in Rt. hypochondrium, jaundice, bone ache, pathological fracture, headache or vomiting.
- The patient was admitted to Kasr El Ani hospital & had investigations in form of blood analysis and he was told that the hormonal level is high & received medical treatment in form of **Indral** (40 mg t. d. s) & **Neomercazole** & continues till now.

* PAST HISTORY

No past history about recurrence, no DM, No hypertension, no T.B, No bilharzias, no drug allergy, no previous operations or biopsy or neck irradiation.

* FAMILY HISTORY

No family history of similar condition (irrelevant).



Mass at muscular triangle most probably
[1^{ry} toxic goiter]

II- GENERAL EXAMINATION

A. **VITAL SIGNS** For normal "see page 2"

1. Temp. ↑ With toxic goitre.
2. Pulse rate (**Full comment on radial pulse**) with Toxic goitre
it is "Tachycardia, irregular, large volume, equal on both side & water hammer pulse as special characters."



Q: Sleeping pulse means.....


Q: Vital sign may be stable because, the patient is

Q: The pulse may be unequal as in.....

Q: What are other causes of water hammer pulse? (See Q: 9-12)

3. A.B.P "High systole & low diastole"
4. R.R may be increased

B. **GENERAL EXAMINATION** (A.B.C.D.E.F) then comment "see page 2"

A = Appearance	→ Ill with cachexia as in malignancy. (See Q: 13)
B = Built	→ Under built as in hyperthyroidism or malignancy
C = Conscious	→ Conscious but apathy as in hypothyroidism
D = Decubitus	→ Orthopnea as in HF 
E = Emotion	→ " Irritable & alert " as in toxic goitre
F = Face	→ " Staring look" as in toxic goitre.

C. **SYSTEMIC EXAMINATION**

I. HEAD

1. **Skull** for swellings as (bone metastasis). (See Q: 14)
2. **Lip** for pallor & cyanosis as (huge retro-sternal goitre)
3. **Mouth** for ectopic thyroid i.e. lingual thyroid
4. **Tongue** for tremors. **N.B: Tongue must be unsupported**

5. **Eye** for {
 - pallor & jaundice as (liver metastasis)
 - Tremors in upper eye lid.
 - Eye sign (see later) Exophthalmos**



Q: Exophthalmos means.....

Q: Cause of Exophthalmos is.....

Q: What are the causes of unilateral Exophthalmos?

Q: What are the causes of pulsating Exophthalmos?

Q: What is DD between True or Apparent? (See Q: 15-19)

★ How to examine exophthalmos



1. To show true or false

- (واقف خلف المريض) 1. **Naffziger test** to see the level of supra & infra orbital ridge with cornea
- (واقف بجانب المريض) 2. **Frazer's test** to see the obliteration of sulcus of orbital margin with slight closed eye.
- (واقف بجانب المريض) 3. **Ruler test** to see the level of supra & infra orbital margin with cornea by a Ruler.

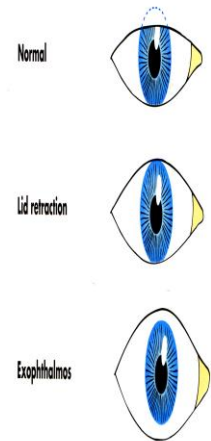
2. To determine the degree

1. Exophthalmometer

2. **Ruler** to measure distance between lateral orbital & apex of cornea (Normally = 15-17mm)

★ How to examine eye sign

1. **Stellwag's sign** : Staring look or infrequent blinking (Normally = 5 - 8 times/min)
2. **Von Graefe's sign** : Upper eye lid lags behind when moving the eye downwards
3. **Dalrymple's sign** : A rim of sclera is seen above the cornea when moving the eye downwards
4. **Joffroy's sign** : Loss of wrinkling of the forehead when moving the eye upwards.
5. **Mobius sign** : Lack of convergence on looking to near object.



II. NECK (See local examination)

- III. **UPPER LIMB** : For 1. **Tremors** of hand i.e. fine
For **DD from Flapping Tremors** (See Q: 20)
2. **Pulse**
 3. **Warm hand** if Thyrotoxicosis.



N.B. If cold = psychoneurosis

- IV. **LOWER LIMB** : For **V (Vein)** → **Oedema** : pitting if HF.
→ **Pre-tibial myxedema** (see Q:21)

A (Artery) for dorsalis pedis pulsation.
N (Nerve) hyper-reflexia.



- V. **CHEST** : For 1. Metastasis to chest wall.
2. Mediastinal syndrome (See Q: 22)

- VI. **ABDOMEN** : For 1. Liver enlargement (See causes Q: 23)
2. Spleen enlargement (See causes Q: 24)

VII. DON'T FORGET BACK for metastasis

III- LOCAL EXAMINATION

⇒ PROPER POSITION

Patient is sitting down & neck is fully extended

N.B Pizzillo's method:

If pt. obese with short neck. Ask him to put his hand behind his neck.

⇒ PROPER EXPOSURE

Whole head & neck up to supra-clavicular fossa.

* INSPECTION N S E D

INSPECTION with EXTENDED NECK

N — ☆ **Number** : Single swelling

6 S — ☆ **Site** : Lower part of front of neck
i.e. muscular triangle (*Q : What is it ?*) (See Q: 25)

☆ **Shape** → If **diffuse** (U shaped or butterfly)
→ If **localized** (irregular or oval)

☆ **Size** : Variable in (cm× cm)

☆ **Surface** → **Smooth** If 1^{ry} toxic goitre or physiological goitre or colloid goitre
→ **Nodular** If → 2^{ry} toxic goitre.
→ SNG.
→ **Irregular** If malignancy

☆ **Skin over** → **Dilated veins** If Retro-sternal goitre.
→ **Scars** If Previous Thyroidectomy or Biopsy
→ **Redness** If Inflammation.
→ **Infiltration** If Malignancy.

☆ **Special sign** → 1. **Pulsation** : may be →
• **Expansile** at The upper pole as in 1^{ry} toxic goitre.
• **Transmitted** If over carotid artery.
→ 2. **Move up & down with deglutition** as goitre (See Q: 26-29)
Q : Why Move up & down with deglutition?
Q: When unable to move up &down with deglutition?
Q: Which Swelling moves up with protrusion of Tongue?
Q: What other swellings move up & down with deglutition?



E — ☆ **Edge** : (Better seen with deglutition) well defined or not.

• We comment on lower pole seen or not to exclude retro-sternal extension.

3 D — ① **Deep structure** :

• By lowering head against resistance then look to the size.
→ If **smaller** → Deep to muscle.
→ If **same size** → Infiltrate the muscle i.e. malignancy.

② **Draining L.Ns** "For metastasis" See chapter (13)

③ **Distal Effect** : (Only) if +ve R.S.E

ask patient to raise up arms & keep this position for a while → congestion of face due to obstruction of great veins & trachea at thoracic inlet



* PALPATION

- Palpation of thyroid gland from **behind**

TMSEC D

- 3 T**
- ☆ **Temp.** : Warm as in toxic goitre.
 - ☆ **Tenderness** : Tender as in malignancy.
 - ☆ **Thrill** : At upper part as in toxic goitre.

- M** — ☆ **Mobility** :
- (grasp whole swelling to show mobility in 2 directions)
1. Side to side on trachea. (**Rocking**)
 - Then 2. Up & down with deglutition

- 6 S**
- ☆ **Site, Shape, Size, Surface** [as inspection]
 - ☆ **Skin over** : (attached to skin not) by :
 1. **Pinching skin** from swelling.
 2. **Sliding the skin** over the swelling.
 3. **Push swelling** under skin :If puckering = infiltrated skin. i.e. malignancy.
 - ☆ **Special sign** [as inspection]

- E** — ☆ **Edge** Well defined or ill defined

- C** — ☆ **Consistency** : may be ↗
1. **Hard** as in malignancy or calcified SNG. (See Q: 30)
 2. **Firm** as in ^{2ry} toxic goitre or SNG.
 3. **Soft** in 1^{ry} toxic goitre or physiological goitre or colloid goitre

- 3 D**
- ① **Deep structure** :
 1. **Muscle** : (**Sternomastoid**) by pinching the muscle from swelling.
 2. **Carotid vessels** (common carotid pulsation)

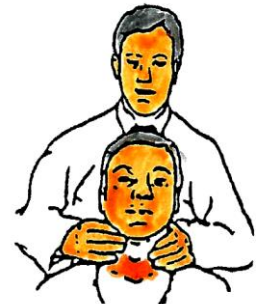
Q: What is the normal anatomical site of carotid artery ? (See Q: 31)

May be → a. **Displaced** carotid pulsation as in benign lesions

→ b. **Absent** carotid pulsation (i.e. **Berry's sign**) as in malignancy.
 3. **Trachea** : central or not.
 - ② **Draining L.Ns** upper & lower deep cervical L.Ns See chapter (13)

Q: what is the 1st. LN felt clinically in malignancy ? (See Q: 32)
 - ③ **Distal effect** :
 - ★ Slight compression on lateral lobes produce stridor .It means tracheomalacia
 - Q: What is the value? (See Q:33)**

PALPATION with FLEXED NECK



* PERCUSSION

- **Direct percussion** on manubrium sterni is normally **resonant**.
- If **dull** = Retro-sternal goitre.
- Q: What are other causes? (See Q:33)**

* AUSCULTATION

- A **Systolic Murmur** may be heard over upper pole
i.e. Thyroid bruit as in 1^{ry} toxic goitre

DIAGNOSIS

★ During exam. We suspect the following clinical cases

1. Toxic goitre (1^{ry} or 2^{ry})
2. Malignancy.
3. Simple nodular goitre (SNG)



★ So for diagnosis we must to exclude

1. Manifestation of toxicity

For D.D between 1^{ry} and 2^{ry}

1^{ry} Toxic



- **Grave's (Basedow's) disease**
- Symmetrical
- **Soft & Smooth**
- Young (20 - 40 years)
- The mass at **same** time of toxicity
- Eye sign.

2^{ry} Toxic



- **Plummer's disease**
- Asymmetrical.
- Firm & nodular.
- Middle (40 - 50years)
- The mass **before** time of toxicity
- **No eye sign.** (extreme rare)

2. Manifestation of malignancy

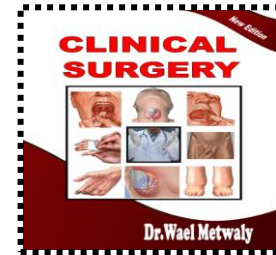
1. Swelling is "**THIEF**" (**T**ender, **H**ard, **I**rregular, **E**nlarged & **F**ixed)
2. "**Berry's sign**" (Absent carotid pulsation)
3. **L.Ns** (Enlarged, hard, 1st mobile then fixed)

3. By Exclusion of 1 & 2

The case is **SNG**

Q: What are it's complications? (See Q: 35)

OSCE EXAM



* WE MUST TO LOOK FOR

1ry Toxic goiter

+ve data

1. Mobile in 2 directions & up & down with deglutition
2. - **Soft** in consistency
- **Smooth** surface
- Well defined edge
3. **Regular** pulse.
4. + ve Eye signs
5. Tremors of Tongue, hand & upper eye lid

Recurrent Toxic goiter

(Controlled)

+ve data

1. Scar of previous thyroidectomy
(1ry intension)
2. Neck mass
3. **Regular** pulse.
4. + ve Eye signs (V. important)
5. Tremors of Tongue, hands & eye lids

Simple goiter

(Dominant mass)

+ve data

1. Mobile in 2 directions & up & down with deglutition
2. **Firm** in consistency.
3. **Nodular** surface.
4. **Dominant** mass at Lt. side.
5. **Small** mass at Rt. side.
6. Trachea is shifted to Rt. side

Simple goiter

(Multinodular)

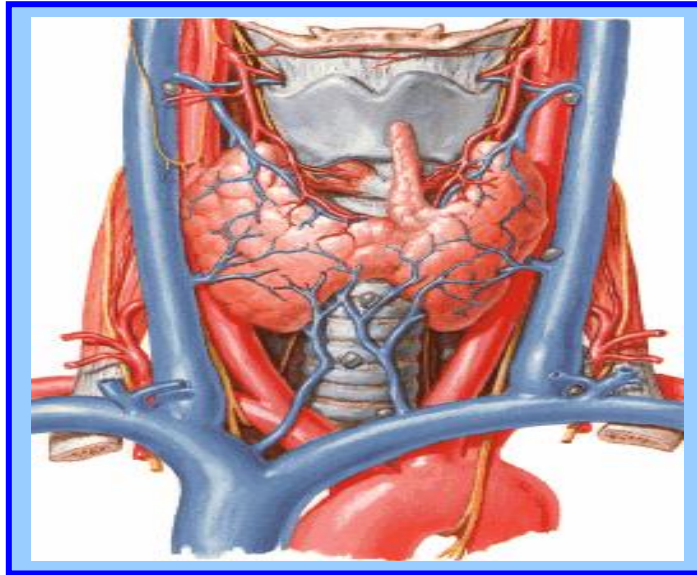
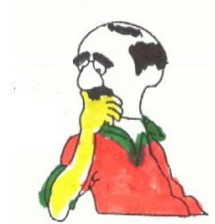
+ve data

1. Mobile in 2 directions & up & down with deglutition
2. **Firm** in consistency.
3. **Nodular** surface.
4. **Asymmetrical**
5. **Trachea is shifted to the Lt. side**
But difficult to be felt (Huge)
6. **Displaced Rt. carotid pulsation**
Behined sternomastoid
7. **Tracheomalacia**
= +ve Kocher test

ORAL DISCUSSION

GOITRE

QUESTIONS OF ANATOMY



Q: Which artery related to upper pole of thyroid gland ?

☆ Superior thyroid artery from external carotid artery.

Q: Which artery related to lower pole of thyroid gland ?

☆ Inferior thyroid artery from thyro-cervical trunk

Q: Which nerves related to thyroid gland?

At Upper pole	At Lower pole
External laryngeal nerve	Recurrent laryngeal nerve
From Superior laryngeal nerve from Vagus	From Vagus [the course is changed from Rt. & Lt]
So during Thyroidectomy we legate vessels near their upper end to avoid its injury.	So during Thyroidectomy we legate vessels far as possible from lower end to avoid its injury

Q: Is Rt. recurrent laryngeal nerve with same anatomy of Lt one ?

No • Rt. recurrent laryngeal n. hooks around Rt. subclavian artery.
• Lt recurrent laryngeal n hooks around arch of the aorta.

Q: What is the incidence of non recurrence of RLN ?

☆ The incidence **0.6 %** & usually on the Rt. side.

Q: What are the contents of carotid sheath ?

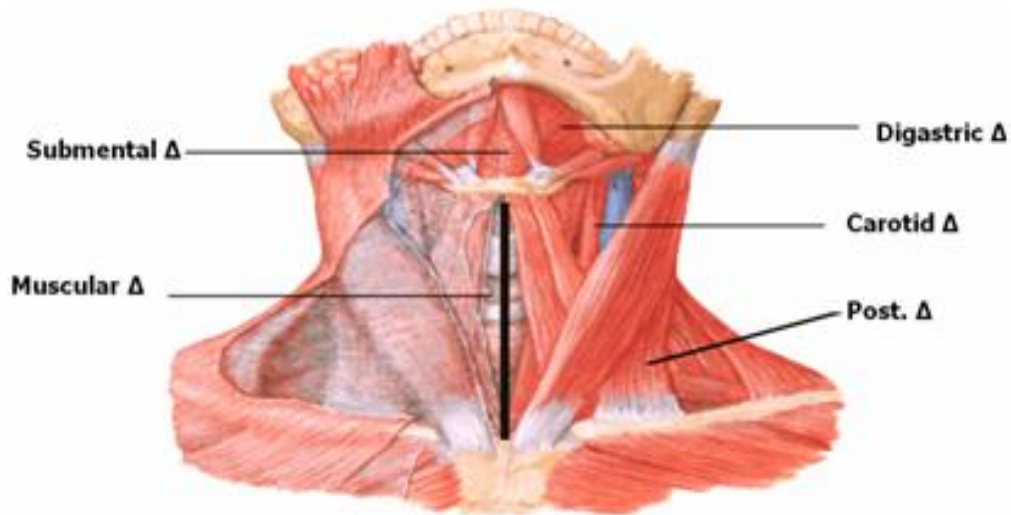
• **Upper level :** N = Vagus V = IJV A = I.C.A.
• **Lower level :** N = Vagus V = IJV A = C.C.A.

Q: What is the anatomical site of an isthmus ?

☆ At tracheal rings 2,3

TRIANGLES of The NECK

Anterior Triangles



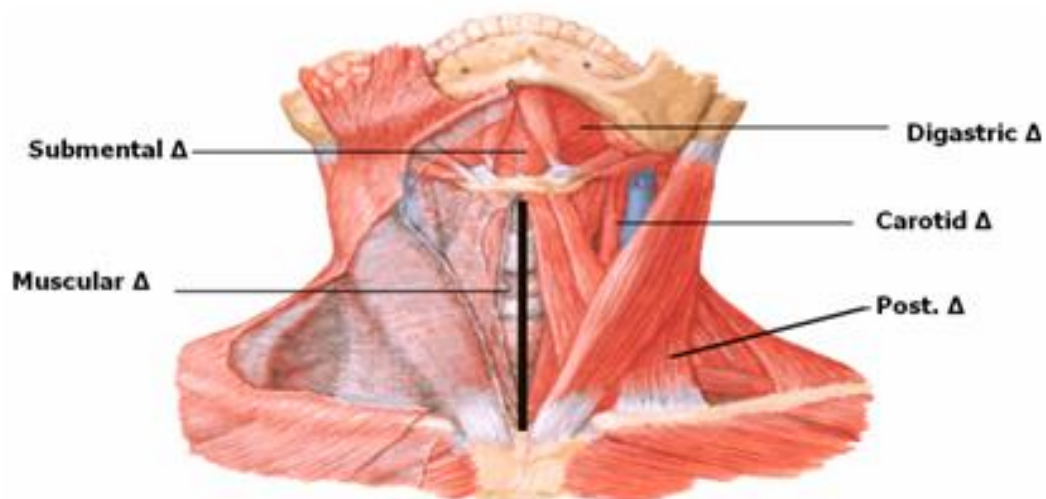
BOUNDARIES

Anteriorly : Midline of the neck.

Base : lower border of mandible.

Posteriorly : anterior border of sternomastoid muscle.

Posterior Triangles



BOUNDARIES

Anteriorly : Posterior border of sternomastoid muscle.

Base : The clavicle

Posteriorly : anterior border of trapezius muscle.

Questions on sheet

Q1: What are the causes of painful goitre ?

- Malignancy, acute thyroiditis & Hge in cyst

Q2: Why is dysphagia as pressure symptom being rare ?

- Because oesophagus is a muscular tube.

Q3: What are other causes of Horner's syndrome ?

- ↳ **Compression** by goitre, pan-cost tumor & carotid aneurysm.
- ↳ **Complication** after cervical sympathectomy.
- ↳ **Injury** of lower part of brachial plexus.

Q4: What are the causes of loss of weight inspite of good appetite ?

- ↳ Toxic goitre.
- ↳ Uncontrolled D.M.
- ↳ Parasitic infestation (hydatid cyst)
- ↳ Mal-absorption syndrome.

Q5: What are the causes of polyuria in case of toxic goitre ?

- ↑ Metabolic H_2O
- Intake of water 2^{ty} to polyphagia
- Glucosuria.
- ↑ Renal blood flow

Q6: Why is pain in malignancy of thyroid referred to Ear ?

- Because of ear has same dermatomal supply i.e. **Arnold nerve**

Q7: What are the types of biopsy done in case of goitre ?

- FN AC, True cut biopsy & excisional biopsy.

Q8: What are symptoms of Pendred's syndrome ?

- Goitre, dwarfism & deafness.

Questions on General exam.

Q9: What is meant by sleeping pulse ?

- It is clinical confirm of rapid pulse **even** during sleep so it **excludes anxiety**

Q10: Why vital sign stable in case of toxicity during examination ?

- Because, the patient under treatment e.g. **Indral**

Q11: What is the cause of unequal pulse in case of goitre ?

- If Retro-sternal extension (R.S.E)

Q12: What are other causes of water hammer pulse ?

- Thyrotoxicosis.
- A.R
- Anemia
- Hypoxic cor-pulmonale
- Hepatic failure
- A.V fistula

Q13: How can you diagnose under built ?

- Prominent maxilla & zygoma
- ↓ Muscle bulk.
- ↑ Fold of skin at biceps & triceps muscles.

Q14: Which type of malignancy characterized by bone metastasis ?

- Follicular carcinoma

Q15: What is meant by exophthalmos ?

- Actual protrusion of eye ball.

Q16: What is the cause of exophthalmos ?

- Unknown but may be E.P.S. (Exophthalmos producing substance)

Q17: What are the causes of unilateral exophthalmos ?

- Orbital cellulites.
- Orbital neoplasm.
- **V** → Cavernous sinus thrombosis.
- **A** → Orbital aneurysm i.e. ophthalmic artery aneurysm
 → A-V fistula between (ICA & cavernous sinus)
- **N** → Neurofibromatosis of optic nerve.

Q18: What are the causes of pulsating exophthalmos ?

- Orbital aneurysm & A-V fistula between (I.C.A & cavernous sinus)

Q19: What is the difference between true & apparent ?

- **True exophthalmos** = Actual protrusion of eye ball.
- **Apparent exophthalmos** = Upper eye lid retraction.

Q20: What is DD between fine & flapping tremors ?

- **Fine tremors** : Due to ↑ metabolites → irritation of nerve ending
 → tremors of small joints of hand.
- **Flapping tremors** : Due to ↑ Toxins → irritation of extra-pyramidal Δ
 → tremors of wrist joint of hand

Q21: What is meant by pre-tibial myxedema ?

- **It is due to** deposition of mucin at skin.
- **Associated with** clubbing fingers & toes

Q22: What is meant by mediastinal syndrome ?

- Dyspnea , congested neck veins , brassy cough

Q23: What are the causes of liver enlargement ?

- Thyro-toxic HF.
- Auto-immune [1^{ry} toxic goitre & Hashimoto's thyroiditis]
- Thyroid lymphoma.
- Liver metastasis.

Q24: What are causes of spleen enlargement ?

- Auto-immune [1^{ry} toxic goitre & Hashimoto's thyroiditis]
- Thyroid lymphoma.

Questions on Local Exam.

Q25: What is meant by muscular triangle ?

- It is called “ **muscular Δ** ” because it contains
 - ↳ Sterno-hyoid muscle.
 - ↳ Sterno-thyroid muscle.
 - ↳ Thyro-hyoid muscle.
 - ↳ Omohyoid muscle.

Q26: Why Goitre moves up & down with deglutition ?

- Because it is included in pre-tracheal fascia.

NB.: Attachment of pre-tracheal fascia

- **Above** : Oblique line of thyroid cartilage & hyoid bone
- **Below** : Superior mediastinum.
- **On each side** : Carotid sheath.

Q27: When Goitre unable to moves up & down with deglutition ?

- Malignancy
- Huge in size.
- Retrosternal extension (R.S.E.)
- **Riedel's** thyroiditis (*due to fibrosis*)

Q28: Which Swellings moves up with protrusion of tongue ?

- Thyroglossal cyst.
- Sub-hyoid bursitis.

Q29: What are other Swellings move up & down with deglutition ?

- Goitre.
- Thyroglossal cyst.
- Pre-tracheal L.Ns
- Pre-laryngeal L.Ns.
- Sub-hyoid bursa.
- Laryngocele.

Q30: What are the causes of Hard goitre ?

- Malignancy.
- Calcified SNG.
- **Riedel's** thyroiditis.
- Tense cyst.

Q31: What is the Anatomical site of Carotid artery ?

- It felt Against carotid tubercle of **C₆**.

Q32: What is the 1st L.Ns felt Clinically in Malignancy ?

- Pre-laryngeal L.Ns

Q33: What is the value of Kocker's test ?

- The value is preoperative consent (from patient) for **tracheostomy**

Q34: What are the causes of dullness on Manibrium sterni ?

- ↳ Retrosternal goitre.
- ↳ Ectopic thyroid tissue.
- ↳ Pre-tracheal L.Ns.

Q35: What are the complications of SNG ?

- ↳ Carcinoma “follicular type 3%” .
- ↳ 2^{ry} toxic goitre.
- ↳ Calcification.
- ↳ Hge in cyst.
- ↳ Retrosternal extension.

Questions on Management

Q36: When do you contraindicate anti-thyroid drugs in the preoperative preparation ?

- In retro-sternal goiter.

why ?

- Because anti-thyroid drugs cause enlargement of the thyroid gland which may lead to mediastinal syndrome.

Q37: How can you prepare retro-sternal toxic goiter ?

- β -blockers e.g. **Propranolol** (Inderal)

Q38: Can the cervical L.Ns. develop 2^{ries} from a thyroid carcinoma while the 1^{ry} is not felt clinically ?

- Yes, in occult papillary carcinoma of the thyroid gland. This was thought in the past as some form of ectopic thyroid gland & was called "**lateral aberrant thyroid**".

Q39: Is cancer thyroid hormone dependent or not ?

- Yes, especially papillary. It depends on TSH stimulation.

Q40: What are the hormone dependent tumors ?

- Thyroid, Breast & Prostate.

Q41: Why radioactive iodine is not indicated in toxic nodular goiter ?

- Because it is ineffective due to fibrosis present in the gland.

Q42: What is the amount of the thyroid gland to be left in subtotal thyroidectomy for SNG ?

- An Amount equal to 4 grams on each side.

Q43: What is the Amount of the thyroid gland to be left in subtotal thyroidectomy for toxic nodular goiter ?

- An amount equal to 2 grams on each side.

Q44: What is the danger of hematoma after thyroidectomy ?

- It can lead to suffocation as it is enclosed within the pre-tracheal muscles.

Q45: How do you treat it ?

- 1st, urgently, while the patient is in bed, the sutures are cut to relieve the tension & the patient is taken to the theater to deal with the bleeder.

Good luck

Breast sheet

BREAST CASE

I- SHEET

* PERSONAL HISTORY

1. Name

2. Age

1. **Fibroadenosis** → After puberty or before menopause.
2. **Hard fibroadenoma** → 20 - 30 years.
3. **Duct papilloma** → 30 - 40 years
4. **Soft fibroadenoma** → 30 - 50 years
5. **Carcinoma of breast** → 40 - 60 years.

3. Sex → Carcinoma more common in female than male.

4. Residence

- Highest incidence in (U.S.A)
 → Lowest incidence in (Japan)
- i.e. Malignancy

5. Occupation (for exposure to radiation) i.e. malignancy.

6. Marital status

(See Q:1)

- Patients married or not, having children or not, lactating or not i.e. [unmarried, nullipara or non lactating female] leads to → ↑ risk of malignancy.
- Uses of contraceptive pills for long duration leads to → ↑ risk of malignancy.

7. Menstrual History → Early menarche (< 15 years) or delayed menopause (> 50 years) leads to → ↑ risk of malignancy.

8. Special habits of medical importance.

* COMPLAINT

- Painless lump** → Benign tumors, carcinoma or chronic abscess
- Painful lump** → Fibroadenosis or acute abscess

* PRESENT HISTORY

- I. Analysis of **complaint**
- II. Analysis of symptoms related to **part** affected
- III. Analysis of symptoms related to **other parts** affected

I. Analysis of complaint (Swelling \pm pain)

1. O.C.D (Onset - Course - Duration)

2. PAINS

- ☆ **S**ite
- ☆ **N**umber
- ☆ **I**nvestigations & ttt
- ☆ **A**ssociated swellings as (L.Ns metastasis)
- ☆ **P**ain " If present" _____

1. O.C.D
2. Site
3. Extent
4. Characters
5. ↑ by
6. ↓ by
- 7 Referred or not

II. Analysis of symptoms related to Part affected

i.e. Pressure symptoms of (upper limb) = Axillary L.Ns enlargement

V ☆ Vein = Oedema

A ☆ Artery = Color changes & claudication pain.

N ☆ Nerve = Sensory changes

* Don't Forget: (ASK about, changes of the nipple) 6 D

1. Discharge

2. Deviation

3. Destruction (Paget's)

4. Discoloration

5. Dermatitis

6. Depression (retraction)

Q: What are causes & types of nipple retraction? (See Q: 2)

III. Analysis of Symptoms related to other parts affected

i.e. General complications

☆ Acute inflammation → F.H.M.A. (see page 2)

☆ For metastasis → L.B.L.B (see page 2) to exclude malignancy

* PAST HISTORY

- ☆ Similar condition
- ☆ Diseases as DM, hypertension, heart diseaseetc.
- ☆ History of drugs intake as **prolonged use of contraceptive pills**
- ☆ History of **breast irradiation**
- ☆ History of breast operations as **biopsy**
- ☆ History of benign lesion or **cancer (endometrium or colon)**

* FAMILY HISTORY

- ☆ To exclude familial tendency as "**cancer breast**"

EXAMPLE OF

BREAST SHEET

* PERSONAL HISTORY

.....female patients, 55 years old, from house wife, married since 35 years, has 5 children. The youngest 15 years old. **the menstrual history** : menarche (13 years) & **menopause** (48 years). **No** special habits of medical importance.

* COMPLAINT

Painless swelling at Lt. breast 13 years ago.

* PRESENT HISTORY

- The condition is started 13 years ago (after lactation of her last girl) by acute onset and progressive course
- The condition was associated with (fever, Lt. axillary L.Ns & purulent discharge)
- The patient was admitted to **الدمرداش** hospital & was investigated by aspiration & soft tissue mammography & then surgical excision was done.

- All symptoms disappeared except this painless mass.
- No nipple abnormalities as (deviation, discoloration, discharge...)
- No Skin Manifestations as (dimpling, puckering, peau d'orange)
- No pressure manifestations at upper limb as color changes, oedema, tingling, numbness.
- No metastatic manifestations

* **PAST HISTORY**

There was similar condition, No hypertension, No T.B, No Bilharziasis, No drug allergy, No previous operations or biopsy.

* **FAMILY HISTORY**

No family history of similar condition (Irrelevant)



Hard painless mass of breast most probably chronic breast abscess

II- GENERAL EXAMINATION

A. **VITAL SIGNS** Vital signs "see page 2"

B. **GENERAL EXAMINATION** (A.B.C.D.E.F) "see page 2"

C. **SYSTEMIC EXAMINATION** "Aim is Looking for metastasis"

Q: What is meant by occult carcinoma? (See Q: 3)

I. HEAD : 1. **Skull** : For bone metastasis

2. **Lip** : For pallor & cyanosis i.e.(mediastinal L.Ns enlargement)

3. **Eye** : For pallor & jaundice i.e. (liver metastasis)

II. NECK : 1. Supra-clavicular L.Ns "**Virchow's** gland" Why? (See Q: 4)

2. Congested neck veins "mediastinal L.Ns enlargement". (See Q: 5)

III. UPPER LIMB : 1. **Pulse** "if weak volume" means (axillary L.Ns enlargement)

2. **Weakness** of muscle or sensory changes or oedema.

IV. LOWER LIMB : For oedema

V. CHEST : For metastasis to chest wall.

VI. ABDOMEN: For

- 1. Liver enlargement
- 2. Umbilical nodules
- 3. Malignant ascites

VII. DON'T FORGET BACK for metastasis

N.B PR & PV examination to detect **pelvic nodules**

III- LOCAL EXAMINATION

➔ PROPER POSITION

- ① Sitting position → For inspection & palpation.
- ② Lying position → For palpation **only**.

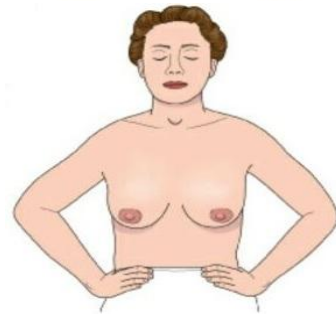
➔ PROPER EXPOSURE

- The upper half of body is completely naked to the umbilicus (back & shoulder covered with blanket)

* INSPECTION "Patient is Sitting only"

For _____

- | |
|---|
| <ul style="list-style-type: none"> 1. Breast as a whole 2. Nipple 3. Areola 4. Mass (NSED) |
|---|



1. Breast as a whole

- ☆ **Level** : (by comparing) elevated or at lower level.
- ☆ **Shape** : normal or distorted.
- ☆ **Size** : shrunken or enlarged.
- ☆ **Mobility** :
 - a. Ask patient to bend forward, & note the degree of breast protrusion
 - b. Ask patient to raise the arms up, so that deformity lump or dimple more obvious.

Don't forget

- Elevation, shrinkage, deficiency of protrusion on bending forward & increase deformity on raising the arm → sign of **fibrosis**

Q: Which diseases are occurred ? (See Q: 6)

2. Nipple (Comparing both side)

- ☆ **Destruction** : e.g. Erosion as in **Paget's** disease
- ☆ **Depression** (retraction) (*See Q:7*)
- ☆ **Direction** : Normally = (downward & laterally)
- ☆ **Discharge** يطلب من المريض _____



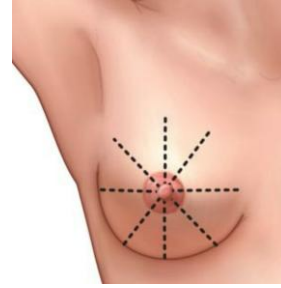
3. Areola (Comparing both side)

- ☆ **Color** (Pink in virgins & brown after pregnancy)
 - Q: Is the colour dark with fibrosis or not ? Why ? (See Q: 8)*
- ☆ **Surface** (Eczema)
- ☆ **Size** : Increase in pregnancy.
- ☆ **Shape** : Normally rounded & irregular with fibrosis

4. Mass: (NSED)

N — ☆ **Number** → Usually single

- 6 S**
- ☆ **Site** → The upper outer quadrant is the commonest site for carcinoma. (See Q: 9)
 - ☆ **Site** → Rt. or Lt. (See Q: 10)
 - ☆ **Shape** → Round or oval or irregular
 - ☆ **Size** → in (cm×cm)
 - ☆ **Surface** → Smooth in benign lesion
→ Irregular in malignancy
 - ☆ **Skin over** → Sign of inflammation.
→ Redness & shiny
→ Sign of malignancy.
→ Skin manifestations.



E — ☆ **Edge** : very difficult to be seen by **palpation**.

- 3 D**
- ① **Deep to Mass** :
i.e. under-surface of breast.
 - ② **Draining L.Ns** :
Axillary & supra-clavicular L.Ns at the same side & other side **See chapter (13)**
 - ③ **Distal effect** : (**Upper limb**)
For wasted muscle, oedema & deformity (if axillary L.Ns enlargement)



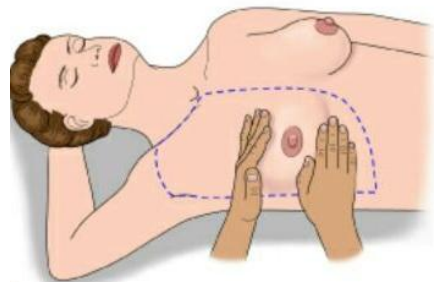
* **PALPATION** "Patient is **sitting** then **lying down**"

For

1. Breast as a whole
2. L.Ns
3. Mass (**TESCR**)

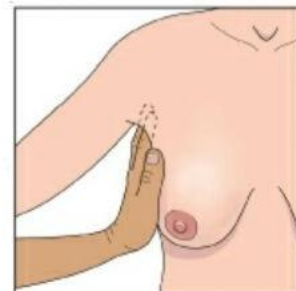
1. Breast as a whole (الترتيب مهم)

1. Palpate both breast but normal one is 1st
2. Sitting 1st then supine.
3. By flat of hand (palmar surface of fingers)
1st then (عند الطلب) bimanual



N.B. Palpation done in 7 areas

- 4 Quadrants
- Sub-areolar region = retro-areolar
- Under-surface of breast
- Axillary tail (لازم ترفع أيدها)



2. L.Ns Examination:

Very important **See chapter (13)**

3. Mass: (TESCR)

- T** —
- ☆ **Temp** → Hotness as in inflammation.
 - ☆ **Tenderness** → Tender as in fibroadenosis, inflammation
→ Non tender as hard fibroadenoma or cancer breast.

- E** — **Edge** May be →
- Well as in benign tumors.
 - Circumscribed as in carcinoma.
- (See Q: 11)

- S** —
- ☆ **Site, Side, Shape, Size** [as inspection]
 - ☆ **Surface**
 - Smooth → Benign lesion.
 - Irregular → Malignancy.
- Also undersurface of mass**
(at undersurface of the breast).
- Rounded → Benign lesion.
 - Flat → Carcinoma



- ☆ **Skin over**
 - By pinching up the skin or sliding the skin or moving the mass under skin.
 - If infiltrated = Puckering → Cancer breast.

- C** — **Consistency :**
- **Cystic** : Acute abscess (to examine it) → **Paget's test**
 - **Firm** : Fibroadenosis or hard fibroadenoma
 - **Hard** : Cancer breast or chronic breast abscess
 - **Soft** : Soft fibroadenoma.

- R** — **Relation :**
- Nipple
 - Skin
 - Breast substance
 - Muscles
 - Ribs



Don't Forget

- ① **Fibroadenosis** : Fixed to breast tissue & away from areola.
- ② **Duct Papilloma** : Retro-areolar mass.
- ③ **Hard Fibroadenoma** : Mobile not fixed i.e .Breast mouse.
- ④ **Cancer Breast**
 - Fixed mass infiltrating the surrounding.
 - Skin manifestations

1. Relation to nipple

- By holding the nipple with one hand & moving the mass away from it by other hand.
- If Retro-areolar → **Duct papilloma**

2. Relation to skin

- By pinching up the skin or sliding the skin or moving the mass under skin or patient raise her arm
- If infiltrated = puckering → **Cancer breast**.

3. Relation to breast substance

- By holding the breast with one hand & moving the mass within it by other hand.
- If **mobile** → **Hard fibroadenoma** i.e. **Breast mouse**
- If **fixed** & away from areola → **Fibroadenosis**

4. Relation to muscle (Breast overlies 3 muscles)

(A) Pectoralis major

- **Ask** the patient to put her hands relaxed in the waist and show → mobility of mass.
- **Then** ask the patient to press her hands against waist and show → mobility of mass.
- **Results** : Limited mobility = infiltration.

Relations to

Pectoralis Major Muscle



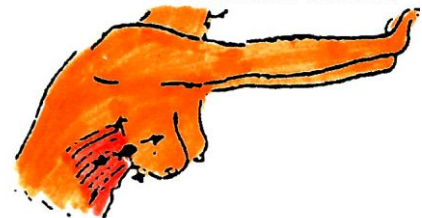
(B) Serratus anterior

For mass in lower outer quadrant

- **Ask** patient to put her outstretched hands relaxed on your shoulder or wall then show → mobility of mass.
- **Then** ask the patient to press against your shoulders & show → of mass.
- **Results** : Limited mobility = infiltration.

Relations to

serratus Anterior Muscle



5. Relation to Ribs

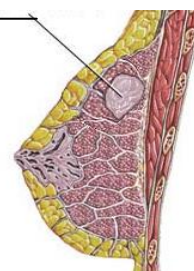
- Moving the lump while the patient is **relaxed**.
If **absent** mobility this means ribs infiltration

INVESTIGATIONS

1. The most important is **Soft tissue mammography**.
2. **U/S** to DD cystic from solid.
3. **Biopsy**.

DIAGNOSIS

- ✱ Chronic breast abscess.
- or ✱ Fibroadenosis.
- or ✱ Fibroadenoma.
- or ✱ Breast Carcinoma .



Examination of axillary L.Ns

مهم جدا

☆ Palpate axillary & supra-clavicular L.Ns.

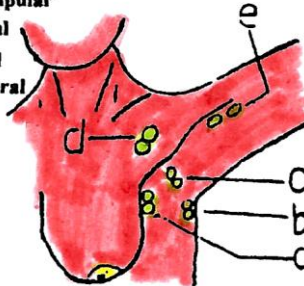
☆ On the diseased side 1st

☆ Axillary L.Ns

- They drain the upper limb down to umbilicus.
- They are arranged in 5 groups.

Axillary L.Ns

- (a) pectoral
- (b) subscapular
- (c) central
- (d) Apical
- (e) Humeral



☆ Technique or palpations

- From **front**, palpate the pectoral, apical and central groups.
- From **side**, palpate the humeral group.
- From **behind**, palpate sub-scapular & supra-clavicular nodes.

1. The [Ant] Humeral group

- **SITE** : Under cover the pectoralis major.
- **DRAINS** : ① Chest wall.
② Whole breast **except** tail.
③ Ant. abdominal wall above umbilicus.

2. The [Post] Sub-scapular group

- **SITE** : Along post, axillary fold
- **DRAINS** : ① Axillary tail
② Post, abdominal wall above umbilicus.

3. The Lateral group

- **SITE** : Along upper part of humerus
- **DRAINS** : All the upper limb.

4. The Central group

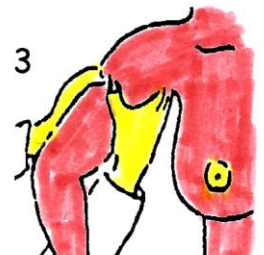
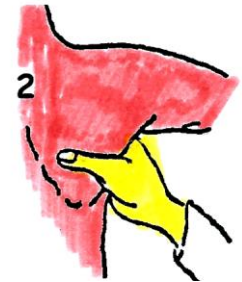
- **SITE** : Central part of axilla
- **DRAINS** : [1], [2], [3]

5. The Apical group

- **SITE** : External apex of axilla
- **DRAINS** : [1], [2], [3], [4] + infra-clavicular L.Ns.

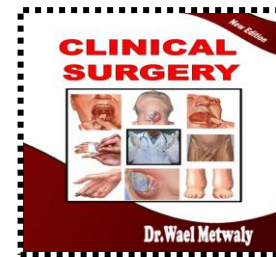
N.B Supra-clavicular group

- **SITE** : above clavicle.
- **DRAINS** : from internal mammary L.Ns



OSCE EXAM

* **WE MUST TO LOOK FOR**



Hard fibroadenoma

+ve data

1. Swelling (cm x cm)
2. Mobile in 2 directions
3. Firm in consistency
4. Not tender
5. No axillary L.Ns

Fibroadenosis

+ve data

1. Swelling (cm x cm)
2. Mobile in 2 directions
3. Firm in consistency
4. Nodular surface
5. No axillary L.Ns

Mammary duct ectazia

+ve data

2. Signs of fibrosis :
 - a. Elevation of left side
 - b. No Decreased size of areola
& No dark in color
 - c. Nipple retraction & +ve sulcus
3. Hard mass (Cm x Cm)
4. No axillary L.Ns
5. Abnormal nipple discharge

ORAL DISCUSSION

BREAST

Questions on Sheet



Q1: What are the risk factors of malignancy ?

A - GENETIC FACTORS

- 2 Genes are associated:

1. **BRCA I** ; long arm of chromosome **17** associated with breast, ovarian & colon cancer
2. **BRCA II** ; long arm of chromosome **13** associated with breast & ovarian cancer

B - ENDOCRINAL FACTORS

- **Early** menarche < **13** years.
- **Delayed** menopause > **50** years.
- Female get **1st** pregnant > **30** years.
- The relations to **oral contraceptive pills** is not known exactly.
- **Obesity** as adipose tissue converts steroid hormones to estradiol.
- Female with cancer to **one breast**.

C - PRECANCEROUS LESIONS

- Relations to **duct papilloma** ↑ risk **1.5 - 2** times.
- Relations to **atypical hyperplasia** of **fibroadenosis** ↑ risk **2 - 5** times.
- Relations to lobular carcinoma in situ (**LCIS**) or duct carcinoma in situ (**DCIS**) ↑ risk **5 - 10** times.

Q2: What are causes & types of nipple retraction & DD ?

- **Congenital** : Before puberty & bilateral.
- **Acquired** : After puberty & Unilateral.
 - e.g. • Cancer breast.
 - Mammary duct ectazia.
 - Chronic breast abscess.

	Congenital retraction	Acquired retraction
• History	dating since birth .	recent.
• Side	bilateral > 3/4 of cases	unilateral .
• Mass	no breast mass	presence of breast mass
• Sulcus	absent	present

Questions on General exam.

Q3: What is meant by occult carcinoma?

- Carcinoma represented 1st by L.Ns enlargement as ↓
 - Naso-pharynx Ca.
 - Cancer breast
 - Cancer thyroid
 - Cancer testis

Q4: What are the causes of supra-clavicular L.Ns enlargement ?

- **Lt. side enlargement**
 - Below diaphragm : (Cancer stomach, cancer colon & hypernephroma & cancer pancreas)
 - Above diaphragm : (Cancer breast & bronchial carcinoma)
- **Rt. side enlargement**
 - Below diaphragm : (Bare area of liver)
 - Above diaphragm : (Cancer breast)

Q5: What is meant by mediastinal Syndrome ?

- Dyspnea, Congested Neck veins & Brassy cough.

Questions on Local exam.

Q6: Which diseases characterized by fibrosis ?

- └• Chronic breast abscess.
- └• Mammary duct ectazia.
- └• Cancer breast (Scirrhou & atrophic scirrhou)

Q7: What is the mechanism of nipple retraction ?

- Excessive fibrosis

Q8: Is the colour of areola dark with fibrosis ? why ?

- Yes, because fibrosis → ↑ concentration of melanocytes

Q9: Why is the upper outer quadrant commonest for carcinoma ?

- Because, most of mammary gland & oestrogen receptors are present in this quadrant

Q10: What are the possibilities of bilateral breast mass ?

- ☆ Fibroadenosis
- ☆ Carcinoma (rare)

Q11: Why carcinoma being circumscribed edge ?

- Because it is a hard (malignant) mass inside soft (breast tissue)

Good luck

Hernia sheet

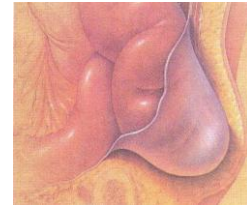
Chapter 6

HERNIA

INTRODUCTION

DEFINITION

- **Hernia** is a protrusion of a viscus or part of a viscus usually within a peritoneal sac through a defect in the abdominal wall
- **Clinically** ; painless swelling characterized by ↗
 - Reducible or gives history of reducibility
 - Gives expansile impulse on cough.
 - On the anatomical site of hernia defect



TYPES

1- Inguinal hernia

- **above** inguinal ligament (**above** groin crease)

2- Femoral hernia

- **below** inguinal ligament (**below** groin crease)

N.B.: [1] & [2] called **groin hernia**

3- Umbilical hernia

- **midway** between xiphisternum & symphysis pubis

4- Epigastric hernia

- **away** from umbilicus at site of linea alba.

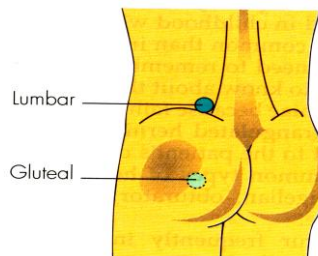
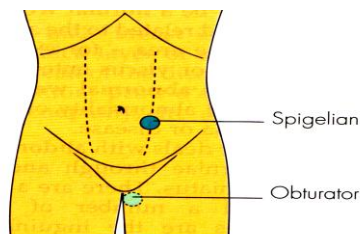
N.B : [3] & [4] called **abdominal hernia**.

5- Incisional hernia

- **paralytic type** : due to injury of the nerve supplying the overlying muscles
- **defective type** : due to defect in the repair of abdominal incision.
e.g. infection, using absorbable sutures.

6- Others

- **Rare sties of hernia as** ↗



OBTURATOR HERNIA through obturator foramen.

LUMBER HERNIA through lumbar region.

GLUTEAL HERNIA through greater sciatic foramen.

SCIATIC HERNIA through lesser sciatic foramen.

SPIGELIAN HERNIA through spigelian fascia

AETIOLOGY

A- Congenital

due to presence of a **congenital peritoneal sac**.

- ① Unobliterated processus vaginalis (**congenital O.I.H**).
- ② Unobliterated physiological umbilical hernia of the fetus (**exomphalos**)

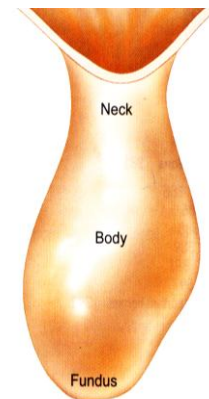
B- Acquired due to ➡

1- ↑ INTRA ABDOMINAL PRESSURE

- **Chronic straining** due to chronic cough, constipation ...etc.
- **Abdominal swelling** due to pregnancy, ascites or organomegaly.
- **Occupational** as porters.

2- WEAKNESS OF ABDOMINAL WALL

- **Obesity** because fats separate the muscle bundles
- **pregnancy** due to stretching of the abdominal wall.
- **Abdominal operations** i.e. abdominal scars.



COMPONENTS

A- Sac

- This is the peritoneal pouch which bulges out through the abdominal wall defect. It has a neck, body & fundus

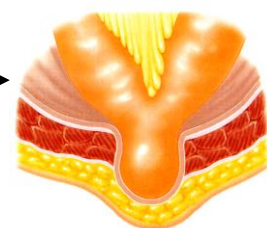
B- Contents

- It may be any abdominal viscus **except the pancreas**. (being retroperitoneal) the most common are ➡

	ENTEROCELE	OMENTOCLE
<ul style="list-style-type: none"> • Consistency • Reducibility • Percussion • Palpation 	<ul style="list-style-type: none"> • Soft • 1st part difficult, because of gases & show gurgling • Resonant • Lobulated surface 	<ul style="list-style-type: none"> • Doughy • Last part difficult, because of adhesion of sac & omentum. & not show gurgling • Dull. • Smooth surface

Special contents

- 1. RICHTER'S HERNIA** - a portion of circumference of intestine. ➡
- it occurs with femoral hernia.

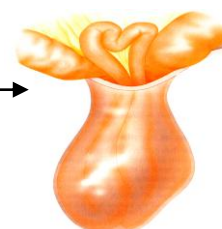


- 3. LITTRE'S HERNIA**

The content is **Meckel's diverticulum**.

- 2. MAYDL'S HERNIA**

It contains 2 loops of the bowel (**hernia in W**) ➡ while the intermediate loop lies in peritoneal cavity.



C- Coverings

- Structures stretched over the sac.

I- HERNIA SHEET

* PERSONAL HISTORY

1. **Name**
2. **Age** → Congenital inguinal hernia (**infant**)
3. **Sex** → Indirect inguinal hernia (**male > female**)
→ Femoral hernia common with (**female > male**)
4. **Residence**
5. **Occupation** Jobs with straining as **porters**
6. **Marital status** Repeated pregnancies
7. **Special habits of medical importance**
Chronic heavy smokers will have chronic cough

* **COMPLAINT** **Swelling ± pain** (At site of hernia orifices)

* PRESENT HISTORY

- I. Analysis of **complaint**
- II. Analysis of symptoms related to **part** affected
- III. Analysis of symptoms related to **other parts** affected

I. Analysis of complaint (Swelling ± pain)

- ### 1. O.C.D. (Onset - Course - Duration)

2. PAINS

- ☆ **Site, Side**
 - ☆ **Number**
 - ☆ **Investigations & ttt** (Truss used or not) (See Q:6)
 - ☆ **Associated swelling** as (i.e. hernia orifices)
 - ☆ **Pain** (usually painless) except if complicated.
- Extent
 Characters (dragging by its weight)
 ↑ by (**straining**)
 ↓ by (**lying down**)

3. ↑ with **standing**
4. ↓ with **lying down**

II. Analysis of symptoms related to part affected

i.e. **Local** complications

- ☆ **Irreducibility** : Patient **unable** to reduce the swelling
- ☆ **Obstruction** : Patient **suffer from** constipation, colics, distension & vomiting
- ☆ **Inflammation** : (**F.H.M.A.**) + redness & painful swelling.
- ☆ **Strangulation** : [**Painful**] + (manifestation of obstruction)
+ **not** show expansile impulse on cough

III. Analysis of symptoms related to other parts affected

Usually occur **after reduction**

① Intestinal symptoms

As colics & dyspepsia in **enterocele**

② Urinary symptoms

As renewed desire to micturate i.e. **double micturation**

Q: When can you suspect sliding hernia ? (See Q: 7)

③ Patient's ability to work (affected or not)

Don't forget Asking about the *possible causes* i.e. COPD, ascites or S.E.P

* PAST HISTORY

- * Similar condition i.e. recurrence
- * History of diseases as DM, hypertension, heart diseaseetc.
- * History of previous operation if incisional hernia

* FAMILY HISTORY

- * For **congenital** mesenchymal wall

EXAMPLE OF

HERNIA SHEET

* PERSONAL HISTORY

..... male patient, 52 years old, borne and live in طوخ .builder married since 32 years, has 7 children (4 girl & 3 male) the youngest 10 years old, his is a cigarette smoker & smokes 20 cigarette per day since 25 years. No other special habits of medical importance.

* COMPLAINT

Bilateral painless swelling at both groin since 5 years ago.

* PRESENT HISTORY

- The condition is started 5 years ago by swelling in Rt. groin of gradual onset & Intermittent course after lifting a heavy object, he develops another swelling at Lt. groin after one year from the onset.
- No investigations and treatment was done (**truss** not used)
- No associated swellings at other hernia orifices and No pain.
- The swelling is reaching scrotum. It ↑ by cough and straining & ↓ on lying down.
- There are No local complications: in form of
 - * No history suggesting irreducibility: It is reducible by patient.
 - * No history suggesting inflammation: No redness & oedema, no fever,

★ No history suggesting intestinal obstruction : In form of colics, vomiting, absolute constipation & abdominal distension.

★ No history suggesting strangulation : As severe pain.

• There is No desire of micturation after reduction of this swelling i.e. No Sliding Hernia.

★ **PAST HISTORY**

No past history about recurrence, no DM, no hypertension, no T.B, no Bilharziasis, no drug allergy, no previous operations.

★ **FAMILY HISTORY**

No family history of similar condition (Irrelevant)



**Bilateral indirect, uncomplicated
Inguino-scrotal hernia**

II- GENERAL EXAMINATION

★ **VITAL SIGNS** "See page 2"

★ **GENERAL EXAMINATION** (A.B.C.D.E.F) "See page 2"

N.B *Obesity* : *Contraindicate repair (Why) (See Q:8)*

★ **SYSTEMIC EXAMINATION**

1st we look for manifestation of weak mesenchyme

- Visceroptosis
- V.V
- Varicocele
- Kyphosis
- Piles
- Flat foot

Then **I. HEAD** : → **Eye** for pallor & jaundice

II. NECK : → Congested neck veins

III. CHEST : → (COPD) like asthma or bronchitis.

IV. LOWER LIMB : → Flat foot, varicose vein or oedema

V. ABDOMEN :

- ① **Rising test** : Ask the patient to raise his unsupported shoulders.
Then look for diverication of recti i.e. poor musculature.
- ② **Malgaign's bulging** : Ask the patient to raise unsupported head then look at groin for bulging i.e. poor musculature.
- ③ **Abdominal swellings** : For ascites or HSM.
- ④ **Abdominal distension** : For exclusion of intestinal obstruction.
- ⑤ **Scars** of previous operation as appendicectomy. (Why) (See Q:10)

Q: What is meant by phantom hernia ? (See Q:9)



VI. SCROTUM : → If associated **varicocele**

VII. PR EXAMINATION : → For **S.E.P**

III- LOCAL EXAMINATION

➤ PROPER POSITION

- The examiner is sitting with his eyes at the level of hernia & turning the patient's head to one side.
- **If no swelling** : Ask patient to cough & notice it. →



➤ PROPER EXPOSURE

The patient should be standing up and bare of clothes from the nipple to the knee.

* INSPECTION N S E D

N — ☆ **Number** → Usually single

8 S — ☆ **Site** → (See before)

But **don't forget** : "**Groin hernia**"

- ✧ **Above** groin crease → Inguinal hernia.
 - **Indirect** : Descend to scrotum.
 - **Direct** : Not descend to scrotum.
- ✧ **Below** groin crease → Femoral hernia.

☆ **Side** → Rt. or Lt.

☆ **Shape & direction**

- Oblong or pyriform → **Indirect** inguinal hernia.
 - Downwards, forwards & medially
- Rounded or hemispherical → **Direct** inguinal hernia.
 - Forwards

☆ **Size** → Small, moderate or large or in (cm×cm)

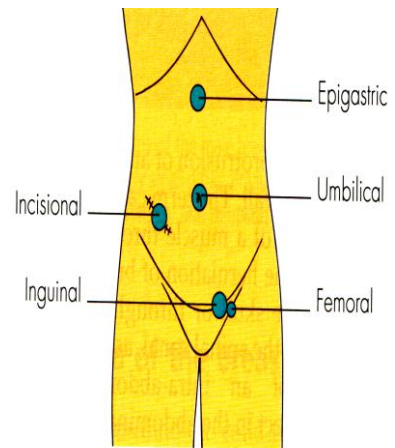
☆ **Surface** → Smooth if **omentocoele**
→ Lobulated if **enterocoele**

☆ **Skin over** Normal or may show →.

- **Redness** → Inflammation & strangulation.
- **Scars** of previous operation → **Incisional hernia**.

☆ Other **swellings** (Look for other hernia)

☆ **Special sign** Expansile impulse on cough **For other causes (See Q: 11)**
Q: When hernia not show this sign ? (See Q: 12)



E — ☆ **Edge** : Very difficult to be seen

D — ☆ **Direct "relations to surroundings"**: (Look for)

- **Scrotum & root of penis** if groin hernias
- **Abdomen** if abdominal hernias.

* PALPATION

(TESCR)

- 2 T { ☆ **Temp.:** → Warm if inflamed hernia
 ☆ **Tenderness:** → Specific to strangulated hernia.

- E — ☆ **Edge** • Ill defined usually with **indirect** inguinal hernia
 • Well defined usually with **direct** inguinal hernia

- 8 S { ☆ **Site** (Related to Pubic Tubercle)
 • Inguinal hernia : Above & medial.
 • Femoral hernia : Below & lateral. (See Q: 13 & 14)
 ☆ **Side, Shape, Size, Surface, Skin over**, Other **swelling** [as inspection]
 ☆ **Special sign:** *expansile impulse on cough*

N.B. It is absent (only) in strangulated hernia.

- 2C { ☆ **Consistency** : **Soft** → Enterocoele
Doughy → Omentocoele

N.B. Strangulated hernia is tense & tender

- ☆ **Compressibility & reducibility:**

➤ When the patient lies down look for the swelling

- **Is reduction spontaneous or induced?**

The best one to reduce it is the patient himself

- **What is the direction of reduction?**

- **Indirect** inguinal hernia reduced **upwards, backwards & laterally.**
- **Direct** inguinal hernia reduced **directly backwards.**

- **What is the content?**

- If **Enterocoele**: The 1st Part difficult to reduced with **gurgling** sensation
- If **Omentocoele**: The last part difficult to reduced With **doughy** sensation

- **Is the reduction brings a desire of micturation or not?**

It is seen in hernia containing urinary bladder i.e. **Sliding hernia.**

- R — ☆ **Relation to surroundings:**

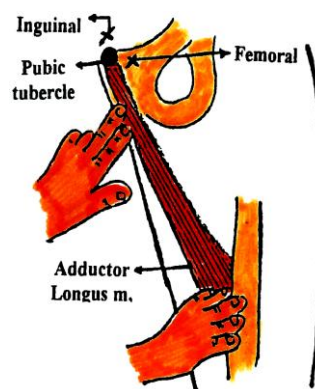
- Examine testis & cord : (in groin hernias)
- Examine abdomen : (in abdominal hernias)

* PERCUSSION " Mainly in abdominal hernia "

- ⊛ If the content (intestine) → **Resonant** i.e. **Enterocoele.**
- ⊛ If the content (omentum) → **Dullness** i.e. **Omentocoele**

* AUSCULTATION

- ⊛ Intestinal sound is heard in [an enterocoele]





SPECIAL TEST OF INGUINAL HERNIA

☆ Internal ring test (المريض نايم)

- ☆ It is used for groin hernias.
- ☆ The patient lies down and the hernia is reduced then put your finger over the internal ring which lies $\frac{1}{2}$ inch above mid point of inguinal ligament (midway between pubic tubercle & A.S.I.S)

Q: What is meant by mid-inguinal point ? ⇨

It is mid way between (symphysis pubis & A.S.I.S)

- ☆ Ask the patient to cough then repeat while standing.
- ☆ The result : An **Indirect** (oblique) inguinal hernia does not protrude except after removal of the finger. (D.D. **direct** inguinal hernia)

☆ External ring test (المريض واقف)

- ☆ It is used for groin hernias.
- ☆ The patient is standing and the hernia is reduced then put your little finger which is passed into the external ring, invaginating the scrotum, with your nail towards the spermatic cord.

→ Normally : the external ring just admits the tip of the little finger

→ If the ring is **wide** = **Indirect** inguinal hernia.

- ☆ Ask the patient to cough

- ☆ The result

→ Impulse on the **tip** of the little finger = **Indirect** inguinal hernia.

→ Impulse on the **medial side** of the little finger = **Direct** inguinal hernia.



☆ Zeiman's technique (المريض واقف)

- ☆ **Indication** : If no obvious lump is detected,
- ☆ **Technique** : Placing your **index** finger over internal ring, & the **middle** finger over external ring & the **ring** finger over femoral canal.

- ☆ Ask the patient to cough

- ☆ The result : If the mass protrude at ⇨

- **Index** finger (internal ring) = **Indirect** hernia.
- **Middle** finger (inguinal canal) = **Direct** hernia.
- **Ring** finger (femoral canal) = **Femoral** hernia.



ORAL DISCUSSION ABOUT : MANAGEMENT OF HERNIA

1- Indirect (oblique) inguinal hernia (O.I.H.)

✧ INOPERABLE

- If cardiac & chest troubles or patient refuse operation
- **Truss** : "Rate tail with perineal band" will be used

Q: What are the complications of the Truss?

- Adhesion
- ↑ Risk of strangulation.
- Infection.
- Pressure atrophy on local muscle.

✧ OPERABLE

Herniotomy

- Removal of hernia sac after reduction of the contents

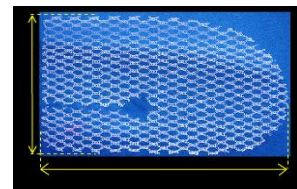
Herniorrhaphy

- **Herniotomy** + narrowing the defect & repair of post. wall of inguinal canal through one of the following methods ➡

- 1- **Bassini** repair.
- 2- **Shouldice** repair.
- 3- **Mc vey** repair.

Hernioplasty

- **Herniotomy** + repair the defect by synthetic material i.e **prolene mesh**



INDICATED WITH ➡

- ① infants
- ② children < 12 years
- ③ **small** hernial defect in adult with good musculature

INDICATED WITH ➡

large hernial defect in adult with good musculature

INDICATED WITH ➡

- ① old patient with weak musculature
- ② very wide defect
- ③ recurrent hernias

2- Direct inguinal hernia

- ✧ **INOPERABLE** : (Old) → **Truss** will be used.

- ✧ **OPERABLE** : **Herniorrhaphy or better hernioplasty**

3- Recurrent hernia

- ✧ Complete re- excision of sac then **Herniorrhaphy or better hernioplasty**

4- Femoral hernia

- ✧ Operations are the main treatment (**Truss is contraindicated**)
Because • Hernia not reducible • Not fit to upper thigh.

5- Incisional hernia

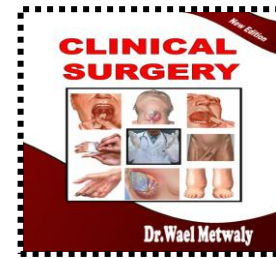
- ✧ **Inoperable** or Huge in size : → **Palliative abdominal corset**.
- ✧ **Operable** : Anatomical, Keel, Catell's repair (see operative notes)

6- Epigastric hernia

- ✧ If **small** → Excision & repair the defect in **linea alba**
- ✧ If **large** → **Mayo's** operation as **PUH**.

OSCE EXAM

* **WE MUST TO LOOK FOR**



Rt. O.I.H

+ve data

1. Inguino-scrotal swelling
2. Mass at hernia orifice
3. Reducible mass
4. Expansible impulse on cough
5. Soft & lobulated
6. Int. ring test = O.I.H

Bil. O.I.H (funicular)

+ve data

1. Bil. inguinal swelling
2. Mass at hernia orifice
3. Reducible mass
4. Expansible impulse on cough
5. Soft & smooth
6. Bil. Int. ring test = O.I.H

Epigastric hernia

+ve data

1. Epigastric swelling
2. Irreducible mass (partial)
3. Expansible impulse on cough
4. Soft & smooth
5. Rising test = more bulge

Paraumbilical hernia

+ve data

1. Supraumbilical swelling
2. Irreducible mass
3. Expansible impulse on cough
4. Soft & lobulated
5. Rising test = more bulge
6. Divercation of recti

ORAL DISCUSSION

HERNIA

Questions on anatomy





Q1: What is meant by groin area ?

- It is area above & below the inguinal ligament.

Q2: What is the attachment of inguinal ligament ?

- Attached from A.S.I.S → Pubic tubercle at symphysis pubis.

Q3: How can you DD between supra & infra-umbilical hernia ?

- By crescentic shape
 - If downward →  → Supra-umbilical hernia
 - If upward →  → Infra-umbilical hernia

Q4: What is the commonest incisional hernia & its ttt ?

- Post-appendicectomy & prophylaxis is main treatment.

Q5: What are the rare sites of hernia ?

- The rare sites are : Lumbar, obturator, sciatic, gluteal hernias....etc.

Questions on sheet

Q6: What is meant by ' Truss ' ?

- Truss is rate-tail with perineal band →
& Indicated with unfit patient to surgery.



Q7: When can you suspect ' Sliding hernia ' ?

- By renewed desire for micturation.

N.B: *Sliding hernia* mean urinary bladder forms a part of wall of hernia

Questions on general exam.

Q8: Why obesity contraindicate repair ?

- Because, fat separate between muscle fibers, so rate is very high.
→ So contraindicate repair.

Q9: What is meant by phantom hernia ?

- Phantom hernia = Malgaign's bulging = الشبج



Q10: Why appendicectomy may lead to direct inguinal hernia ?

- If complicated by cutting of ilio-inguinal nerve → Direct inguinal hernia.

Questions on local exam.

Q11: What are other causes of expansile impulse on cough ?

- Hernia
- Pneumatocoele
- Meningocele.
- Empyema necessitans.
- Laryngocele.

Q12: When hernia not show expansile impulse on cough ?

☆ If strangulated hernia only.

Q13: How can you 'clinically' detect the pubic tubercle ?

☆ Through, tendon of **adductor longus** muscle

Q14: How can you know neck of scrotum clinically ?

☆ By • Root of penis.
or • Change of shape of skin.

Q15: What are the types of inguinal hernia ?

A. Indirect inguinal hernia

- Congenital
- Infantile
- Adult (which may be) ⇨
 - *Bubonocoele* → Small hernia at inguinal canal.
 - *Funicular* → Reaching the neck of scrotum.
 - *Complete inguino-scrotal*.

B. Direct inguinal hernia
Medial & lateral [in relation to lat. umbilical ligament]

Q16: What are the DD of inguinal hernia?

	Indirect (Oblique) Inguinal Hernia	Direct Inguinal Hernia
• Age	• Any age.	• Usually old age
• Side	• Less common bilateral	• More common bilateral
• Shape.	• Pyriform (oblong)	• Hemispherical (rounded)
• Descent	• Downwards, forwards & medially	• Forwards
• Descent to scrotum	• Can descend.	• Extremely rare.
• Reduction.	• Upward, backwards & laterally.	• Backwards
• Internal ring test	• Hernia does not protrude	• Hernia protrudes
• External ring test	• impulse at tip of little finger.	• impulse at medial side of little finger.
• Complications	• More common	• Less common.

Questions on management

Q17: What is meant by ?

1. Pantaloon hernia ?

Direct & indirect hernia sacs at the same side. they saddle the inferior epigastric artery, one sac being medial & other lateral.

2. Litter's hernia ?

Meckel's diverticulum as a content of the hernia

3. Richter's hernia ?

A portion of the circumference of the intestine as a content of the hernia. this occurs in a femoral hernia.

4. Maydl's hernia ?

2 loops of the bowel (**Hernia-in-W**) as a content of the hernia.

5. Sliding hernia ?

Hernia where a viscus forms a part of the wall

Q18: Where are DD of swellings in femoral triangle ?

Reducible femoral hernia

REDUCIBLE INGUINAL HERNIA which characterized by ↗

Above & medial to pubic tubercle

FEMORAL ANEURYSM which characterized by ↗

Expansile pulsation & moves across but not along the course of artery.

PSOAS ABSCESS which characterized by ↗

Cross fluctuation

SAPHENA VARIX which characterized by ↗

Thrill on cough, completely disappear on lying down, venous hum on auscultation & apparent varicose vein.

Irreducible femoral hernia

IRREDUCIBLE INGUINAL HERNIA

LIPOMA which characterized by ↗

Soft, lobulated surface, slippery edge, superficial to muscles, skin over show dimpling, painless & pseudo-fluctuant swelling

INGUINAL L.Ns

ILIOPSOAS BURSA which characterized by ↗

Associated osteoarthritis of hip joint

Good luck

Inguino-scrotal sheet

INGUINO-SCROTAL CASE

INTRODUCTION

1. Inguino-scrotal swellings (Cannot get above the swellings)

- ✳ IF expansile impulse → with thrill & not reducible **Varicocele**
 → with no thrill & reducible **O.I.H** (Oblique Inguinal Hernia)

- ✳ IF no expansile impulse → with +ve transillumination.

- May be → ① Congenital hydrocele (Change in size)
 → ② Infantile hydrocele (No change in size)

2. Scrotal swellings (Can get above the swelling)

- ✳ IF testis & epididymis (felt)

- May be → ① Encysted hydrocele (gap)
 → ② Spermatocele (no gap)

- ✳ IF testis & epididymis (not felt)

- May be → **1^{ry} vaginal hydrocele**

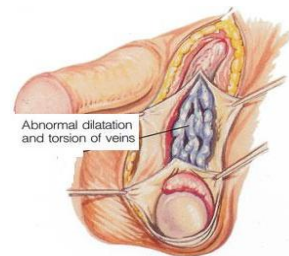
1- Varicocele

DEFINITION

It is multiple, dilated, elongated & tortuous veins of pampiniform plexus

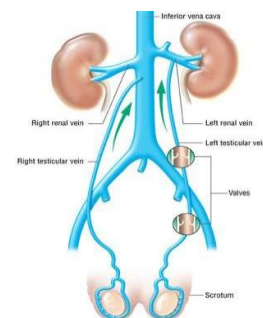
AETIOLOGY

- ① Congenital weakness of wall of veins
- ② Congenital absence of valves.
- ③ Prolonged sitting or standing.
- ④ Chronic constipation or straining at stool.
- ⑤ Unrelieved sexual desire.



SITE It occurs at Lt. Side (95%) why ? Because ↗

- ① **LT, TESTICULAR VEIN** opens into the Lt. renal vein at right angle which has no protective valves
- ② **LT, TESTICULAR VEIN** lies beneath the sigmoid colon & so liable to compression.
- ③ **LT, TESTICULAR VEIN** be longer because the Lt. testis usually lies at lower level



COMPLICATIONS

- ① **Infertility** especially bilateral
Q: What are the 2 theories which explain ? (See Q: 1)
Q Why is infertility occurs inspite of being unilateral ? (See Q2)
- ② Recurrent attacks of **thrombophlebitis**.
- ③ **2^{ry} hydrocele** (↓ drain of pampiniform plexus)
- ④ **Testicular atrophy**.
- ⑤ **Neurosis** & Interfering normal activity by **sagging skin**

INVESTIGATIONS

- 1- Doppler & duplex scan can** detect reversal of the blood flow
- 2- Semen analysis :** In case of infertility.

TREATMENT

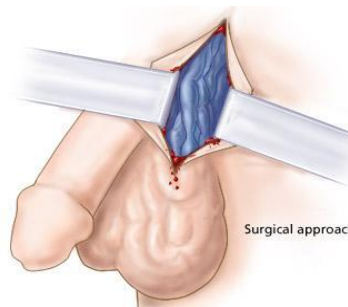
A- Conservative treatment

- ① Avoid straining & treatment of constipation
- ② Scrotal suspender better avoided (*See Q: 3*)
- ③ Sexual life is regulated
- ④ Patient takes frequent cold paths

B- Surgical treatment

INDICATIONS

- ① Large sized **painful** varicocele.
- ② **Oligospermia**
- ③ **Failure** of medical treatment.



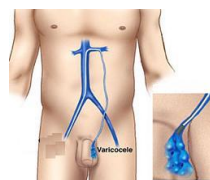
PRINCIPLES

High abdominal (**Palomas**) ligation

2^{ry} Varicocele

AETIOLOGY

It is due to obstruction of testicular veins high up in abdomen as hypernephroma or after herniorrhaphy



	1 ^{ry} varicocele	2 ^{ry} varicocele
➤ Age	• 15 - 25 years	• > 40 years
➤ On lying down	• Disappears	• Not disappear
➤ Abdominal exam	• No swelling	• Present • e.g. hypernephroma

INVESTIGATIONS

- 1- Doppler & duplex scan can** detect reversal of the blood flow in testicular vein (incompetent valves).
- 2- Semen analysis :** In case of infertility.

TREATMENT

Treatment of the cause

I- VARICOCELE SHEET

* PERSONAL HISTORY

1. Name
2. Age
3. Sex : Male
4. Occupation : Jobs with prolonged standing at hot weather
5. Residence
6. Marital status (for infertility)
7. Sexual history (for unrelieved sexual excitement)
- 8 Special habits of medical importance.



- * **COMPLAINT** • Multiple swellings ± pain or complications as infertility

* PRESENT HISTORY

- I. Analysis of **complaint**
- II. Analysis of symptoms related to **part** affected
- III. Analysis of symptoms related to **other parts** affected

I. Analysis of complaint (Swelling ± pain)

1. **O.C.D** - 1^{ry} Varicocele = gradual onset & long duration.
- 2^{ry} Varicocele = sudden onset & short duration.

2. PAINS

- ☆ Site, Side
- ☆ Number
- ☆ Investigations & ttt (using scrotal suspender or not)
- ☆ Associated swelling as (as inguinal region) (See Q: 4)
- ☆ Pain (if present) → Dragging (cord traction)
→ Dull ache (congestion)

1. O.C.D

2. Site
3. Extent
4. Characters
5. ↑ by
6. ↓ by
7. Associated symptoms

II. Analysis of symptoms related to part affected

- ⊗ Thrombophlebitis : If occur [F.H.M.A + firm & tender cord like]
- ⊗ Sagging scrotal skin may interfere patient's activity.

III. Analysis of symptoms related to other parts affected

- ⊗ Infertility (the commonest symptom)

* PAST HISTORY

- ★ Similar condition
- ★ History of diseases as DM, hypertension, heart diseaseetc
- ★ Previous operations i.e. herniorrhaphy
- ★ Previous abdominal swelling i.e. hypernephroma

* FAMILY HISTORY

EXAMPLE OF

VARICOCELE SHEET

* PERSONAL HISTORY

..... male patient, 35 years old, بائع live in بولاق married since 3 years & has 2 children, The youngest is 6 months. No special habits of medical importance.

* COMPLAINT

Painful Lt. scrotal swellings 3 years ago.

* PRESENT HISTORY

- The condition start since 3 years by **gradual** onset & slowly **progressive** course.
- The condition is associated with multiple swellings at Lt. side of scrotum then becomes bilateral.
- No inguinal swellings e.g. thrombophlebitis L.Ns.
- The pain is heaviness , dragging in character .
Also ↑↑ by prolonged standing & ↓↓ by cold baths.
- No symptoms suggesting local complications
as superficial thrombophlebitis but there is sagging of scrotal skin.
- No investigations & treatment was done.
- He is advised to use scrotal suspender but he didn't use it.
- No history about infertility.

* PAST HISTORY

- No similar condition, No D.M., No T.B., No bilharziasis, No drug allergy.
- The patient have cardiac trouble.
- No history about renal mass or hernia operations.

* FAMILY HISTORY

No family history of similar condition (Irrelevant)

DIAGNOSIS

Bilateral (non complicating) 1^{ry} Varicocele

II- GENERAL EXAMINATION

☆ **As Usual** (If you suspect 1^{ry} Varicocele) look for weak mesenchyme
but (If you suspect 2^{ry} varicocele) look for ↗

➤ **Abdominal swelling i.e. Hypernephroma**

➤ **Scars** for hernia operations (at hernia orifices) *i.e. Herniorrhaphy*

III- LOCAL EXAMINATION

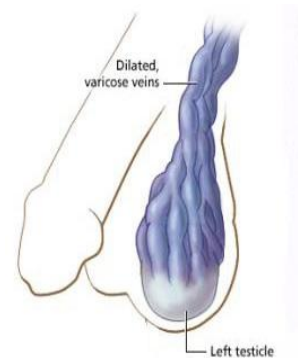
⇒ **PROPER POSITION** patient 1st standing then lying down

⇒ **PROPER EXPOSURE** from umbilicus down to knees.

A. The patient is standing

* INSPECTION

- ① **Swellings** :
 - Unilateral or bilateral. (commonly at Lt. side)
 - Multiple, elongated & tortuous veins
 - Inguino-scrotal swellings.
- ② **Skin over** :
 - **Sagging** skin
 - For Redness as in **thrombophlebitis**
- ③ **Inguinal region** : To exclude
 - Oblique inguinal hernia (O.I.H)
 - Inguinal L.Ns enlargement
- ④ **Scrotum** :
 - Symmetry of shape & size of scrotal compartment.
How ? by looking to median raphe.
 - The Lt. side hangs lower than Rt. side
 - Associated cutaneous scrotal swellings as **SEBACEOUS CYST**.
- ⑤ **Penis** :
 - Congenital anomalies. [Phimosis, paraphimosis, epispadias & hypospadias]
 - Circumcised or not

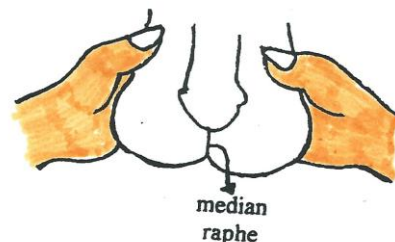


* PALPATION

- ① **Swellings** : " Inguino-scrotal" by examination of neck of scrotum
*Q: How can you detect it clinically?
(See Q: 5)*

Then comment as Inspection + ↗

- The veins are soft & compressible.
- Palpable thrill on cough



Special test → **BOW TEST**

☆ If the examiner lightly holding the varicocele between the fingers & thumb,
Then the patient is instructed to bow. The tension within the veins becomes obviously less

☆ Explanation

(Bowling → obliteration of lumbar lordosis so → leads to increase venous return ↑ V.R)



② **Skin over** : [As inspection + 3T]

- Temp. is usually warm.
- Tender cord like if thrombophlebitis
- Thrill on cough.

③ **Inguinal region** : same as inspection

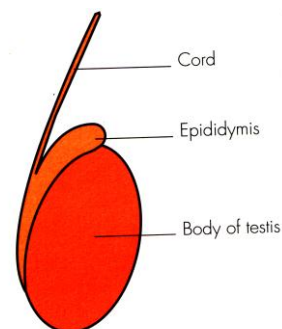
④ **Scrotum** : same as inspection

⑤ **Penis** : same as inspection

⑥ **Tunica vaginalis**

Minimal effusion i.e. 2^{ry} small hydrocele.

Which is tested by **pinching test** : by pinching the tunica over testis "normally doesn't pinch."



⑦ **Testis** • Slippery edge.

- **Oval** in shape & **firm** in consistency.
- **Testicular sensation** (by patient himself). (See Q: 6)

⑧ **Epididymis** • normally is definable

⑨ **Spermatic cord** : (Rolling the components between thumb & index)

- Normally the size is less than thickness of little finger.
- We felt **bag of worms** of dilated veins



B. The patient is lying down

* **INSPECTION** • The varicocele is **diminished** in size (If 1^{ry} varicocele)

* **PALPATION** • The scrotum is elevated, because action of cremasteric muscle
 • The veins - If empties completely → 1^{ry} varicocele.
 - If empties partially → 2^{ry} varicocele.

2- Hydrocele

DEFINITION

It is a collection of fluid in tunica vaginalis

CLASSIFICATION It may be ↗

1- Hydrocele of the tunica vaginalis & processus vaginalis

Congenital, infantile & vaginal hydrocele (1^{ry} or 2^{ry})

2- Hydrocele of the spermatic cord

Encysted hydrocele, diffuse hydrocele & hydrocele of hernia sac

Hydrocele of tunica vaginalis

1- Congenital hydrocele

DEFINITION

Processus vaginalis remains patent & connected by a small opening to peritoneal cavity,

CLINICAL PICTURE

- **Age :** In infants (few months).
- **Symptoms :** Inguino-scrotal swelling with change in size i.e. ↓↓ in early morning & ↑↑ at end of day.
- **Signs :** Cystic & translucent inguino-scrotal swelling

TREATMENT

- **UPPER PART :** Transfixed as treatment of hernia.
- **LOWER PART :** Everted as treatment of hydrocele



2- Infantile hydrocele

DEFINITION

As congenital type but **no** connection to peritoneal cavity

CLINICAL PICTURE

- **Age :** Not necessarily in infant
- **Symptoms :** Inguino-scrotal swelling with **no** change in size.
- **Signs :** Cystic & translucent inguino-scrotal swelling

TREATMENT

Everted as treatment of hydrocele..



3- Vaginal hydrocele

A- 1^{ry} vaginal hydrocele

DEFINITION

Collection of fluid in the tunica vaginalis only.

CAUSES

Unknown but may be due to irritation by trauma

PATHOLOGY **Hydrocele fluid :**

H₂O, salts, albumin & **fibrinogen** (See Q: 8)

CLINICAL PICTURE

- **Age :** Middle aged & elderly male
- **Symptoms :** **Scrotal** swelling
- **Signs :** ① Cystic & translucent scrotal swelling (you can get above it)
② Dull on percussion.
③ By **transillumination** it is translucent.

COMPLICATIONS:

- ① **Pyocele :** If infection.
- ② **Calcification** of sac.
- ③ **Hematocele :** If trauma or attempts for aspiration.
- ④ **Interfere** for daily activity.
- ⑤ Huge expansion of the scrotum leading to indrawn of the penis which may interfere with intercourse

D. D Pyocele, hematocele & chylocele.

TREATMENT

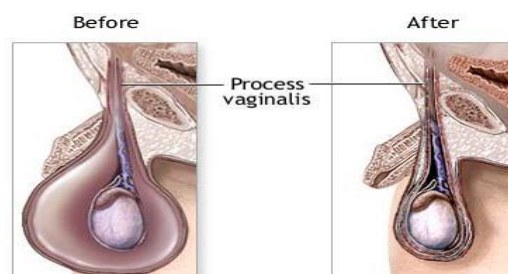
A- Aspiration (Better avoided)

- **Indicated** when an operation cannot be done e.g. old age
- **Complicated by** hemorrhage, infection, testicular atrophy & recurrence.

B- Surgical treatment

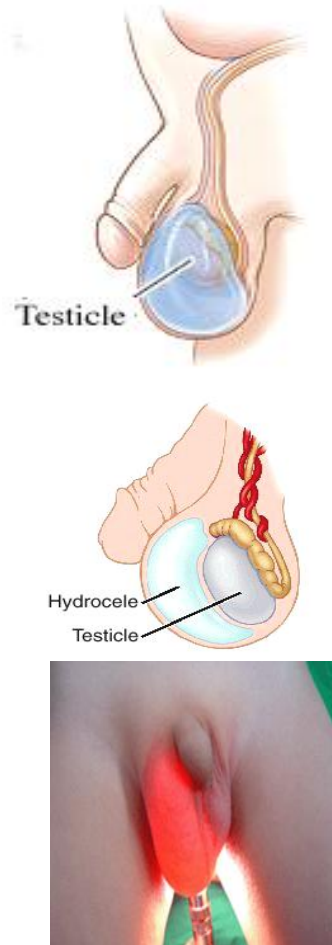
PRINCIPLES

- ① Eversion of tunica.
 - ② Excision of tunica.
 - ③ **Lord's** operation
- } **See operative details**



B. 2^{ry} vaginal hydrocele

- 2^{ry} to**
- **Acute :** Acute epididymo-orchitis & endemic funiculitis.
 - **Chronic :** \$ or T.B, ~~B~~ or filariasis or after varicocele or hernia operation.



I. HYDROCELE SHEET

* PERSONAL HISTORY

1. Name
2. Age
3. Sex : Male
4. Occupation
- مهم جدا 5. Residence : Endemic area as Rasheed, Domiette, El sharkia.... etc.
6. Marital status may be infertility if atrophy of testis occur.
7. Special habits of medical importance.

* COMPLAINT • Scrotal swellings ± pain

* PRESENT HISTORY

- I. Analysis of **complaint**
- II. Analysis of symptoms related to **part** affected
- III. Analysis of symptoms related to **other parts** affected

I. Analysis of complaint (Swelling ± pain)

1. O.C.D.

2. PAINS

- ☆ Site, Side
- ☆ Number
- ☆ Investigations & treatment
- ☆ Associated swelling as (Inguinal region) (See Q: 9)
- ☆ Pain (if present)

1. O.C.D

- 2. Site
- 3. Extent
- 4. Characters
- 5. ↑ by
- 6. ↓ by
- 7. Associated symptoms

II. Analysis of symptoms related to part affected

i.e. Complications

- ① If tender + fever → This means infection [**Pyocele**]
- ② If tender + trauma or attempts for aspiration → This means [**Hematocele**]
- ③ If becomes hard → This means [**Calcification**]
- ④ If elephantoid fever → This means [**Chylocele**]

III. Analysis of Symptoms related to other parts affected

⊗ Infertility as sexual dysfunction.

⊗ Other symptoms (if you suspect 2^{ry} hydrocele).

As varicocele or previous operation for hernia

* PAST HISTORY

- * Similar condition
- * History of diseases as DM, hypertension, heart disease etc....
- * Previous operation for hernia i.e. 2^{ry} hydrocele

* FAMILY HISTORY

EXAMPLE OF

HYDROCELE SHEET

* PERSONAL HISTORY

..... male patient, 50 years old, worker, borne in Menia and live in Shobra, married since 25 years & has 4 children, the youngest 8 years old, his is smoker, smokes 20 cig/d since 30 years.

* COMPLAINT

Painful Lt. scrotal swelling 8 years ago

* PRESENT HISTORY

- The condition started since 8 years by gradual onset and slowly progressive course then becomes stationary.
- The condition is associated with single swelling at Lt. side of scrotum.
- No inguinal L.Ns i.e. No pyocele
- The pain is heaviness in character.
- **No symptoms suggesting local complications as** ↗
 - ◇ No fever or redness i.e. No pyocele.
 - ◇ No trauma or attempts of aspiration i.e. No hematocele
 - ◇ Not hardness i.e. No calcification
 - ◇ No fever increased with swelling i.e. No chylocele.
- **No symptoms suggesting the cause as** ↗
 - ◇ No varicocele
 - ◇ No previous operation for hernia
- **No treatment was done** but patient asked about semen analysis & told that there is **infertility**.

* PAST HISTORY

- No similar condition, No D.M., No heart disease, No hypertension, No drug allergy.
- No history about renal mass or hernia operations.

* FAMILY HISTORY

No family history of similar condition (irrelevant)

DIAGNOSIS

1^{ry} vaginal hydrocele (complicated with infertility)

II- GENERAL EXAMINATION

☆ **As usual** (If you suspect 2^{ry} hydrocele) look for ➤

➤ **Scars** for hernia operations (at hernia orifices) *i.e. herniorrhaphy*

III- LOCAL EXAMINATION

➤ **PROPER POSITION** : Patient is standing **Only**

➤ **PROPER EXPOSURE** from umbilicus down to knees.

➤ **DON'T FORGET** → 1^{ry} hydrocele is large & tense cystic. (**+ ve fluctuation test**)

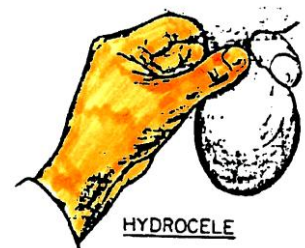
→ 2^{ry} hydrocele is small & lax. (**+ve pinching test**)

* INSPECTION

- ① **Swellings** :
 - Unilateral or bilateral. (commonly at bilateral)
 - Pyriform in shape if 1^{ry} hydrocele
 - Scrotal swelling
- ② **Skin over** : same as varicocele but no sagging skin
- ③ **Inguinal region** : same as varicocele
- ④ **Scrotum** : same as varicocele
 - but may be associated with cutaneous hypertrophy
 - by hard non-pitting oedema *i.e.* filariasis
- ⑤ **Penis** : same as varicocele

* PALPATION (Examine the healthy side 1st)

- ① **Swellings** : as inspection + ➤
 - The swelling is smooth surface.
 - Not show expansile impulse or thrill on cough.
 - ② **Skin over** :
 - ③ **Inguinal region** :
 - ④ **Scrotum** :
 - ⑤ **Penis** :
- Same as **inspection**



⑥ **Tunica vaginalis Shows** → Effusion, which may be ➤

1. **Minimal**, If 2^{ry} hydrocele

✧ By **Pinching test**

2. **Marked**, If 1^{ry} hydrocele

✧ By **Bipolar fluctuation** →

- Put the thumb in front & the middle
- Three fingers of one hand behind the Neck of scrotum.

• **The result**: If you receive an impulse by the fingers at the neck of scrotum this indicates presence of fluid in the tunica.



- ⑦ **Testis** ← **Not felt or (Difficult to be felt)**
- ⑧ **Epididymis** ←
- ⑨ **Spermatic cord** : (Rolling the components between thumb & index)
 - Normally the size is less than thickness of little finger.
 - **We felt** → **Matted** cord if filariasis
 - **Nodular** Vas if \emptyset or **beaded** vas if T.B
 - **Cyst** in cord if encysted hydrocele of cord.

Q: How to Differentiate Encysted Hydrocele of cord & Spermatocoele?

By Moving the swelling by one hand & the testis by opposite hand, away from each other.

- ☆ **If no gap** = Spermatocoele.
- ☆ **If gap** = Encysted hydrocele of cord.



* TRANSILLUMINATION

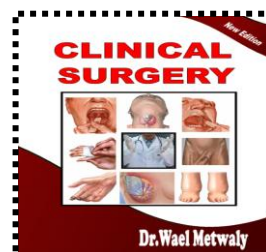
- ☼ Put a light source on one side of the scrotum and look through a Black tube from the opposite side
- ☼ If light is transmitted through the swelling, it is called Translucent



N.B.: **Causes of Opaque Hydrocele**

- Pyocele
- Hematocele
- Chylocele
- Calcified tunica

OSCE EXAM



* WE MUST TO LOOK FOR

Lt. 1ry Varicocele

complicated with 2ry hydrocele

+ve data

1. Multiple dilated elongated tortuous soft compressible veins
2. Spermatic cord shows **bag of worms**
3. **Thrill** on cough
4. +ve Pinching test
5. +ve Bow test
6. **Emptying** with scrotal elevation on supine position

Rt. 1ry vaginal hydrocele

+ve data

1. **Rt. scrotal swelling**
2. Huge Rt. scrotal swelling & at lower level than Lt.
3. +ve Bipolar fluctuation test
4. +ve Transillumination test

ORAL DISCUSSION

INGUINO-SCROTAL

VARICOCELE CASE



Q1: What are the 2 theories which explain infertility ?

- **Congestion**
- **Toxins** [↑ steroids & catecholamine] → ↓ Spermatogenesis.

Q2: Why infertility occur inspite of varicocele being unilateral ?

- Both testis are affected due to presence of intercommunicating veins

Q3: Why scrotal suspender better avoided ?

- Because, inspite of ↓ pain but ↑ risk of infertility

Q4: What are causes of swellings at inguinal region ?

- **L.Ns** (If thrombophlebitis)
- **O.I.H** (If associated)

Q5: How can you detect the neck of scrotum clinically ?

- At root of penis

Q6: What are the causes of lost testicular sensation ?

- Malignancy & gumma (\$)

HYDROCELE CASE

Q7: What are the contents of spermatic cord ?

- Vase
- Vestige of processus Vaginalis
- **A** = Artery of vas & Testicular artery.
- **V** = Pampiniform plexus
- **N** = Sympathetic elements
- **L** = Lymphatic vessels

Q8: How can you DD of hydrocele fluid & CSF ?

- Put drop of blood • CSF → no clotting
• Hydrocele fluid → clotting.



Q9: What are causes of swellings at inguinal region ?

- **L.Ns** (If Pyocele)
- **O.I.H** (If associated in 5 % of cases).

Good luck

Abdominal sheet

ABDOMINAL SHEET

* PERSONAL HISTORY

1. Name
2. Age — \nearrow \nexists splenomegaly common in **young adult**
 \searrow Splenomegaly due to hemolytic anemia common in **children**
3. Sex — \nearrow \nexists splenomegaly common in **male**.
4. Residence \nexists splenomegaly more common in endemic area as **villages**
5. Occupation \nexists Splenomegaly more common in **farmers**
6. Marital status
7. Special habits \rightarrow **Swimming** in canals predispose to \nexists liver cirrhosis
 \rightarrow **Alcohol** my predispose to no \nexists liver cirrhosis

Q: What are the hazards of alcohol ? (See Q:1) \longrightarrow

* COMPLAINT "May be one the following"

- | | |
|-----------------------------|-----------------------|
| 1. Swelling. | 2. Pain. |
| 3. Upper GIT symptoms. | 4. Lower GIT symptoms |
| 5. Hepato-biliary symptoms. | 6. Urinary symptoms. |



* PRESENT HISTORY

1. SWELLING

1. **O.C.D** (Onset - **C**ourse - **D**uration)

2. **PAINS**

- ☆ **Site** , **Side**
- ☆ **Investigations & treatment (done before)**
- ☆ **Associated swelling** as (suggestive of malignancy)
- ☆ **Pain** " if present"

2. PAIN

e.g. In case of "splenomegaly" (See Q:2)

- ☆ **Site**: Lt. hypochondrium
- ☆ **Characters** **Dragging** pain (heaviness) from traction of huge spleen.
Stitching pain due to peri-splenitis.
Dull ache pain due to congestion.
- ☆ **Severity** : variable.
- ☆ **Radiation** : [In peri-splenitis only] to Lt. shoulder.
- ☆ **Aggravating factors** : (\uparrow) with exercise & heavy meals.
- ☆ **Relieving factors** : (\downarrow) with lying down & rest.

Don't forget

Ask about associated **fever** with splenomegaly.
as in (malaria) or (liver cirrhosis)

3. Upper GIT symptoms:

A. Oro-oesophagus → **Bad smell** of mouth “halitosis” e.g. fetor hepaticus with (L.C.F)
→ **Dysphagia** for fluids e.g. achalasia
or solid e.g. cancer oesophagus

B. Gastric: → **Hematemesis**

- ☆ Frequency (number of attacks) & date of last one.
- ☆ Amount (in cups)
- ☆ History of blood transfusion
- ☆ Colour of blood “ fresh or coffee” **What is difference? (See Q: 3)**
- ☆ Associated melena.
- ☆ Admission to hospital, Ryle or any tube application.

Q: What is DD between Hematemesis & Haemoptsis?

Q: What are the commonest 2 causes? (See Q: 4 & 5)

- **Appetite** : Lost in malignancy & T.B
- **Vomiting**: “Frequency-amount-colour-odour-content”
- **Heart burn**: Relation to postural.
- **Eructation & water brush**

4. Lower GIT symptoms

A. Defecation: “Analysis as vomiting”

B. Melena or fresh bleeding per rectum.

N.B.: *Melena means black tarry stools & persist 2- 4 days after stoppage of hematemesis.
(About 50 cc blood from upper GIT can produce it)*

Q: What are DD black stool? (See Q: 6)

Q: What are the causes of bleeding per rectum? (See Q: 7)

5. Hepato-biliary symptoms

A. Gall bladder → Fatty dyspepsia.

B. Liver

- Jaundice
 - *Hepato-cellular* : in liver cirrhosis
 - *Obstructive*: in liver metastasis
- Liver cell failure: (**L.C.F**)
 - Jaundice
 - Gynaecomastia
 - Oedema & ascites.
 - Loss of libido
 - Bleeding tendency.
 - Palmar erythema.

6. Urinary tract symptoms:

A. Urine: (Amount - Colour - Odour - content “as hematuria”)

B. Urination difficulty , hesitancyetc.

* PAST HISTORY

- ★ Similar condition
- ★ Diseases as DM, hypertension, heart diseaseetc.

* FAMILY HISTORY

- ★ Hemolytic anemia.
- ★/B splenomegaly in endemic area.

EXAMPLE OF

ABDOMINAL SHEET

* PERSONAL HISTORY

..... male patient, 44 years old, borne and live in حلمية الزيتون hair dresser, married since 4 years, has 2 children, the youngest has 6 months, He is smoker, smokes 10 cigarettes per day for 10 years. No special habits of medical importance as (swimming in channels).

* COMPLAINT

Painful mass at Lt. upper abdomen 7 years ago.

* PRESENT HISTORY

- The condition is started 7 years ago by abdominal distension and bilateral swelling of both lower limbs by gradual onset and progressive course.
- The patients is admitted to الدمرداش hospital and received medical treatment in form of Lasix, Aldactone and tapping about 1.5 litter which is yellowish in colour and clear.
- 2 months later the patient complain of pain in Lt. hypochondrium which is heaviness in characters, ↑ by walking, eating & heavy meals. and ↓ by rest and light meals.
- The condition is not associated with fever.
- The patient had attack of bilharziasis in form of **terminal hematuria** since 25 years and treated by Tarter emetic ampoules.
- No history of blood transfusion.
- No upper G.I.T. symptoms as halitosis, dysphagia, hematemesis, vomiting, heart burn, loss of appetite or water brush etc.....
- No lower G.I.T symptoms as diarrhea, constipation, melenaetc.
- No Hepato-biliary symptoms as fatty dyspepsia, jaundiceetc.
- No urinary tract symptoms as urgency..... etc.

* PAST HISTORY

No past history about recurrence, No DM, No hypertension, No T.B, there was history about cardiac operation since 15 years (pericardectomy)

* FAMILY HISTORY

No family history of similar condition (irrelevant)

DIAGNOSIS

Swelling in Lt. hypochondrium most probably **bilharzial (splenomegaly)**

I- GENERAL EXAMINATION

A. **VITAL SIGNS** As usual " See page 2 "

B. SYSTEMIC EXAMINATION

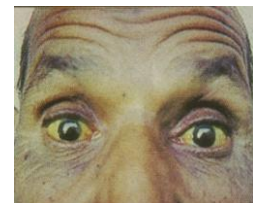
A = Appearance	→ Cachexia in cancers →
B = Built	→ Underweight in bilharziasis
C = Conscious	→ Drowsiness in uremia or (L.C.F)
D = Decubitus	→ Leaning forward in cancer pancreas
E = Emotion	→ Alert in uremia.
F = Face	→ Toxic in infection & earthy in uremia.



C. SYSTEMIC EXAMINATION

I. HEAD :

1. **Skull & scalp** : for metastasis
2. **Eyes** : for pallor, jaundice & oedema at upper eye lid
3. **Mouth** : → **Oral cavity** for fetor hepaticus as in (L.C.F)
→ **Lips** : Pallor or peripheral cyanosis
→ **Tongue** : ~~Ø~~ Glossitis, central cyanosis
4. **Endemic parotitis** : common with bilharziasis.



II. NECK : V + L + Spider naevi.



III. UPPER LIMB :

- ☆ **Hand** → Palmar erythema → **Q: What is meant by it ? (See Q: 8)**
- Flapping tremors as in (L.C.F)

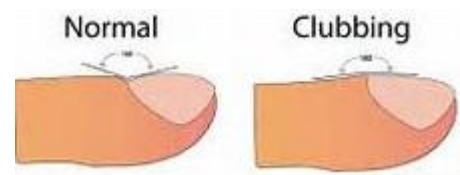


☆ **Spider Naevi:** (See Q: 9)

☆ **Pulse:** Hyperdynamic in anemia as in (L.C.F)

☆ **Clubbing fingers** :

Q: What are the degrees? (See Q: 10)



IV. LOWER LIMB : → Oedema as in (L.C.F)
→ Dorsalis pedis artery pulsation.

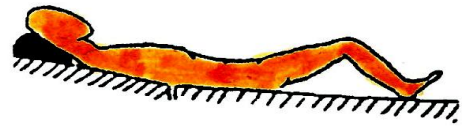
V. CHEST : → Sternum for tenderness e.g. leukemia.
→ Gynaecomastia & spider naevi as in (L.C.F)

VI. SCROTUM → For testicular atrophy as in (L.C.F)

II- LOCAL EXAMINATION

➡ PROPER POSITION

- The patient should lie flat on his back with knee (flexed to relax abdominal muscles)
- The examiner should be at Rt. side of the patient.



Position of Examination

➡ PROPER EXPOSURE

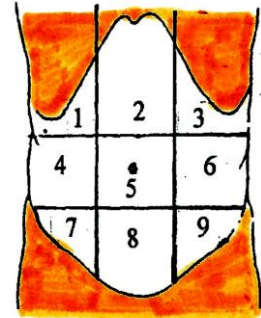
The patient is exposed from nipple to mid thigh to expose hernia orifices

The abdomen is divided into (9 Regions) by ➡

☆ 2 Horizontal planes

- The upper one : Trans-pyloric plane or sub-costal plane (midway between supra-sternal notch & symphysis pubis).
- The lower one: Inter-crestal or inter-tubercular (passes through the upper border of the iliac crest)

☆ 2 Vertical planes : Mid-clavicular line



* INSPECTION

** Anterior abdominal wall

- A. Vital Triad. (3 signs)
- B. Middle line (7 signs)
- C. Sides (7 signs)

A. Vital Triad

1. Movement with respiration

- Normally freely mobile
- No movement = Peritonitis.
- Decreased movement = Tense ascites.

2. Contour of the Abdomen

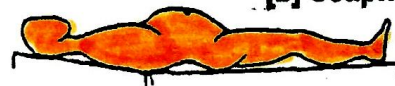
- Normally preserved waist.
- **Scaphoid** = Starvation or dehydration.
- **Bulging** = Localized = organ swelling.
or diffuse = **5 F**



[a] Normal



[b] Scaphoid



[c] Distended

[Fat (obesity) - Feces - Fetus - Fluid (ascites) - Fibroid]

3. Bulging masses.

But Don't Forget

☛ To DD intra-abdominal from extra-abdominal masses

1- By contraction of abdominal muscle if mass (↓) in size this means → intra-abdominal mass

2- Movement with respiration i.e. Moves up & down with respiration means → Intra-abdominal Mass

B. Middle line 7 signs

① Sub-costal angle

- **Normally** acute to right angle (70 - 90°)
- Obtuse angle = e.g. Ascites.

② Epigastric pulsation

- **Aortic** : (Thin, A.R or aneurysm)
- **Rt. ventricle** (Hypertrophy or \bowtie cor-pulmonale)
- **Hepatic** (TI, TS or hemangioma)

③ Visible peristalsis

- Small intestinal obstruction : (**Step ladder**)
- Pyloric obstruction: (**Lt. to Rt.**)

④ Diverication of recti (**Rising test**) :

Normally absent If +ve It is due to \uparrow (I.A.P)

⑤ Umbilicus

a) Site :

- **Normally** midway between xiphisternum & symphysis pubis
- Pushed downwards = (Ascites, gastric, hepatic, splenic masses)
- Pushed upwards = (Pelvi-abdominal masses)

b) Shape :

- **Normally** inverted
- Everted = \uparrow (I.A.P).

c) **Hernia** : If present shows expansile impulse on cough.

d) **Dilated veins** (Caput medusa) = Portal hypertension

e) **Skin pigments** : The most common is **dirts**

f) **Nodules** around **umbilicus** (**Sister's Josef nodules**).

- Breast cancer, GIT cancer & liver cancer

g) Discharge

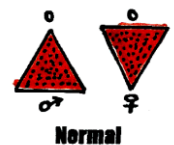
- **Pus** In inflammation.
- **Stool** In intestinal fistula.
- **Urine** In patent urachus

h) Ulceration.

i) Scars

⑥ Supra-pubic hair distribution

- **Normally** \rightarrow *Male* : Triangular with apex towards umbilicus.
 \rightarrow *Female* : upper horizontal line.
- Feminine distribution \rightarrow as in (**L.C.F**)



⑦ External genitalia e.g. \bowtie mass of cord.

C. Side 7 signs

① Scars

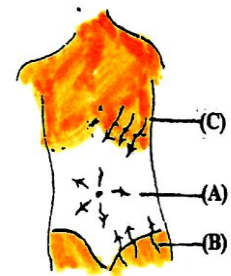
- Site & direction & length
- Healing 1^{ry} or 2^{ry} Intention (for DD) (**See Q: 11**)
- Impulse on cough (incisional hernia)

② Scratch Marks: In obstructive jaundice 2^{ry} to purities i.e. \uparrow bile salts

- ③ **Special pigmentation** : e.g. Ecchymosis as in (**L.C.F**)
- ④ **Striae** (due to rapid stretching of abdominal wall so rupture of elastic fiber).
 - ✳ **Types** → **Stria alba** : obesity, ascites.
 - **Stria rubra** : Cushing syndrome or steroid therapy.
- ⑤ **Dilated veins Q : How to DD visible veins? (See Q: 12)**
 - ✳ **Causes**
 - a. **I.V.C. obstruction** → fills from below to upwards.
 - b. **S.V.C. obstruction** → fills from above to downwards.
 - ✳ **For DD (Portal hypertension & IVC obstruction)**
 - By distribution & direction.
 - Portal hypertension = Around umbilicus & the blood flow **away from** umbilicus.
 - I.V.C. obstruction = lateral & below to umbilicus & the blood flow **towards** umbilicus.
 - ✳ **So for DD** → Select vein below umbilicus & examine the direction of flow
- ⑥ **Hernia orifices** :
- ⑦ **Breast** :
 - a. **Atrophy of female breast** → as in (**L.C.F**)
 - b. **Gynaecomastia**
 - ✳ **DEFINITION** ☆ Bilateral & tender enlargement of the male breast due to hypertrophy of the glandular tissues (i.e. like a **disc**)
 - ✳ **CAUSES** : ☆ **L.C.F** because of ↑ Oestrogen.
 - ☆ **Drugs** as Spironolactone

Dilated veins Abdomen

(A)- Caput Medusa.
(B)- IVC obstruction.
(C)- SVC obstruction.



NB. Don't forget : Inspection of 4 backs

1. Back of patient for
2. Back of scrotum for T.B sinus.
3. Back of breast for monelial infections.
4. Back of knee for becker cyst

Deformities
Tenderness
Scars

Kyphosis
scoliosis
Kypho-scoliosis

*** PALPATION TECHNIQUE OF PALPATION**

- ✳ **Relax** the abdominal wall by (ask pt. to flex L.L).
- ✳ **It should be** done with warm, gentle hand to avoid guarding of abdomen & using flexor surface of fingers.
 - Q : For DD guarding & rigidity ? (See Q:13)**
- ✳ **Superficial palpation**
 1. To get patients confidence
 2. To detect • **Superficial swelling** • **Tenderness** • **Rigidity**
- ✳ **Deep palpation**
 1. For any abdominal swelling.
 2. For abdominal organs as.
 3. For L.Ns
 - Liver & Gall bladder
 - Spleen
 - Kidney

1. LIVER

✧ **Upper border** : Hepatic dullness detected by **heavy** percussion.

✧ **Lower border** : Detected by palpation & **light** percussion

I. Ordinary technique

☆ **Rt. lobe** : From the Rt. iliac fossa upwards

☆ **Lt. lobe** : Middle line, midway between umbilicus & xiphoid process or a hand breadth below xiphoid

II. Bimanual technique

Where the liver edge can be made more prominent.

☆ **By putting the Lt. hand** under the lower ribs and lifting them forwards.

III. Hooking technique

☆ **If shrunken liver** (patient in supine position) as in ➤

- ① Stage III & IV ⚡
- ② Liver cirrhosis

IV. Dipping technique

☆ **If tense ascites** we put the fingers on the abdomen by a quick push the abdominal wall is depressed to displace fluid and hit the organ



N.B. Character of liver

1. Intra-abdominal swelling at Rt. hypochondrium.
2. Moving up & down with respiration.
3. Rounded border (**except** : If cirrhosis) it is sharp.
4. Dull & continuous with hepatic dullness.

N.B. Normal liver span

- ☆ **Middle line** = 4 - 8 cm
- ☆ **Rt. MCL** = 8 - 16 cm.

☆☆ **Then comment on :**

1. **Site** : • Rt. hypochondrium.
2. **Size** : • Normally (not felt below the costal margin)
 - **Enlarged** : patient's finger breadths below costal margin
 - **Shrunken** : As in liver cirrhosis
3. **Edge** : → • Normally → Rounded.
 - • Sharp → If liver cirrhosis
4. **Consistency** : • Soft → Usually.
 - Firm → Liver B /
 - Hard → Malignancy.
 - Cystic → Amoebic abscess.
5. **Surface** : • Smooth → Usually.
 - Irregular → liver cirrhosis
 - Nodular → malignancy
6. **Tenderness** :

1. Congestive H.F.
2. Malignant Liver.
3. Amoebic hepatitis.
4. Infective hepatitis.
5. Pyemic abscesses.
6. Acute (V.O.D)

2. SPLEEN

I. Bimanual technique

☆ From Rt. iliac fossa then from Lt. iliac fossa

Q: Why enlarged spleen crosses the middle line? (Q: 15)

II. Hooking technique

III. Percussion of traube's area



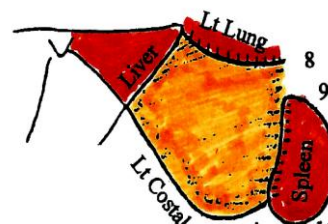
TRAUBE'S AREA

⊛ Definition:

An area of tympanatic resonant overlying the air bubbles of stomach.

⊛ Boundaries :

- **Lt.** : Anterior margin of spleen.
- **Rt.** : Inferior border of liver.
- **Above** : Lower border of Lt. lung.
- **Below** : Left costal margin.



⊛ Causes of increase its size

- ① Splenectomy ② Shrunken liver
- ③ Dilated stomach. ④ Lt. basal collapse.

⊛ Causes of Dullness

- ① Splenomegaly ② Hepatomegaly (Lt. lobe)
- ③ Full stomach or tumors. ④ Lt. basal (consolidation or effusion)
- ⑤ Abdominal distension (ascites, tumors, pregnancy)

IV. Dipping Technique In tense ascites.

N.B. Characters of spleen

1. Intra-abdominal Swelling at Lt. hypochondrium.
2. Moving up & down with respiration.
3. Rounded lower pole with sharp anterior edge.
4. Dull and continuous with traube's area dullness.
5. Presence of notch
6. Does not fill & can't be pushed in the renal angle.

مهم جدا

مهم جدا



☆☆ Then comment on :

1. **Site** : • Lt. hypochondrium.
2. **Size** : → • Normally (not felt below the costal margin)
→ • If enlarged → enlarged at least 3 times.
3. **Border** : • Normally → Rounded lower pole & sharp anterior edge with notch
Q: Causes of absent or multiple notch? (See Q: 16)
4. **Consistency** : • Soft → Malaria or septicemia.
• Firm → **splenomegaly**
5. **Surface** : • Smooth → **splenomegaly**
6. **Tenderness** : (**T.I.B.S**)
(Typhoid - Infective endocarditis - Brucellosis - Septicemia)
7. **Pitting sign** : Chronic myeloid leukemia.
Q: Causes of huge splenomegaly ? (See Q: 17)

3. KIDNEY

I. Bimanual technique

☆ **Lt. kidney** : The Rt. hand is placed anteriorly in the Lt, lumbar region while the Lt, hand is placed posteriorly in the Lt, loin.

- Normally the Lt, kidney not felt.

☆ **Rt. kidney** : Same way but with opposite hands.

- Normally lower pole of Rt. kidney is palpable in thin patient.

Bimanual palpation of Kidney



II. Ballottement technique

☆ Only If kidney is Enlarged

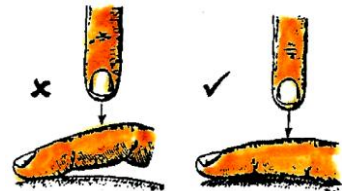
To DD it from spleen or liver.

N.B. Characters of kidney swelling

1. Intra abdominal swelling at lumbar region.
2. Moves up & down with respiration.
3. Rounded border.
4. There is band of resonant over the swelling.
5. Can be pushed in the renal angle.
6. Ballot freely anterior & posterior.

* PERCUSSION

1. Use the wrist (not elbow joint).
2. Use the middle finger of Rt. hand opposite middle phalanx of opposite middle finger.
3. The lower finger should be parallel to the expected border of the percussed swelling starting from resonant area.
4. Don't rest your finger on the other as this **damp** the note.



Value of percussion

I. Defining the boundaries of abdominal organs & masses.

II. Detection of ascites.

III. To DD ascites from ovarian cyst & intestinal obstruction.

I. DEFINING THE BOUNDARIES OF ABDOMINAL ORGANS & MASSES

- ① **Liver** → Upper border = Hepatic dullness = **Heavy** percussion.
→ Lower border = **Light** percussion.
- ② **Spleen** → To detect impalpable splenomegaly (<3 times normal size)
→ To confirm palpable spleen → dullness extends from it, lumbar region
- ③ **Traube's area** "**See before**"

II. DETECTION OF ASCITES (depending on amount)

- ① If large amount (under tension) [Transmitted thrill]

TECHNIQUE : The patient's hand is put at mid line of the abdomen (should be firmly), to dampen any impulse which transmitted through the fat of abdominal wall.



- ② If moderate amount [Shifting dullness] < 1.5 L

Should be done in both side.

Q: Causes of unilateral shifting dullness ? (See Q: 18)

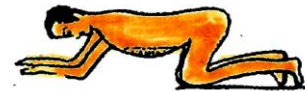


- ③ If minimal amount [Knee- elbow position] < 0.5 L

- ④ Ask about sonar

Absence of shifting dullness or fluid thrill or both does exclude ascites.

percussion for minimal Ascites



III. TO DD ASCITES FROM OVARIAN CYST & INTESTINAL OBSTRUCTION

1- Ascites → Dullness over flanks.

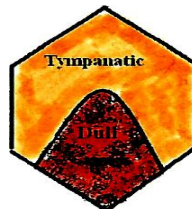
→ Resonant at & above umbilicus.

2- Ovarian Cyst → Resonant in flanks.

3- Intestinal Obstruction → Resonant all through



Ascites



Ovarian cyst



I.O

* AUSCULTATION • Indications

1. Intestinal Sound (Rt. iliac fossa)
2. Rubs (Peri-splenitis or peri-hepatitis)
3. Bruit on liver or aorta
4. Hum Hepatic (Portal hypertension)

DIAGNOSIS

★ ANATOMICAL Splenomegaly or hepatomegaly

★ AETIOLOGICAL

e.g. portal hypertension 2ry to due to Bilharziasis.

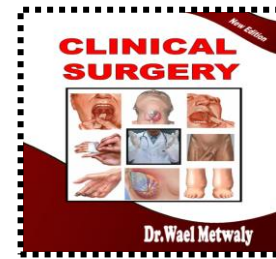
★ FUNCTIONAL

Liver → Compensated.

→ Decompensated → Vascular (Portal hypertension)

OSCE EXAM

* WE MUST TO LOOK FOR



Abdomen (HSM)

+ve data

1. Liver = Rt. lobe 3 fingers
Lt. lobe 3 fingers
2. Spleen = 4 fingers with NO notch
(Sharp edge, firm & smooth)
3. Ascites = Moderate with shifting dullness
4. Jaundice = tinge
5. Subcostal angle = obtuse
6. Divercation of recti = more bulge
7. Scars = NO scars
8. Other data = - Spider nevi
- Venous hum

Abdomen (Hepatomegaly)

+ve data

1. Liver = Rt. lobe 4 fingers
Lt. lobe 5 fingers
2. Splenectomy (Scar 2ry intention)
3. Ascites = NO
4. Jaundice = tinge
5. Subcostal angle = obtuse
6. Divercation of recti = more bulge
7. Scars =
- Scar of disc operation in back 2ry intention

Abdomen (Splenomegaly)

+ve data

1. Liver = SHRUNKEN
2. Spleen = 6 fingers with notch
(Sharp edge, firm & smooth)
3. Ascites = NO
4. Jaundice = tinge
5. Subcostal angle = obtuse
6. Divercation of recti = more bulge
7. Scars = NO scars

QUESTIONS OF SHEET

Q1: What are the hazards of alcohol ?

- **Stomach** : Peptic ulcer & atrophic gastritis.
- **Liver** : Alcoholic liver cirrhosis.
- **Parotid** : Chronic endemic parotitis.
- **L = Lymph** : ↑ Pain at site of hodgkin's disease.
- **N = Nerve** : Peripheral neuritis.



Q2: What is meant by ' hypersplenism ' ?

- Pancytopenia [↓ R.B.Cs, ↓ W.B.Cs & ↓ platelets]
- Splenomegaly.
- Active bone marrow.

Q3: What is the difference between fresh hematemesis & coffee like hematemesis ?

- **Fresh hematemesis** : Oesophageal cause.
- **Coffee hematemesis** : Gastro-duodenal cause.

Q4: What are the DD between hemoptsis & hematemesis ?

	HEMATEMESIS	HAEMOPTSIS
HISTORY	G.I.T troubles.	Chest troubles.
PRECEDED BY	Vomiting.	Cough.
FOLLOWED BY	Melena.	Blood stained sputum.
THE BLOOD	Dark red, acidic with food particles.	Bright red, alkaline with frothy sputum.

Q5: What are the commonest 2 causes of hematemesis ?

- Oesophageal varices.
- Bleeding peptic ulcer.

Q6: What are the causes of black stool ?

- Melena.
- Ingestion of iron, charcoal
- Treatment by bismuth (cytoprotective for peptic ulcer)

Q7: What are the causes of bleeding per rectum ?

- Piles
- Anal fissure.
- Anal carcinoma.
- ∅ Polyps.

Questions on general exam.

Q8: What is meant by palmar erythema ?

Palmar erythema means redness of ↗

- ➔ Head of metacarpal bone.
- ➔ Theanar & hypothenar with central pallor

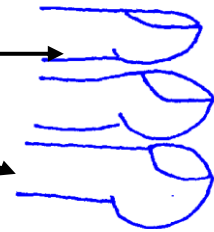
Q9: What is meant by spider naevi ?

Spider naevi = Dilated arterioles with radiated capillaries.

- **The site:** On SVC distribution i.e. face, neck, upper limb & upper part of chest up to nipple.
- **Examination:** By compression on the center by tip of pen leads to
→ Blanching of radiated capillaries.

Q10: What are the degrees of clubbing fingers ?

- **1st degree:** Obliteration of nail bed angle
- **2nd degree :** Parrot peak like.
- **3rd degree :** Drum stick like.
- **4th degree :** 3rd degree + tender & thick ends of long bone (radius & ulna)



N.B. Clubbing = Proliferation of C.T under nail bed due to toxemia & hypoxia

Questions on local exam.

Q11: What is the DD between 1^{ry} & 2^{ry} intention of scar ?

- **1^{ry} Intention :** Fine linear scar with minimal contracture & keloid
- **2^{ry} Intention :** Ugly disturbed scar with excess contracture & keloid.

Q12: How can you differentiate visible veins from dilated veins ?

- Visible veins tortuous

Q13: What is the DD between guarding & rigidity ?

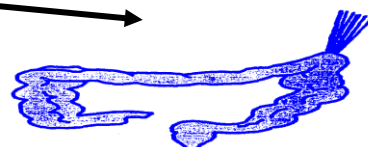
- **Guarding** = Nervous patient, usually unable to relax his abdominal wall.
- **Rigidity** = Hard abdominal wall & absent its movement and intestinal sound.

Q14: Which joint of hand is used for dipping technique ?

- Metacarpo-phalangeal joint.

Q15: Why enlarged spleen crosses the middle line ?

- Because of phrenico-colic ligament.



Q16: What are causes of absent & multiple splenic notch ?

A. Causes of absent notch

- Congenital
- Adhesion
- Tumor
- Infarction

B. Cause of multiple notches

- Fibrosis only

Q17: What are causes of huge spleen [cross middle line] ?

- | | |
|---------------------------|----------------------------|
| ➤ B [Egypt] | ➤ Chronic malaria |
| ➤ Kala azar [Iraq] | ➤ Chronic myeloid leukemia |
| ➤ Thalassaemia major | ➤ Lipid storage disease |
| ➤ Polycythemia rubra vera | ➤ Splenic sarcoma. |

Q18: What are causes of unilateral shifting dullness ?

- Ovarian cyst.
- Intestinal obstruction. (volvulus sigmoid)
- Encysted T.B peritonitis.

Others Questions

Q19: What is Banti syndrome ?

- It is Vascular malformation of the portal vein leading to portal hypertension

Q20: What is Budd- chiari syndrome ?

- It is occlusion of the hepatic veins by thrombosis or malignant tumor

Q21: What is Kenawi sign ?

- Auscultation, the stethoscope being applied beneath the xiphoid process, reveals venous hum louder on inspiration. The phenomenon is due to engorgement of the splenic vein & the hum is louder during inspiration the spleen is then compressed

Q22: What is the most accurate investigation for detection of liver pathology ?

- **Liver biopsy** not done routinely, Vit. K for 5 days & prothrombin concentration should be 100 %

Good luck

Ischemia sheet

Chapter 9

ISCHAEMIA & GANGRENE

INTRODUCTION

* TYPES

(A) **Acute ischemia** → "Sudden onset"

- **Embolism** → [History of cardiac trouble]
- **Arterial injury** → [History of trauma or accident]
- **Acute thrombosis** → [History of intermittent claudication].

N.B: C/P of acute onset = [**6 Ps**]

{ **P**aralysis - **P**ain - **P**allor - **P**ulselessness + **P**araesthesia + **P**erishing coldness }

So

Muscle → Irreversible damage occurs after 6 - 8 hours.

Skin → Moist aseptic gangrene occurs after 24 hours

Q : Why is the gangrene being moist aseptic ? (See Q: 1)

(B) **Chronic ischemia** → "Intermittent claudication"

- **Atherosclerosis** [The commonest].
- **Buerger's disease**
- **D/foot.**

DD

	I. Atherosclerosis	II. Buerger's disease
(1) Incidence	<ul style="list-style-type: none"> • Common (> 45 years). • Commoner in male with risk factors as D.M.....etc. 	<ul style="list-style-type: none"> • Rare (20 - 40 years). • Only male & exclusively in smokers
(2) Pathology	<ul style="list-style-type: none"> • Atheroma & thrombosis. • Calcification. 	<ul style="list-style-type: none"> • Inflammation & thrombosis • No calcification
(3) Clinical picture	<ul style="list-style-type: none"> • No upper limb ischemic symptoms • No migrating superficial thrombophlebitis • Calf claudication. • Popliteal pulse (absent) • Late rest pain & massive gangrene • No Raynaud's phenomenon 	<ul style="list-style-type: none"> • Upper & lower limb are involved. • Migrating superficial thrombophlebitis. • Sole claudication • Popliteal pulse (present) • Early rest pain & limited gangrene • Raynaud's phenomenon.
(4) Investigations ➤ X-ray ➤ Arteriography	<ul style="list-style-type: none"> • Calcification. • Irregular narrowing of main arteries with distal run off. 	<ul style="list-style-type: none"> • No calcification. • Not needed because of distal block i.e. no run off.
(5) Treatment	<ul style="list-style-type: none"> • Stop smoking → ↓ disease. • Arterial by-pass (the main). • Sympathectomy (No Value). • Urgent high amputation. 	<ul style="list-style-type: none"> • Stop smoking (the main). • Arterial by-pass (No Value). • Sympathectomy (the best). • Conservative amputation.

Don't forget ↗

(1) Buerger's disease is associated with Raynaud's phenomenon.

(2) For DD

✳ **Raynaud's disease** (Unknown cause)

Young female + bilateral + cold weather.

✳ **Raynaud's phenomenon** = (known cause) 2^{ly} to ↗

☆ Occupations using vibrating tools as drills, typists or pianists

☆ **Treatment** : Change occupation

(No value of sympathectomy)

(III) **D Foot**

A. **D atherosclerotic ischemia & gangrene (Macroangiopathy)**

✳ Gangrene is dry but infection convert it into moist.

✳ Sympathectomy is contraindicated. **Why? (See Q: 2)**

B. **D Infective gangrene (Microangiopathy)**

[The story] → Minor trauma + high level of blood sugar.

✳ Because 1. **Neuropathic factor** : Diabetic neuritis (impaired sensation).

2. **Local ischemia** : Diabetic microangiopathy.

3. **Cellular factors**: Diabetic → (↓↓ cell vitality).

[So tissue loaded by sugar i.e. good media for infection]

✳ **Treatment** : Draining pus + controlled D.M.

TTT OF CHRONIC ISCHAEMIA

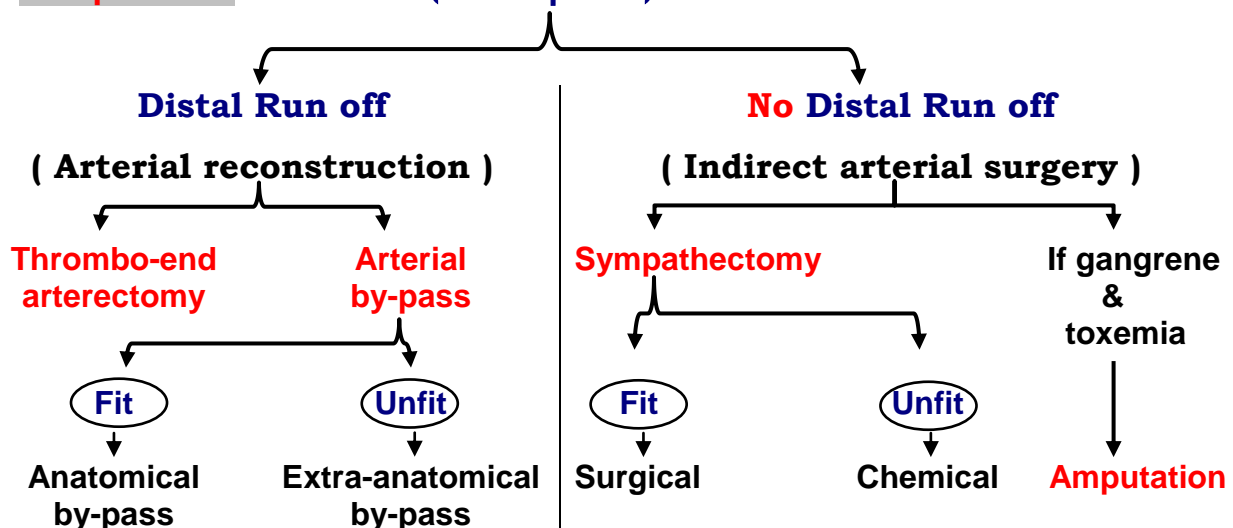
A- Conservative (No Rest pain + distal Run off)

B- Endovascular surgery

- Percutaneous trans-luminal balloon angioplasty (P.T.A)
- Arterial **stent**.
- **Laser** angioplasty.

C- Operative

(Rest pain)



I- ISCHAEMIA SHEET

* PERSONAL HISTORY

1. Name
2. Age → **Adult** (Buerger's & Raynaud's diseases).
→ **Elderly** (Atherosclerosis).
3. Sex → **Male** (Burger's & Atherosclerosis).
→ **Female** (Raynaud's disease).
4. **Residence** : Raynaud's disease in cold countries.
5. **Occupation** : Raynaud's phenomenon as vibrating tools as typist ...etc.
6. **Marital status** Impotence with Le rich syndrome (See Q: 4)
7. **Special habits** :Smoking with Burger's & atherosclerosis.

* COMPLAINT * Pain during walking


* PRESENT HISTORY

- I. Analysis of complaint → **P** (Pain).
 - II. Analysis of **part** affected → **S** (Skin & **S**ensory changes).
 - III. Analysis of **other parts** affected → **H** (Lost **H**otness)
→ **C** (Color changes)
→ **F** (Functional changes)
- I. **Analysis of complaint**

1. O.C.D.

2. PAINS

- ☆ **Site**
- ☆ **Number**
- ☆ **Investigations** & ttt (ask about sympathectomy).
- ☆ **Associated L.Ns** (if Thrombophlebitis migrans)
- ☆ **Pain** ⇄

	Intermittent claudication " Muscle ischemia "	Rest pain " Nerve ischemia "
➤ Characters	● Cramp like pain	● Burning pain
➤ Site	<ul style="list-style-type: none"> ● Aorto-iliac occlusion → both buttocks ± thighs ± calves ● Ilio-femoral occlusion → thigh ± calf ● Femoro- popliteal occlusion → calf ± sole 	<ul style="list-style-type: none"> ● Foot (dorsum > sole) because of dorsum of foot less vascular than sole, so more affected than sole. Why? (See Q: 5)
➤ ↑ by	● Walking	● Elevation & warmth
➤ ↓ by	● Rest	<ul style="list-style-type: none"> ● Lowering or uncovering the limb or rubbing the dorsum of foot. Why? (See Q: 6) 

- N.B.** ● **Claudication distance** : distance after which the pain is felt.
the shorter the distance is the more the ischemia.
- **Claudication time** : time after which the pain is felt.
the shorter the time is the more the ischemia.
- **Rest time** : time of rest needed to start walking again.
the longer the time is the more the ischemia.

II. Analysis of symptoms related to part affected

" **Press & see how colour fades** "

P Pain : (See before)

S ① Skin changes : (Trophic changes)

- Loss of hair, brittle nail & dry scaly skin.
- Interdigital infection i.e. Tinea pedis.
- Ulceration & tapering digits.



② Sensory changes :

- Paraesthesia "gradual loss".
- Tingling or numbness.

H ③ Coldness (Lost hotness)

- Cold limb **Q : What are causes of false warm limb ? (See Q: 7)**

C ④ Colour changes : Pallor, cyanosis or black discoloration.

Q : Which more dangerous cyanosis or redness of ischemic limb ? (See Q: 8)

& Gangrene : • Ask about causes.

- Lower limb → (Atherosclerosis, D.M, Buerger's disease).
- Upper limb → (Buerger's disease or Raynaud's disease).

→ **For other causes (See Q: 9)**

III. Analysis of symptoms related to other parts affected

F ① Functional changes :

a. **Motor disturbance**

- Weakness of muscle i.e. Chronic ischemia.
- Paralysis of muscle i.e. Acute ischemia.

Q : What is the 1st muscle wasted in L.L. ? (See Q: 10)

- Flexion deformity of knee joint.

b. **Sexual disturbance :** Impotence **Le Riche syndrome**

② Organic ischemia :

- **Heart :** Angina.
- **Brain :** Fainting sensation.
- **Kidney :** Pain, hematuria or uremia.
- **Intestine :** Colics i.e. intestinal angina.

③ F.H.M.A.: If thrombophlebitis i.e. Buerger's disease

④ L.Ns: If present this means thrombophlebitis i.e. (Buerger's disease)

* **PAST HISTORY**

- ★ Similar condition
- ★ Important disease as D.M., hypertension, heart diseasesetc.
- ★ Past history of trauma → Senile gangrene.
→ Ø gangrene of foot.

* **FAMILY HISTORY**

- ★ Raynaud's disease "same cold environment".
- ★ Atherosclerosis.
- ★ D.M.

EXAMPLE OF

ISCHAEMIA SHEET

* PERSONAL HISTORY

..... male patient, 46 years old, Carpenter, from Cairo, Single. He is Chronic heavy smoker, smoke 20 cigarette per day for 30 years. No other special habits of medical importance.

* COMPLAINT

Pain in both lower limb 16 years ago.

* PRESENT HISTORY

- The condition is started 16 years ago by claudication pain in Rt. sole.
- The pain ↑ by walking or warmth & ↓ by rest.
- The pain starts by walking for 500 meters. Then it becomes severe to stop the patient to need about 2 min. rest to restart walking again.
- The condition is worsen now as pain appears after walking 100 meters only & needs about 8 min. rest to disappear.
- There are trophic & skin changes in form of loss of Hair, scaly skin brittle fissured nails with numbness, tingling & parathesia in both feet.
- There are loss of hotness & colour changes in form of pallor.
- No symptoms suggesting organ ischemia as anginal pain, loin pain, hematuria...etc.
- No symptoms suggesting infection or thrombophlebitis as F.H.M.A
- The patient was investigated by E.C.G, X-rays & Doppler

* PAST HISTORY

No past history about recurrence, No DM, No hypertension, No T.B, No Bilharziasis, No drug allergy, No previous operations.

* FAMILY HISTORY

No family history of similar condition (irrelevant)

DIAGNOSIS

A case of [chronic ischemia] most probably **Buerger's disease**

II- GENERAL EXAMINATION

A. VITAL SIGNS For normal " See page 2 "

(1) **Temp** : Warm in infected gangrene.

(2) **Pulse** : [Examine all pulsation].

e.g. Radial pulse for

- Irregular if A.F.
- Thickening if atherosclerosis



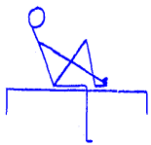
(3) **A.B.P.**

(4) **R.R.**



B. GENERAL EXAMINATION (A.B.C.D.E.F) " See page 2 "

As usual but ↗



D = Decubitus

→ Flexion deformity of knee if rest pain. (See Q: 11)

E = Emotion

→ Haggard → rest pain

F = Face

→ Toxic → infected gangrene.

C. SYSTEMIC EXAMINATION

I. HEAD & NECK : → **Scars** : If cervical sympathectomy was done
→ **Mass** : As cervical rib or carotid aneurysm.

III. CHEST : → Full cardiac examination.

IV. LOWER LIMB : → Redness if thrombophlebitis i.e. (Buerger's disease)

V. ABDOMEN : → **Mass** : Aneurysm.
→ **Scars** : If lumbar sympathectomy.

III- LOCAL EXAMINATION

* INSPECTION	* PALPATION
(1) Colour changes	(1) Temperature.
(2) Venous filling time	(2) Capillary circulation test.
(3) Trophic changes. (4) Gangrene. (5) → A Arterial pulsation & aneurysm. (6) → V Venous if thrombophlebitis. (7) → L L.Ns (8) → N Movement	

LOCAL EXAMINATION

*** INSPECTION** [The patient is lying down & expose his both L.L]

1. Colour changes :

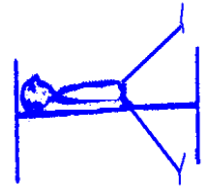
- **Normal colour** indicates → Mild ischemia.
- **Postural changes** indicates → Moderate ischemia.

- ★ **Buerger's test** (Elevate the limb gradually)
 - Normally, limb not affected by elevation.
 - **Elevation** of ischemic limb cause = **Pallor**.
 - **Lowering** of ischemic limb cause = **Cyanosis**.

N.B. Buerger's angle :

It is angle at which limb becomes pale on elevation from horizontal.

So The smaller the angle the advanced ischemia.



- **Fixed colour** indicate → Severe ischemia (pre-gangrene).

2. Venous filling time :

- **Elevate** the limb till vein empty then allow dependency & record time of filling veins.
- **Normally : (10 - 15) sec.**
- **IF**
 - Mild **(15 - 30) sec.**
 - Moderate **(30 - 120) sec.**
 - Severe **(> 120) sec.** i.e. > 2min. (pre-gangrene)

3. Trophic changes : (see before) If ulcer (**describe**).

4. Gangrene : [Site, type (dry or moist)] (See Q: 12)

A 5. Arterial : For pulsating aneurysm (in femoral aneurysm). (See Q: 13)

V 6. Venous: → Redness if thrombophlebitis i.e. (Buerger's disease)

L 7. L.Ns : At inguinal region **Why ?** because of thrombophlebitis.

N 8. Movement : → Lost with acute ischemia.
→ Weak with chronic ischemia

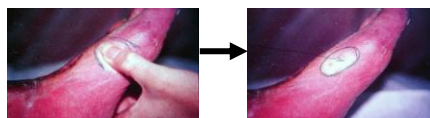
*** PALPATION** [Should be bilateral starting with normal limb]

1. Temperature : As usual [compare, healthy 1st, dorsum of hand]

Before examination of temp, let the limb uncovered for 5 min Why? (See Q: 14)

2. Capillary circulation test : [When we press on nail bed **2 sec**]

- **Normally** : blanching then rapid return to normal colour.
- **If delayed** : ischemia.
- **If no return** : gangrene.



3. **Trophic changes** : (See before) if ulcer (examine).

4. **Gangrene** :

- Hard limb = dry Gangrene, (using sterile gloves)
- Soft oedematous = moist gangrene.

Q: What about gas gangrene ? (See Q: 15)

A 5. Arterial:

- (Examine all pulsation).
- If **aneurysm** : Compressible mass with expansile pulsation & systolic Thrill.

V 6. Venous:

- If **oedema** (pitting or not).
- If **thrombophlebitis** i.e. (Buerger's disease) i.e. tender & cord like

L 7. L.Ns : At inguinal region **Why ?** because of thrombophlebitis.

N 8. Movement : → Lost with acute ischemia.
→ Weak with chronic ischemia

* **AUSCULTATION**

- ✧ Over **large vessels** for bruit if stenosis.
- ✧ Over **aneurysm** for systolic murmurs
- ✧ Over **A-V fistula** for continuous murmurs.

IV- SPECIAL TEST

✧ **Buerger's test**
✧ **Venous refilling time**
✧ **Capillary circulation test**

→ See before

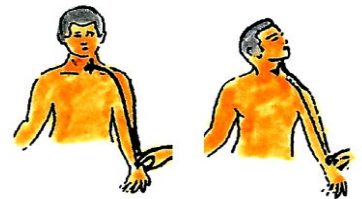
✧ **Harvey sign**

- Put 2 index on a vein side to side then move. the nearer one to heart then release the other.
- If **rapid** refilling = Normal.
- If **slow** refilling = Ischemia.



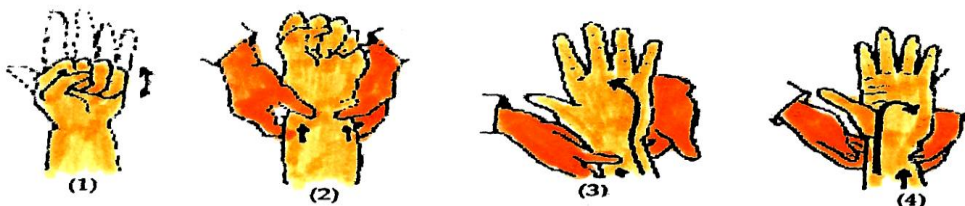
✧ **Adson's test**

- Palpate radial pulse, ask pt, to turn his head & elevate his chin & takes deep inspiration.
- Palpate radial pulse again if (disappear).
↳ cervical rib (thoracic outlet syndrome).



✧ **Allen's test** The patient makes a **tight fist** 1st then occlude ↗
① **Radial artery** : Patient will relax his fist so observe flush.
If delayed → ischemia.


② **Ulnar artery** : The same as radial artery will be done.



HOW TO EXAMINE "ARTERIAL PULSATION"


A. Lower Limb

1. Dorsalis pedis artery pulsation :


- **SITE** : Lateral to the tendon of [**Extensor hallucis longus**] on dorsum of foot.
- **TECHNIQUE** : 

N.B.: Absent normally in (10 %).

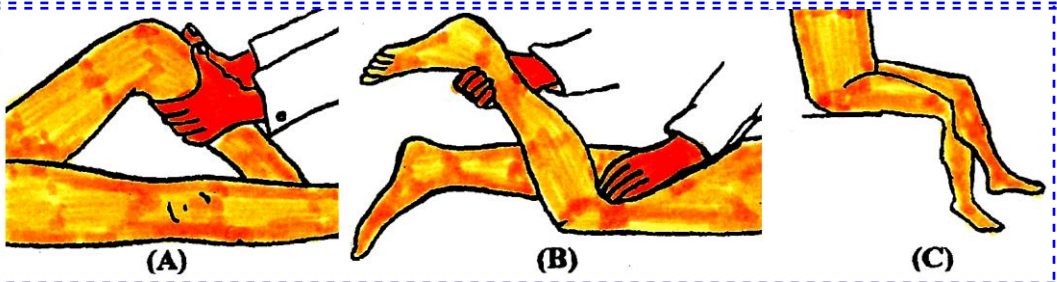
2. Post. tibial artery pulsation :

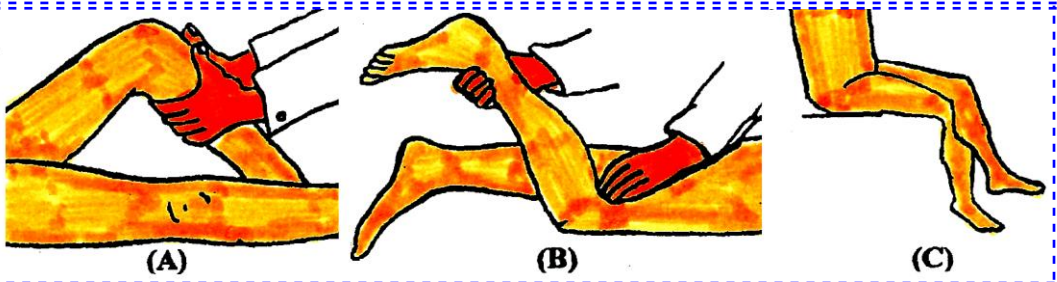
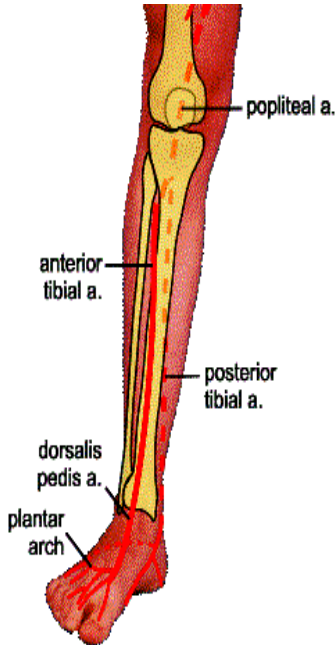
- **SITE** : Behind medial malleolus.
- **TECHNIQUE** : 

3. Ant. tibial artery pulsation :

- **SITE** : Midway between both malleolus.
- **TECHNIQUE** : 

4. Popliteal artery pulsation :

- **SITE** : At popliteal fossa.
- **TECHNIQUE** : 



(A) The lower part of popliteal artery pulsation :

- ☆ Flex the knee then feel over the lower part of popliteal fossa & press against the popliteal surface of the **tibia**.

(B) The upper part of popliteal artery pulsation :

- ☆ Turn the patient into prone position then flex the knee then feel it & press against the popliteal surface of the **femur**.

(C) Crossed leg test.

5. Common femoral artery pulsation :

- **SITE** : Below midpoint of inguinal ligament
- **TECHNIQUE** :
Felt by pressing against head of femur.



B. Abdomen

7. External iliac artery pulsation :

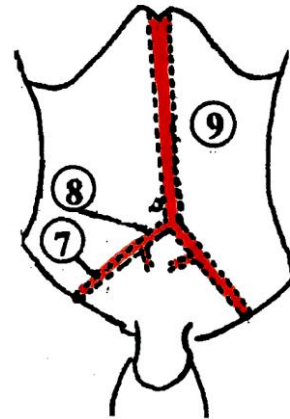
- Felt by pressing the **lower 2/3** of a line drawn from just below umbilicus to mid point of inguinal ligament.

8. Common Iliac artery pulsation :

- Felt by pressing the **upper 1/3** of same line.

9. Abdominal aortic pulsation :

- Felt by pressing of both hands along middle line (above & slightly to left) from umbilicus.



C. Upper Limb

9. Radial artery pulsation :

- Felt by pressing against the lower end of the **radius**.

10. Ulnar artery pulsation :

- Felt by pressing against the lower end of the **ulna**.

11. Brachial artery pulsation :

- **Lower half :**
Felt by pressing along the medial border of **biceps tendon**.
- **Upper half :**
Felt by pressing along the medial border of **biceps muscle**.



12. Axillary artery pulsation :

- Felt by placing thumbs on the acromion & turn the other fingers around the arm & press against **shaft of humerus**.

13. Subclavian artery pulsation :

- Felt by placing middle 3 finger tips behind clavicle against 1st rib

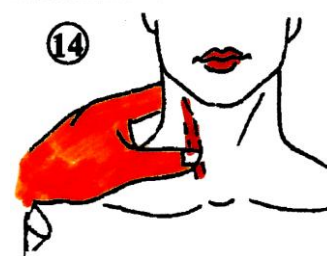
D. Head & Neck

14. Common carotid artery pulsation :

- Felt along the middle 1/3 of ant. border of sternomastoid muscle then press **posteriorly** to palpate against C₆

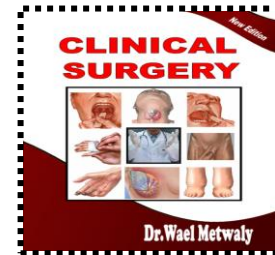
15. Superficial temporal artery pulsation :

- Press medially just in front of ear against the **zygomatic arch**.



OSCE EXAM

* WE MUST TO LOOK FOR



Chronic ischemia

Atherosclerosis Lt. > Rt.

(Diabetic macroangiopathy)

+ve data

1. History of **claudication pain** at lower calf
100 m then 20 m
2. **Rest time** 20 min then 30 min
3. **NO** Arteriography & **NO** sympathectomy
4. **Bil. ischemic ulcers**
5. **Level** of coldness at knees
6. **Capillary circulation more than 2 sec.**
7. **Bureger's angle = 30 degree**
8. **Pulsation**
 - **Absent** bilateral popliteal
 - **Weak** dorsalis pedis, ant.tibial & post. tibial pulsations
9. - **ve Allen's test** on both hands

Chronic ischemia

BURGER'S DISEASE

+ve data

1. History of **claudication pain** at Rt. sole
500 m then 250 m
2. **Rest time** 2 min then 5 min
3. **NO** Arteriography & **NO** sympathectomy
4. **Level** of coldness below knees
5. **Capillary circulation more than 2 sec.**
6. **Bureger's angle = 45 degree**
7. **Pulsation**
 - **Absent** dorsalis pedis, ant.tibial & post. tibial pulsations
8. - **ve Allen's test** on both hands

ORAL DISCUSSION

ISCHEMIA



QUESTIONS ON INTRODUCTION

Q1: Why is gangrene of acute ischemia being moist aseptic ?

- Because of sudden occlusion of artery → reflex spasm of nearby vein.
So tissues will be loaded by blood & fluid. **So** if gangrene occur → [moist aseptic gangrene]

N.B.: *Moist septic gangrene caused by SBE.*

Q2: Why sympathectomy is contra-indicated with ~~D~~ foot ?

- Because, patient is auto-sympethactomized.

Q3: When amputation is indicated with ~~D~~ foot ?

- If osteomyelitis is associated.

QUESTION ON SHEET

Q4: What is meant by Le Riche syndrome ?

- Impotence due to aorto-iliac occlusion with both int. iliac block.

Q5: Why rest pain occur at dorsum of foot more than sole ?

- Because, dorsum of foot less vascular than sole.

Q6: Why rubbing of dorsum of foot ↓ rest pain ?

- Because, rubbing at dorsum of foot → stimulation of proprioceptive fibers → ↓ pain [↓ gait theory of pain]

Q7: What are the causes of false warm limb ?

- Undercover.
- Under ttt by sympathectomy.
- Infection.
- D.M. "auto-sympethactomized".

Q8: Which more dangerous cyanosis or redness ischemic limb ?

- Redness more dangerous than cyanosis because, redness means extravasation of blood from dead tissues.

Q9: What are causes of gangrene ?

- **2ry to arterial obstruction** (acute or chronic).
- **Venous gangrene** "Phlygmasia cerula dolans"
- **Naturopathic gangrene** "leprosy".
- **Infected** (Diabetic gangrene & gas gangrene).
- **Traumatic** [Direct (bed sore) & indirect (injury)].
- **Physiochemical** [Burn & frost bite].

Q10: What is the 1st muscle wasted in lower limb ?

- 1st muscle is vastus medialis.

Questions on examination

Q11: Why flexion deformity can occur with chronic ischemia ?

- Because, patient with rest pain holding his foot for many weeks.

Q12: What are the types of gangrene ?

- **Dry gangrene** : With **chronic** ischemia.
- **Moist gangrene** : With **acute** ischemia.
- **Gas gangrene** : With **infected** wound.

Q13: Which more common popliteal or femoral aneurysm ?

- **Popliteal aneurysm** more common.

Q14: Why we must uncover ischemic limb before exam. of temp. ?

- To avoid false warm ischemic limb.

Q15: How can you diagnose gas gangrene ?

- **X-ray** shows gases at site of covered wound.
- **Palpation** showing tense & crepitus affected limb..

Q16: What DD between gangrene, necrosis, slough & sequestrum ?

- **Gangrene** : Death of macroscopic tissues
- **Necrosis** : Death of microscopic tissues
- **Slough** : Separation of necrotic tissues
- **Sequestrum** : Death of bone e.g. osteomyelitis

Questions on special test

Q17: What is meant by disappearing pulse ?

- [Patients with early ischemia] pulsation may be felt but disappear only with exercise due to shift of blood to muscle.

Q18: What is meant by ' Blue toe syndrome' ?

- In case of aorto-iliac block → send embolus to **big toe** early because of direct continuity.

Q19: What are the clinical test to detect level of obstruction ?

- **Site** of claudication.
- **Level** of coldness.
- **Level** of absent pulse.
- **Impotence** Le Riche's syndrome

Q20: What are the clinical test to determine the degree of ischemia ?

- **Degree of pain** → Rest pain or not.
→ Claudication distance, time & rest time
- **Colour changes** → Normal colour = Mild.
→ Postural changes = Moderate.
→ Fixed colour = Severe.
- **Venous filling time** >120 sec = Severe.

Good luck

Varicose vein sheet

Chapter 10

VARICOSE VEINS

INTRODUCTION

Varicose veins are multiple, dilated, elongated, tortuous, soft, bluish & compressible veins of superficial veins of lower limb.

Anatomical considerations

Veins of lower limb

The lower limb is drained by the following venous systems

I- Superficial system (superficial to deep fascia)

It includes ↗

LONG SAPHENOUS VEIN

It begins at the medial aspect of the dorsal venous arch of the foot and ascends in front of the medial malleolus behind the knee till the saphenous opening where it arches to join the femoral vein.

★ Tributaries of the long saphenous vein

A. In the thigh :

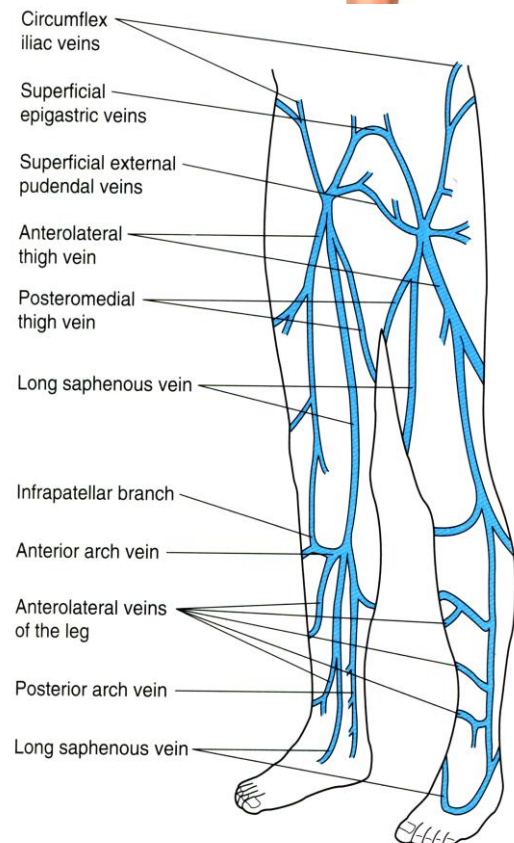
1. Superficial circumflex iliac vein
2. Superficial epigastric vein.
3. Superficial pudendal Vein.
4. Antero-lateral vein.
5. Postero-medial vein.

B. In the leg :

6. Anterior vein of the leg.

C. In the foot:

7. The dorsal venous arch.

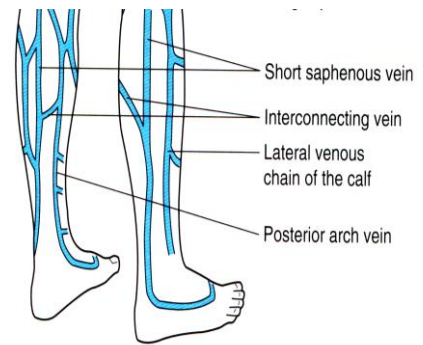


Don't Forget

- ① All vein are containing valves except at soleus muscle.
- ② **Saphena varix :**
 - Saccular dilatation at sapheno-femoral junction.
 - Saphena = clear
 - Varix = dilatation.
- ③ **Long saphenous vein** is the longest vein all over the body.
- ④ **Sapheno-femoral Junction** = Trendlenburg valve.

LESSER (SHORT) SAPHENOUS VEIN

It begins at the lateral aspect of the dorsal venous Arch. ascends below & behind the lateral malleolus to run along the lateral edge of tendo-achilles in the posterior midline of the leg to the middle of popliteal fossa where it pierces the deep fascia to join the popliteal vein.

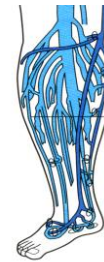


II- Deep system (deep to deep fascia)

It includes ➤

BELOW THE KNEE

They consist of venae comitantes of the arteries + the venous sinuses inside the calf muscles (soleus).



THE LEVEL OF THE KNEE

They unite to form the popliteal vein which ascends to the thigh to become the femoral vein at the adductor canal then passes deep to the inguinal ligament to change its name into the external iliac vein.

III- The connecting system

- ⊛ These veins connect the superficial to deep veins (They have valves which allow a uni-directional blood flow from superficial to deep veins).

⊛ They are either ➤

DIRECT COMMUNICATORS = PERFORATORS

THE PERFORATORS OF THE LONG SAPHENOUS :

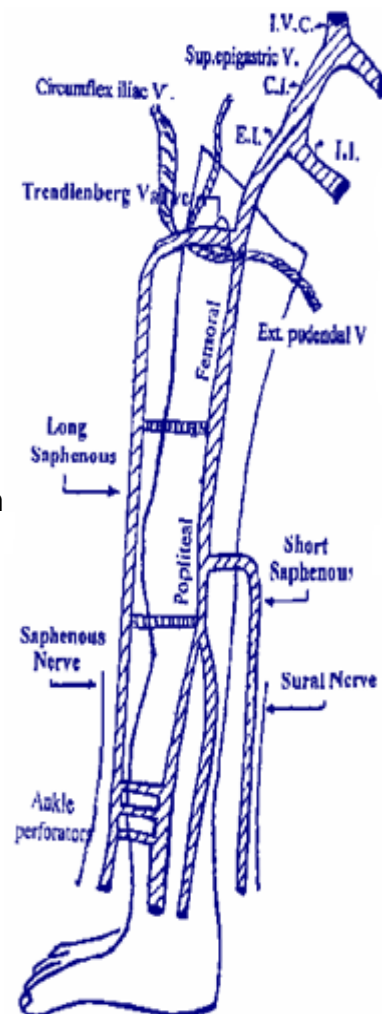
- **3 ankle perforators** (2, 4 & 6 inches) above medial malleolus they drain blood directly from the venous plexus of the skin to the deep system.
- **1 perforator** just below the knee.
- **1 perforator** at the mid thigh.
- **The sapheno-femoral Junction.**

THE PERFORATORS OF THE SHORT SAPHENOUS :

- **1 lateral perforator** (5 inches) above the lateral malleolus.
- **The sapheno-popliteal Junction.**

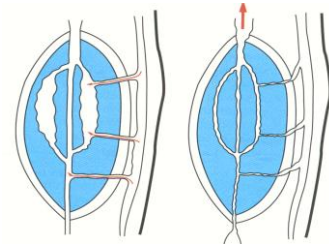
INDIRECT COMMUNICATORS

Veins pass from superficial vein to the muscles & another vein passes from the muscles to the deep veins.



Venous pathophysiology

- **blood from the muscles** of the leg returns to the deep veins.
- **blood from the skin & superficial tissues** drains via the long & short saphenous veins. then through the connecting system to the deep veins.

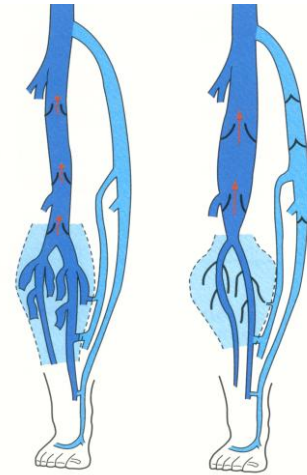


During the muscle relaxation phase

The pressure within the calf falls to a low level, and blood from the superficial veins flow through the connecting system into the deep veins

On walking & exercise phase

The calf and thigh muscles contracts within a tight fascial compartment (peripheral heart) rises pressure within these compartments to **(200 - 300 mmHg)** → squeeze the deep veins up towards the heart.



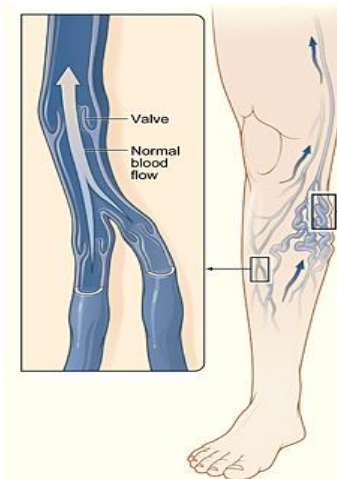
From these facts

The pressure drops in the superficial veins of the lower limb during walking or exercise and returns gradually to the pre-exercise level when walking stops.

SO

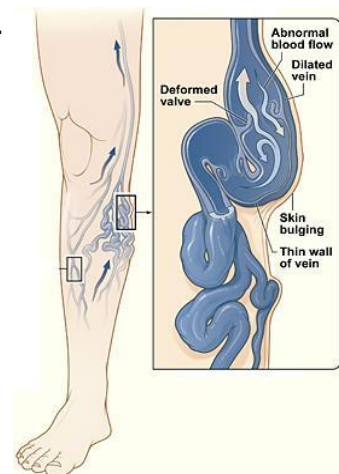
1^{RY} VARICOSE VEINS

- The superficial system is weak wall or absent valves or incompetent valves
→ high pressure (heaviness pain) with standing
- But with walking or exercise
→ shift of blood from superficial to deep system.
so the pain is **decreased**



2^{RY} VARICOSE VEINS

- The superficial system is **normal** but the deep system is occluded or compressed
→ high pressure (bursting pain) **not only** with standing **but also** walking & exercise
→ so the pain is **increased**



VARICOSE VEIN

Varicose veins are multiple, dilated, elongated, tortuous, soft, bluish & compressible veins of superficial veins of lower limb.

AETIOLOGY

A- 1ry varicose vein due to ➤

- Congenital weakness of venous wall.
- Congenital absence or incompetent valves.
- This is precipitated by prolonged standing as surgeons, hair dressers,etc.
- **Other manifestations of weak mesenchyme :**
 - ① kyphosis ② flat foot.
 - ③ visceroptosis ④ hernia.
 - ⑤ varicocele ⑥ piles

N.B : 1ry V. V is associated with **minimal** complications



B- 2ry varicose vein due to ➤

- **DVT** (the commonest cause) especially with chronic venous insufficiency i.e. postphlebitic limb.
- **Deep venous compression :**
 - Pelvic or abdominal swellings as pregnancy, tumoretc.
- **Arterio-venous fistula**
 - congenital
 - acquired : due to trauma e.g. bullet or stab wound in femoral Δ.

N.B : 2ry V. V is associated with **marked** complications



COMPLICATIONS



A- Venous complications

- **Hge** from minor trauma.
- **Superficial thrombophlebitis.**

B- Skin complications

- **Brown pigmentation** : by extravasated haemosiderin from ruptured S.C venules.
- **Dermatitis** (redness & itching) from haemosiderin irritation.
- **Eczema** follows scratching of dermatitis.
- **Oedema** involving the lower 1/3 of the leg.
- **Ulceration** due to local hypoxia from venous stasis.
- **Liposclerosis** : S.C fats are replaced by fibrous tissue.

I- VARICOSE VEIN SHEET

	1 ^{ry} V.V.	2 ^{ry} V.V.
<div style="background-color: #f0f0f0; padding: 5px;">Personal history</div> <ul style="list-style-type: none"> - Age. - Occupation. - Marital status. - Special habits 	 <ul style="list-style-type: none"> • commonly adult • surgeons, hair dressers, ...etc. • ----- • ----- 	 <ul style="list-style-type: none"> • commonly old • ----- • multiple pregnancy. • tight corset.
<div style="background-color: #f0f0f0; padding: 5px;">Complaint</div> <ul style="list-style-type: none"> - Pain 	<ul style="list-style-type: none"> • commonly bilateral 	<ul style="list-style-type: none"> • commonly unilateral
<div style="background-color: #f0f0f0; padding: 5px;">Present history</div> <div style="background-color: #add8e6; padding: 5px;">1- PAIN</div> <ul style="list-style-type: none"> - severity - characters - ↑ by - ↓ by 	<ul style="list-style-type: none"> • mild • heaviness pain ± burning pain due to superficial thrombophlebitis. • ↑ with prolonged standing • ↓ by elevation of the affected limb & by walking 	<ul style="list-style-type: none"> • severe • bursting pain due to D.V.T. • ↑ with prolonged standing or by walking. • ↓ by elevation of the affected limb only
<div style="background-color: #add8e6; padding: 5px;">2- OEDEMA</div>	<ul style="list-style-type: none"> • mild & appear at evening then resolute after sleep. 	<ul style="list-style-type: none"> • marked & persist not related to time.
<div style="background-color: #add8e6; padding: 5px;">3- COMPLICATIONS</div>	<ul style="list-style-type: none"> • minimal 	<ul style="list-style-type: none"> • marked
<div style="background-color: #add8e6; padding: 5px;">4- ASSOCIATED SWELLING</div>	<ul style="list-style-type: none"> • groin e.g. saphena varix • abdomen or pelvis : no mass 	<ul style="list-style-type: none"> • groin e.g. L.Ns • Abdomen or pelvis : ± mass.
<div style="background-color: #f0f0f0; padding: 5px;">Past history</div>	<ul style="list-style-type: none"> • no history suggest DVT • DM & hypertension ...etc 	<ul style="list-style-type: none"> • +ve history suggest DVT • pelvic or abdominal mass • trauma (A/V fistula) <ul style="list-style-type: none"> - bullet. - stab wound • DM & hypertension ...etc
<div style="background-color: #f0f0f0; padding: 5px;">Family history</div>	congenital weak mesenchyme	<p style="text-align: center;">-----</p>

EXAMPLE OF

VARICOSE VAIN SHEET

* PERSONAL HISTORY

..... male patient, 70 years old from غمرة, Seller (خضري) , married since 30 years, has 5 children, the youngest is 10 years old, He is smoker, 30 cigarettes per day for 30 years with no other special habits of medical importance

* COMPLAINT

Pain in both lower limbs (Lt Side since 10 years & Rt. side since 4 years).

* PRESENT HISTORY

- The condition started with pain in Lt. lower leg 10 years ago with gradual onset and slowly progressive course. **heaviness** in character, ↑ **by prolonged standing** & ↓ **by Walking**.
- The pain is associated with multiple, dilated, tortuous, bluish veins at the medial aspect of the Lt. leg. They progress upwards but not crossing the groin. The lower part of leg is brownish with itching.
- The pain is not associated with ankle oedema or symptoms suggesting Thrombophlebitis in form of (fever, headache, Malaise and Anorexia) and (inguinal L.Ns).
- Then he complains of pain in the Rt. leg 4 years ago with same characters of Lt. one.
- The patient was advised to medical treatment as ointment and also advised to surgery but he refuse.
- **It is associated with weak mesenchyme** in form of mass at Rt. groin showing expansile impulse on cough, 2 years ago.

* PAST HISTORY

No past history about recurrence, No DM, No hypertension, No T.B, No Bilharziasis, No drug allergy, No previous operations as prostatectomy or fracture neck femur, No history of stab or bullet in femoral triangle.

(But there's hernial operation on Lt. groin since 4 years)


* FAMILY HISTORY

+ve history of varicose vein in his father. suggesting weak mesenchyme

DIAGNOSIS


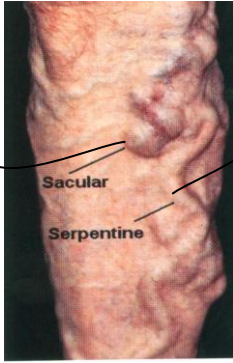

1^{ry} Varicose veins

II- GENERAL EXAMINATION

1 ^{ry} V.V		2 ^{ry} V.V
Manifestations of weak mesenchyme <ol style="list-style-type: none"> 1. kyphosis 2. visceroptosis 3. hernia 4. lt. varicocele 5. flat foot & halux valgus 		Look for the cause : <ol style="list-style-type: none"> 1. ↑ HR if A/V fistula 2. organomegaly. 3. dilated veins cross groin 4. bilateral varicocele if I.V.C. obstruction 5. talipes equinus as a complication of ulcer

III- LOCAL EXAMINATION

A- Inspection

	1 ^{ry} V.V.	2 ^{ry} V.V.
	Multiple, bluish, tortuous & visible swellings	
1. Side	• usually bilateral	• usually unilateral but bilateral if I.V.C. obstruction.
2. Site	<ul style="list-style-type: none"> • along course of veins (long or short saphenous). • V.V. never cross the groin 	<ul style="list-style-type: none"> • Along course of veins (long or short saphenous). • V.V. cross the groin
3. Shape	<ul style="list-style-type: none"> • Tubular • Saccular  	<ul style="list-style-type: none"> • Serpentine • Spider. 
4. Skin over	• minimal complications.	• marked complications.
5. Swollen limb	• minimal oedema.	• marked oedema.
6. Skeletal deformity	• flat foot or halux valgus.	• talipes equinus.
7. Look for inguinal region	<ul style="list-style-type: none"> • saphena varix. • hernia as weak mesenchyme 	• L.Ns

B- Palpation

1- THE PATIENT IN STANDING POSITION

1. Palpate **soft & compressible** varicose veins.
2. Palpate tender **nodule** for thrombosis.
3. Palpate tender **cord** for superficial thrombophlebitis,
4. **Direction of blood of dilated veins**
across inguinal region (if 2^{ry} V.V)
5. **Thrill** if A. V fistula.
6. Impulse on cough at sapheno-femoral junction.
7. **Saphena varix** : (if 1^{ry} V.V)
Saccular & compressible dilatation shows expansile impulse on cough at sapheno-femoral junction



2- THE PATIENT IN SUPINE POSITION

1. **Skin** : for venous ulcer
2. **S.C. tissue** : for oedema
 - 1^{ry} → pitting
 - 2^{ry} → non pitting
3. **Muscle** : for tender calf muscle
i.e. **Homan's test** (not done)



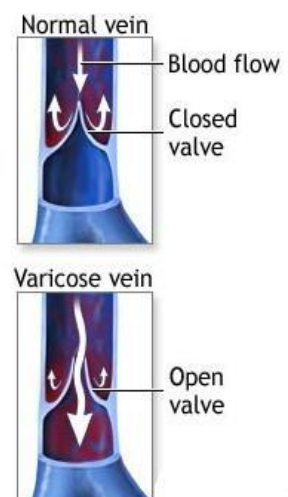
sudden dorsiflexion → calf pain by stretching veins

N.B.: Homan's sign (not done)
to avoid spread of thrombus to circulation.

4. **Bone** : for periosteitis of tibia.
5. **Vein** : for defect in deep fascia.
i.e. **Fegan's test**
6. **Artery** : for arterial pulsation as dorsalis pedis artery
to exclude ischemic ulcer
7. **L.Ns** : for inguinal L.Ns.

C- Percussion Schwartz percussion

- The vein is percussed by index of one hand & palpate **distally** by fingers of other hand.
- If 1^{ry} V.V ,the valves are incompetent
so the wave is transmitted **distally** →



D- Auscultation

If A/V fistula = continuous **machinery** murmur.

E- Special tests

A. Test to detect (blow out) = Incompetent perforator

① TRENDLENBURG TEST

1. Patient lies down & his leg is raised.

2. massage to empty veins.

3. tourniquet just below saphenous opening

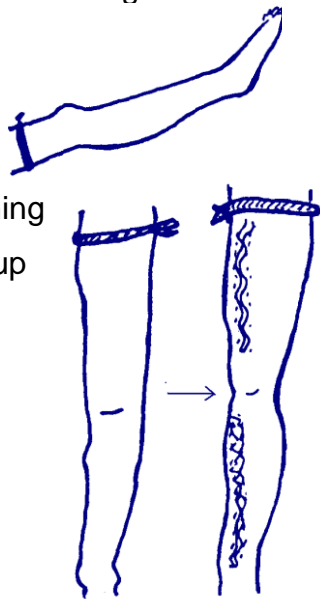
4. ask pt, to stand up

➤ The result

⇒ If slowly filling from below = normal

⇒ If rapid filling = **blow out**

⇒ If we remove tourniquet & fill from above = incompetent sapheno-femoral junction



② MULTIPLE TOURNIQUET TEST

1. Patient lies down & his leg is raised.

2. massage to empty veins.

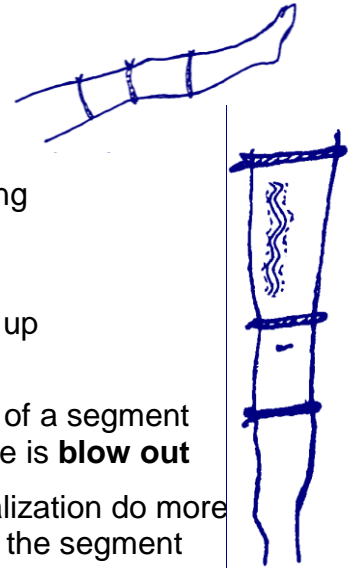
3. tourniquet
- Just below Saphenous ring
- below Knee
- above Knee

4. ask pt, to stand up

➤ The result

⇒ If rapid filling of a segment means that there is **blow out**

N.B : for more localization do more tourniquet in the segment



③ MANUAL LOCALIZATION TEST " 2 FINGERS TEST "

- Patient stand & the 2 index are pressed at a point on long saphenous vein then empty at opposite direction.

➤ The result ⇒ If vein fill between two fingers = **blow out**



④ FEGAN'S TEST

- 1st patient stand & then mark the varicosities .
then patient, lies down & detect the defect of deep fascia i.e. **blow out** then mark by (x)

B. Test to differentiate between occluded & patent deep vein

① PERTHE'S TEST (not done)

1. The patient lies on his back & the lower limb is elevated.
2. An elastic bandage is applied firmly from the toes to the upper thigh.
3. The patient is then asked to stand & walk in situ for 5 minutes.

➤ The result ⇒ If the deep system is **occluded**, the patient will complain of pain in the leg.

② MODIFIED PERTHE'S TEST

1. The patient is standing.
2. A tourniquet is applied just below sapheno-femoral junction. .
3. The patient is asked to walk quickly in situ 5 minutes.

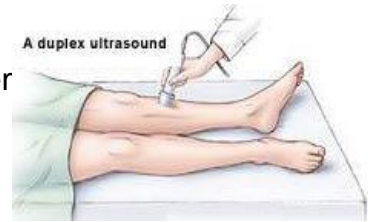
➤ The result

⇒ If the varicose veins disappear = the deep system is **patent**.

⇒ If the veins become more engorged = the deep system is **occluded**

INVESTIGATIONS

1. **Doppler & duplex U/S** to detect incompetent perforators & ensure patency of the deep system
2. **Abdominal & pelvic CT scan** to detect pelvic masses



TREATMENT

1- Conservative treatment

- **INDICATIONS** : 1ry V.V if early, patient is pregnant, unfit, waiting for or refusing operations.
- **METHODS** :
 - ① avoid prolonged standing or sitting.
 - ② below knee elastic stocking.
 - ③ periodic leg elevation to prevent stasis.

2- Injection-compression sclerotherapy

- **AIM** : occlusion of lumen by fibrosis & not by thrombosis.
- **INDICATIONS** :
 - ① minor varicosities i.e. spiders
 - ② residual varicosities after operations.
- **CONTRAINDICATIONS** :
 - ① 2ry V.V with D.V.T
 - ② pregnancy
 - ③ acute septic thrombophlebitis.
- **SCLEROSING MATERIALS** :
 - ① **3 %** Na Tetradecyle sulphate.
 - ② **5 %** Ethanolamine oleate.
- **TECHNIQUE** : segment injected should be empty of blood & isolated by 2 fingers. then firm elastic bandage is applied for 6 weeks.
- **PRECAUTIONS** :
 - ① small dose (1 ml).
 - ② one is done only then others at other visits.
 - ③ immediate walking after injection to prevent venous stasis.
- **COMPLICATIONS** : extravasation of sclerosing agent
→ discoloration & sloughing of skin.



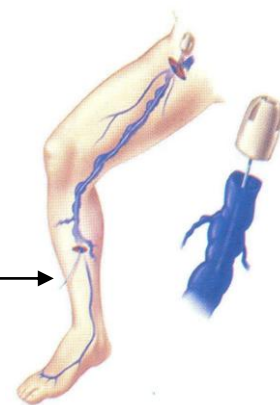
3- Operative treatment

1. TRENDLENBURG OPERATION

- **INDICATED** : with sapheno-femoral incompetence i.e. saphena varix.
- **PRINCIPLE** : ligation of long saphenous & its tributaries.

2. SUBCUTANEOUS STRIPPING OF LONG SAPHENOUS

- **INDICATED** : if whole system is severely affected
- **PRINCIPLE** : trendlenburg operation then S.C stripping of whole long saphenous vein.

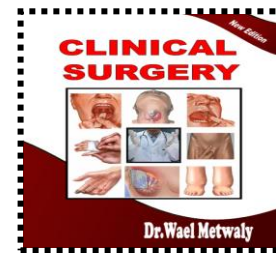


3. SUB-FASCIAL TRIPLE LIGATION OF INCOMPETENT PERFORATORS

- **INDICATED** : with incompetent perforators i.e. blow out
- **PRINCIPLE** : 3 ligatures are applied on the perforator & saphenous vein above & below then the segment between are removed

OSCE EXAM

* WE MUST TO LOOK FOR



Bilateral 1ry Varicose vein

Rt. > Lt.

+ve data

1. Multiple, dilated, elongated, soft, bluish & compressible veins
2. **Inspection** :
 - Saccular, serpentine & spider
 - Halux valgus
3. **Palpation** :
 - Soft & compressible
4. **Percussion** : +ve Schwartz
5. **Special Test** :
 - a- Trendlenburg test = +ve blow out
 - b- Multiple tourniquet test =
(below knee)
 - c- 2 fingers test = +ve blow out
 - d- Modified Perth's test
= Patent deep system

Bilateral 1ry Varicose vein

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(below knee)
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= Patent deep system

Questions on varicose vein



Q1: What are the value of P.R & P.V in V.V case ?

- ⇒ If 1st V.V: Piles may be detected.
- ⇒ If 2nd V.V: Pelvic mass may be detected.

Q2: What is meant by flat foot ?

★ **DEFINITION** Loss of med. arch of foot.

★ **AETIOLOGY**

- *Congenital* "weak mesenchyme".
- *Paralytic* "paralysis of muscles act on foot".
- *Osseous* "dislocation of foot bones".

★ **COMPLICATIONS**

- Joint deformity.
- Osteoarthritis & pain.

Q3: What are the dilated veins crossing groin region formed of ?

- Superficial epigastric vein
- Lateral thoracic vein to axillary vein.

Q4: What are causes of tender calf muscle ?

- DVT.
- Myositis.
- ✓ neuropathy.

Q5: Why 'Homan's test' not done ?

- To avoid dissemination of thrombi.

Q6: What is mean by 'Blow out' ?

- Blow out = Incompetent perforators.

Q7: What is meant by 'Ankle flare' ?

- Fine venules passing around medial malleolus

Q8: What is meant by 'Branham's bradycardia' ?

- Occlusion of feeding vessels in case of A-V fistula will leads to slow of pulse to normal rate. **N.B.: It is relative bradycardia**

Q9: Are any visible veins considered varicose vein ?

- No, because varicose veins are elongated & tortuous

Q10: What are different termed 'Trendlenberg' in surgery ?

- **Trendlenburg valve** : Sapheno-femoral junction.
- **Trendlenburg test**: to detect blow out or saphena Varix.
- **Trendlenburg operations**:
 - ① To remove saphena varix.
 - ② Part of S.C stripping of long saphenous.
- **Trendlenburg's position** for barium meal e.g. detection of hiatus hernia

Q11: What are the sites of perforators along the course of the short saphenous vein ?

- There are two perforators above the lateral malleolus (lateral ankle perforators). another one is present handbreadth below the popliteal crease and there is also the sapheno-popliteal junction.

Q12: Is there any veins crossing the shin of tibia ?

- Yes, there is a vein crossing the shin of tibia. It is liable to trauma leading to its rupture which may lead to severe hemorrhage.

Questions on Venous Ulcer

Q13. What is meant by 'Gaiter area' or Ulcer bearing area ?

- 2,4,6 inches above medial malleolus.

Q14. What is the cause of varicose veins ?

- ☆ **1st venous ulcer with in V. V** [common & minimal]
Due to
 - Congenital weakness of venous wall.
 - Congenital absence or incompetence of valves.
- ☆ **2nd venous ulcer with 2rv V. V** [common & marked]
Due to
 - DVT (Deep venous thrombosis).
 - Deep venous compression.
 - A.V fistula.

Q15. What is the pathogenesis of venous ulcer ?

(White cell trapping theory)

- Venous hypertension → S.C capillary proliferation → ↑ W.B.Cs.
the trapped W.B.Cs becomes activated → ↑ release of proteolytic enzymes → Injury of capillary endothelium → Venous ulcer.

Q16. What are the causes of DVT ?

- 50 % post-operative [fracture neck femur & post prostatectomy]

Q17. What is the most common site of DVT ?

- Calf muscle of lower limb.

Q18. What is the most common presentation of DVT ?

- Tender calf muscle.

Q19. What is meant by 'marjoline's ulcer' ?

- Malignant venous ulcer.

Q20. What are the commonest causes of leg pain ?

- | | |
|----------------------|-------------------|
| A = Arterial | → Ischemic pain. |
| V = Venous | → Varicose vein. |
| L = Lymphatic | → Tender L.N. |
| N = Nerve | → Sciatica. |
| Muscle | → Myopathy |
| Bone | → Osteomyelitis. |
| Joint | → Osteoarthritis. |

Good luck

Nerve injury sheet

NERVE INJURY

ANATOMICAL CONSIDERATION

I. Muscles of the front of the forearm

A. Superficial muscles "5 muscles"

- ① Pronator teres. ←
- ② Flexor carpi radialis. ←
- ③ Palmaris longus. ←
- ④ Flexor digitorum superficialis. ←
- ⑤ Flexor carpi Ulnaris. ←

- **ORIGIN** : (C.F.O.) med, epicondyle of the humerus
- **ACTION** : Flexion of elbow & wrist joint
except ***pronator teres*** (pronation).
- **NERVE SUPPLY** : All muscles by median n. except flexor carpi ulnaris by Ulnar n.



B. Deep muscles "3 muscles"

- ① Flexor pollicis longus. (from Radius) ←
- ② Flexor digitorum profundus (from Ulna). ←
- ③ Pronator quadratus (from both) ←

- **ACTION** : ① ***Flexor pollicis longus***.
Flexion of wrist & thumb.
- ② ***Flexor digitorum profundus***.
Flexion of wrist & med, 4 fingers.
- ③ ***Pronator quadratus*** (Pronation).
- **NERVE SUPPLY** : All muscles by i.e. (median nerve)
except med, 1/2 of flexor digitorum profundus by Ulnar nerve



Median n. supply all muscles of front of forearm **except 1.5** muscle supplied by ulnar n. which is → Flexor carpi ulnaris
→ Med, 1/2 of flexor digitorum profundus

II. Muscles of the Hand

(A) Theanar muscles + Adductor pollicis muscle.

(B) Hypothenar muscles.

(C) Lumbricals & Interossei.

A. Thenar muscles

① Abductor pollicis brevis.

② Flexor pollicis brevis.

③ Opponens pollicis.

+ Adductor pollicis muscle



➤ NERVE SUPPLY : All these muscles supplied by median n.
except Adductor pollicis muscle by ulnar n.

N.B: → Paralysis of abductor pollicis brevis = +ve Pen touch test.

→ Paralysis of adductor pollicis = +ve Froment test.

B. Hypothenar muscles :

① Abductor digiti minimi.

② Flexor digiti minimi.

③ Opponens digiti minimi.

➤ NERVE SUPPLY : All these muscles by ulnar n



C. Lumbricals (4 muscles)

➤ ORIGIN : Tendon of flexor digitorum profundus.

➤ INSERTION : Extensor expansion of back of med, 4 fingers
i.e. back of terminal phalanges.

➤ NERVE SUPPLY → Med. 2 fingers by ulnar n.
→ Lat. 2 fingers by median n.

➤ ACTION → Writing position
→ Flexion of M/P & extension of I/P joints.

If paralyzed → Extension of M/P & flexion of I/P.
joint, i.e. **Claw hand** .
→ If med. 2 Lumbricals only
→ partial (**ulnar**) **Claw hand**.



Interossei (7 muscles) [3 palmar & 4 dorsal]

➤ ACTION : → Palmar = [Adductor]
→ Dorsal = [Abductor]



➤ NERVE SUPPLY : All by ulnar n.

N.B If paralyzed → loss of abduction & adduction
= +ve **Card test**.



SO

➔ Muscles of hand supplied by

1. **Ulnar n** → Hypothenar muscles.
→ Adductor pollicis only.
→ Med, 2 Lumbricals & 7 Interossei
2. **Median n** → Thenar muscles
→ Lat. 2 Lumbricals.

Ulnar nerve

Median nerve

In the arm

No branches

No branches

In the forearm

☆ Muscular branches : (1.5 M)

- Flexor carpi ulnaris
- Med. 1/2 of flexor digitorum Profundus.

☆ Cutaneous branches:

[3 cm above wrist].

- **Palmar** cutaneous branch → Palmar surface of (med. 1/3 of hand)
- **Dorsal** cutaneous branch → Dorsal surface of (med. 1/3 of hand & med. 1.5 fingers)

☆ Muscular branches : (6.5 M)

- 4 muscles superficial.
- 2.5 muscles deep.

☆ Cutaneous branches:

[3 cm above wrist]

- Palmar & lateral cutaneous branches → Skin over thenar. except lat, part which by Radial n.

In the palm

☆ Muscular branches :

- Adductor pollicis.
- Abductor digiti minimi.
- Flexor digiti minimi
- Opponens digiti minimi
- 4 Dorsal interossei.
- 3 Palmar interossei
- **Medial** 2 Lumbricals.

☆ Cutaneous branches :

- Palmar surface of medial 1.5 fingers.

☆ Muscular branches :

- -----
- Abductor pollicis brevis.
- Flexor pollicis brevis.
- Opponens pollicis.
- -----
- -----
- **Lateral** 2 Lumbricals.

Cutaneous branches :

- **Palmar** surface of lateral 3.5 fingers &
- **Dorsal** surface of upper part of lat. 3.5 fingers. but masked by radial n.

I- NERVE INJURY SHEET

* PERSONAL HISTORY

Name, Age, Sex, Occupation, Residence, Marital status & Special habits e.g. Alcohol → neuritis

→ **COMPLAINT** The most common complaint is deformity

* PRESENT HISTORY

- I. Analysis of complaint
- II. Analysis of **part** affected
- III. Analysis of **other parts** affected

I. Analysis of complaint

⊗ Deformity

1. O.C.D

2. PAINS

- ☆ Site
- ☆ Number (Rt. or Lt).
- ☆ Investigations & treatment (done before)
- ☆ Associated swelling: • Neuroma.
- Bony swelling as callus.
- ☆ Pain " analyzed as usual "

3. Trauma or not

⊗ If Post-traumatic [ask about duration]

- Immediately = pressure by fracture = **1^{ry} neuritis**.
- Occurs after hours or days = pressure by hematoma = **2^{ry} neuritis**.
- Occurs after months or year = pressure by callus = **Delayed neuritis**.

II. Analysis of part affected

1. Injury of **motor** part • Deformity (mal-position).
• Paralysis (loss of function).
• Wasting group of muscle
2. Injury of **sensory** part • Loss of superficial sensation
• Loss of deep sensation
3. Injury of **autonomic** part • Vasomotor changes as → Redness of skin.
• Sudomotor changes as → Loss of sweating.
4. **Trophic** changes [Loss of hair, brittle fissured nail & scaly dry skin]

III. Analysis of other parts affected

☆ F.H.M.A (Inflammation at site of injury)

* PAST HISTORY

- ★ Similar condition
- ★ Important disease → (produce peripheral neuritis) as D.M, \$, leprosy.

* FAMILY HISTORY



EXAMPLE OF

NERVE INJURY SHEET

* PERSONAL HISTORY

.....Male patient. 30 years old, نجار مسلح. Married since one year, born in أسبوط & live in منشية ناصر the patient does not smoke cigarettes, but he smokes shisha. No other special habits of medical importance.

* COMPLAINT Deformity of Rt. hand.

* PRESENT HISTORY

- The condition started since 7 years with history of accident by a machine (associated wound in Rt. wrist).
- The patient was admitted to hospital العباسية, the wound was sutured with slab (جبيرة) 15 days then advised to physiotherapy with little improvement so the patient was advised to make another nerve repair after 9 months.
- At this time patient complains deformity of Rt. hand. After 9 months, the surgical trial was done in hospital قصر العيني the deformity still present
- There are associated **motor** affection as deformity, loss of function of medial 1.5 finger & associated wasting.
- There are associated **sensory** affection as impaired sensation.
- There are associated **autonomic** affection as loss of sweating but little.
- There are associated **trophic** changes as dry skin, loss of hair but minimal.
- **No** associated inflammation or associated L.Ns.

* PAST HISTORY

No past history about recurrence, No DM, No hypertension, No T.B, No Bilharziasis, No drug allergy, No other previous operations .

* FAMILY HISTORY

No family history of similar condition (irrelevant)



Rt. ulnar nerve injury

II- GENERAL EXAMINATION

As usual but look for evidence for cause of peripheral neuritis

e.g. **Face** : Skin nodules → leprosy.

Lower limb : stocking sensory loss with D.M.

III- LOCAL EXAMINATION

1. ULNAR NERVE INJURY

A. Ulnar n. injury at Wrist joint

* INSPECTION

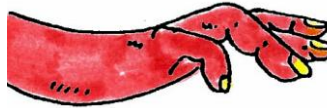
① **Deformity** : (Partial) **Ulnar claw hand**

Why ? due to paralysis of med, 2 Lumbricals.

② **Wasting** : of

- a. Adductor pollicis
- b. Intreosseous space
- c. Hypothenar eminence

- Abductor digiti minimi.
- Flexor digiti minimi.
- Opponens digiti minimi.



③ **Vasomotor or sudomotor changes** :

i.e. Redness or anhydrosis is **minimal** (i.e. autonomic affection).

④ **Trophic skin changes** :

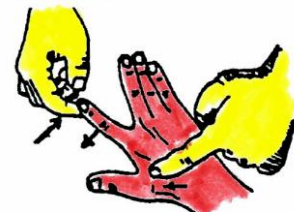
i.e. Loss of hair, brittle nail etc..... is **minimal**

⑤ **Scar**

- Site (at wrist joint).
- Length & direction.
- Associated neuroma or not.
- Healed by 1^{ry} Intension or 2^{ry} Intension.
- Adherent to deep structure or not. by asking pt, to contract underlying muscle if pulled → It is attached to deep structure.

⑥ **Movement** : [**Active**] i.e. against resistant.

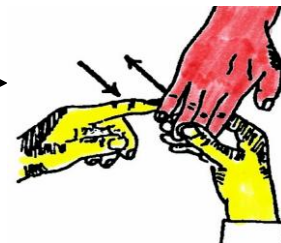
- Inability to move **abductors** or **adductors** of the med, 4 fingers.
e.g. Examine motor power of 1st dorsal intreosseous. →



- Inability to move **adductor pollicis** muscle

- Inability to move **abductor digiti minimi**

e.g. Examine motor power of this muscle. →



* PALPATION

① **Deformity.**

② **Wasting.**

③ **Vasomotor or sudomotor changes**

④ **Trophic changes.**

⑤ **Scar**

⑥ **Movement** : (**Passive**) not active to exclude other causes of this deformity e.g. stiffness of joint.

Confirm

⑦ Skin sensation

- **Examine** from anesthetic area to normal area & not the reverse.

➤ **The result :**

Loss of sensation at palmar surface of med 1.5 finger only



* **PERCUSSION** Tinel's sign

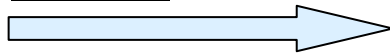
Tap the nerve below the lesion if distal tingling is felt by patient this means the nerve fiber growing distally.



* **SPECIAL TEST**

I. **Card test**

- ☆ Due to paralysis of interossei (which adduct the fingers) the pt. can't hold a card between his extended fingers.



II. **Froment test**

- ☆ Due to paralysis of Adductor pollicis, if the pt. asked to grasp a paper between his thumb & sides of index fingers → The terminal phalanx of the affected thumb is flexed to hold the paper (by the flexor pollicis longus which supplied by median n)



B. **Ulnar n. injury at Elbow joint** All of the above +

But : ① **Deformity** : **Decreased** *why?*

- Because of extension of distal I/P joint because of paralyzed medial 1/2 of flexor digitorum profundus. i.e. **ulnar paradox**
- Also there is **radial deviation** because of paralyzed flexor carpi ulnaris



- ② **Wasting** : at medial side of ulna because wasting of flexor carpi ulnaris & medial 1/2 of flexor digitorum profundus.



- ③ **Vasomotor or sudomotor changes** : **Marked**

- ④ **Trophic changes** : **Marked.**

- ⑤ **Scar** → at elbow mainly

- ⑥ **Movement** → [**Active**]

It is associated by weak flexion of wrist so it will be examined by adduction of wrist against resistance.



ALSO SENSATION

- Lost at palmar & dorsal surface of medial aspect of the hand
- Lost at palmar & dorsal surface of medial 1.5 fingers

SO The end result →



2. MEDIAN NERVE INJURY

A. Median n. injury at Wrist joint

* INSPECTION

① Deformity : [Ape hand]

Why ? due to paralysis of **ab**ductor pollicis **brevis** and contraction of **ad**ductor pollicis (which supplied by ulnar n.)

② Wasting : of the thenar eminence

- Abductor pollicis brevis.
- Flexor pollicis brevis.
- Opponens pollicis.

③ Vasomotor or sudomotor changes : minimal

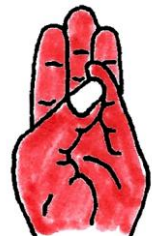
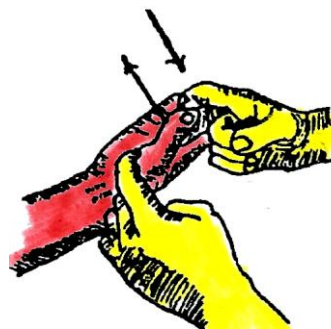
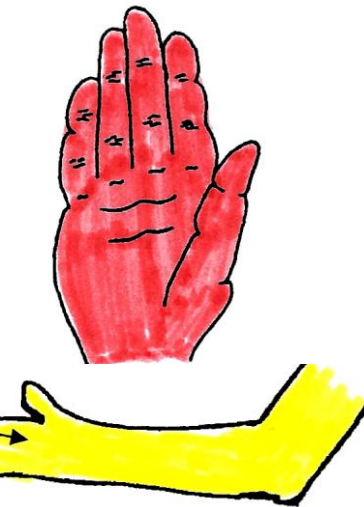
④ Trophic skin changes : minimal

⑤ Scar → "At wrist" then analyzed as usual

⑥ Movement : [Active] i.e. against resistant.

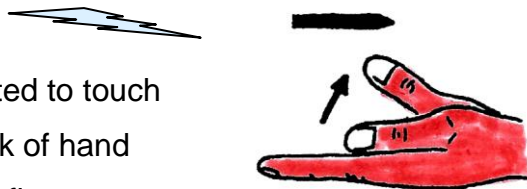
Examine **thenar muscles**

- ① Test for *flexor pollicis brevis* —————→ ask the pt. to flex his thumb against resistance.
- ② Test for *opponens pollicis* —————→ i.e. loss of thumb opposition to little & other fingers.
- ③ Test for *abductor pollicis brevis*. ↗



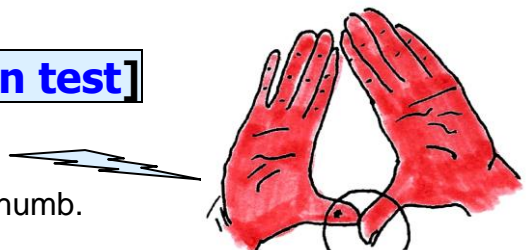
A. Pen touching test

The thumb can't be abducted to touch a pen in front of it with back of hand on table to avoid action of flexors.



B. Wartenberg's test [Prayer's position test]

The tip of the thumb of the affected side touching the palmar aspect of the pulp of the non affected thumb.



* **PALPATION**

- ① Deformity.
 - ② Wasting.
 - ③ Vasomotor or sudomotor changes
 - ④ Trophic changes.
 - ⑤ Scar
- } **Confirm**
- ⑥ **Movement : (Passive)** not active to exclude other causes of this deformity e.g. stiffness of joint.

⑦ **Skin sensation**

- **Examine** from anesthetic area to normal area and not the reverse.
- **Examine superficial sensation 1st :**
 1. *Touch* : By cotton wool.
 2. *Pain* : sharp pin.
 3. *Temp* : by 2 test tube (hot & cold).
- **Examine deep sensation**
By sense of position & movement.



- **The result :**
Loss of sensation at palmar surface of lat 3.5 finger only

N.B: No affection on dorsum because It is supplied by radial n.

* **PERCUSSION** Tinel's sign

Tap the nerve below the lesion if distal tingling is felt by patient this means the nerve fiber growing distally.

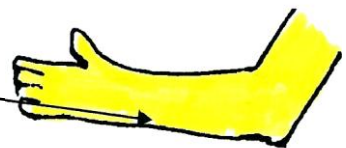


N.B. Notes this site for follow up.

B. Median n. injury Above Cubital fossa

All of The above + But :

- ① **Deformity** : The same but there is **ulnar deviation** because of paralysis of flexor carpi radialis.
- ② **Wasting**: of flexor surface of forearm because of wasting of their muscles
- ③ **Vasomotor or sudomotor changes** : Marked
- ④ **Trophic changes** : Marked.
- ⑤ **Scar** → Above cubital fossa, arm or at axilla.



⑥ **Movement** → [Active]

A. Test of motor power of pronator teres & quadratus muscles →

- ☆ Pronation of supinated forearm but don't forget the arm must be adducted and forearm flexed **why ?** to avoid internal rotation of shoulder Joint.

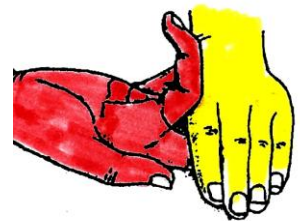


B. Test of motor power of flexor carpi radialis.

- ☆ Examine radial deviation against resistance but don't forget the wrist must be flexed **why ?** to avoid the action of extensor carpi radialis

C. Test of motor power of flexor digitorum superficialis →

- ☆ Flexion of middle phalanx of med, 4 fingers.
"Test one finger while fixing the other 3 fingers"



D. Test of motor power of lat 1/2 of flexor digitorum profundus. →

- ☆ Flexion of terminal phalanx of Index and middle fingers.
While supporting their middle phalanges. **Why?**
To avoid the action of flexor digitorum superficialis



E. Test of motor power of Flexor Pollicis Longus

- ☆ Flexion of terminal phalanx while fixing proximal phalanges
why ? to avoid action of "flexor pollicis brevis".



Also sensation As cutting at wrist but.

- Lost at lateral 2/3 of the palm of the hand only.

N.B. The lat, part of thenar not affected **why ? because supplied by radial n.**



*** Special test**

Ochner's clasp test →

- ⊛ The index on the affected side is pointed, extended & tapered if the pt, is asked to clasp his hands together.
- ⊛ Due to loss of action of lat 1/2 of flexor digitorum profundus & lat 2 lumbricals.



3. RADIAL NERVE INJURY

ANATOMY

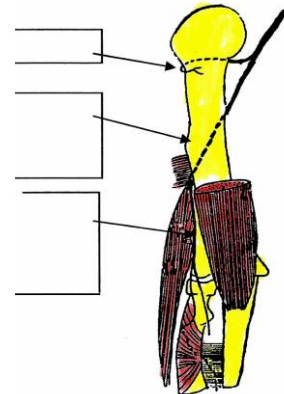
☆ **Axilla** : → **Motor**: Long head of triceps.

→ **Sensory** : Post, cut. n. of arm.

☆ **Spiral groove** → **Motor** • Med. & lat. head of triceps.

→ **Sensory** • Post. cut. n. of forearm.

☆ **Above elbow** → **Motor** • Brachioradialis.
• Extensor carpi radialis longus.
• Lat 1/2 of brachialis.
• 2 Terminal branches :



(1) Superficial cutaneous branch (sensory)

➤ Supply lat. 2/3 of dorsum of hand & dorsal aspect of proximal phalanx of Lat. 2/3 of fingers.

(2) Posterior interosseous n. (motor)

➤ Supply all extensors of forearm

EXAMINATION DEPENDING ON SITE OF INJURY

I. Injury at head of radius: (i.e. Post interosseous n. injury)

➤ **MOTOR** : Paralysis of all extensors of wrist & fingers so [**Finger drops deformity**]

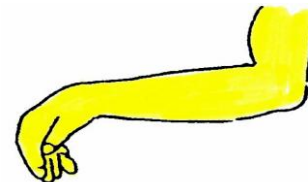
Why no Wrist drop ? because there is weak extension of wrist by brachioradialis & extensor carpi radialis longus (i.e. radial n.)

➤ **SENSORY**: No changes **Why?**
because post, interosseous n. (purely motor).

II. Injury at lower 1/3 of arm: (i.e. above elbow).

➤ **MOTOR**: As above (+) [**Wrist drop deformity**].

➤ **SENSORY**: Loss of small area on dorsum of thumb.



III. Injury at spiral groove :

➤ **MOTOR**: As above (+) [**Weak extension of elbow**]

➤ **SENSORY**: Anesthesia over lower lat. arm and back of forearm.

IV. Injury at axilla :

➤ **MOTOR**: as above (+) [**Complete loss of extension of elbow**].



*motor power of supinator



* motor power of Extensors of wrist and fingers

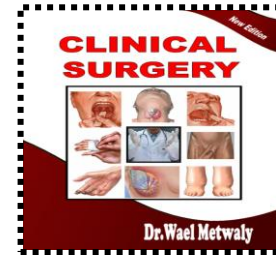


* motor power of triceps



* motor power of brachioradialis.

OSCE EXAM



* WE MUST TO LOOK FOR

Ulnar nerve injury

Partial claw hand

+ve data

1. History of **trauma** at Lt. wrist.
2. **Deformity** (Partial claw hand)
3. **Wasted muscles** (hypothenar, interossi & adductor pollicis)
4. **Sensory loss** (1.5 finger & med, 1/3 of the Lt. hand)
5. **Coldness** (1.5 finger)
6. **Tinel percussion** = Neuroma
7. **Special tests** :
 - **Card** test +ve
 - **Froment** test +ve

ORAL DISCUSSION

NERVE INJURY

Q1: What are the causes of wrist & foot drop ?

- **Wrist drop** by radial n. injury.
- **Foot drop** by sciatic n. injury.

Q2: How can you by one test only D.D. ulnar, radial from median n. injuries ?

- **Ulnar injury** by : Froment test.
- **Median injury** by : Clasp test.
- **Radial nerve** by : Fingers ± wrist drops.

Q3: How can you by movement of thumb only know the nerve which injured ?

- If the thumb fail to do → Flexion, abduction & opposition → **median** n. injury.
 - Adduction → **ulnar** n. injury
 - Extension → **radial** n. injury.

Q4: What is the sensation of ring finger ?

- **Ventrally** : *Medial aspect* : Ulnar n.
Lateral aspect : Median n.
- **Dorsally** : *Medial aspect* : Ulnar n.
Lateral aspect : Radial n. except upper part by median n.

Q5: What is meant by ulnar paradox ?

- Injury of ulnar n. at elbow less marked deformity than if occurs at wrist

Q6: What are the causes of claw hand ?

- It may be → *Partial* claw hand : ulnar n. injury.
→ *Complete* claw hand :
may be ➤
 1. Combined median Ulnar injury.
 2. Medial cord lesion.
 3. Advanced rheumatoid arthritis.
 4. Volkmann's ischemic contracture.



Q7: How can you D.D Volkmann's ischemic contracture from ulnar n. injury ?

- By signs present only with Volkmann's ischemic contracture.
 - ① Absent radial pulsation.
 - ② Flexion of wrist → extension of fingers

Q8: What are the types of nerve injuries ?

- **Neuroapraxia** : Temporary loss of nerve function with no changes in nerve axons or sheaths so "**Best prognosis**"
- **Axonotmesis** : It is due to interruption of the axon with intact neurolemmal sheaths so. "**Good prognosis**"
- **Neurotmesis** : It is due to interruption of both axon & neurolemmal sheaths so "**Bad prognosis**"

Q9: What are the investigations needed for patient with nerve injury ?

- A. **Nerve conduction test** → *Neuroapraxia* conduct electrical impulse.
→ *Axonotmesis* & *neurotmesis* can't conduct it.
- B. **Quinizarine powder test.** "to detect **anhidrosis**"
Put the white powder at skin affected then observe the change of its Colour if remain means anhidrosis if changed to be pink = sweating.

Q10: What is the ttt of cases having n. injury ?

- **Early** : Conservative ttt i.e. physiotherapy.
- **Late** : > 2 months with no Response to conservative ttt occur.
 1. Nerve suturing.
 2. Nerve grafting.

Q11: What are the evidence of nerve regeneration ?

1. 1st to recover is (crude) touch sensation then motor power from proximal to distal.
2. Tinel's sign +ve.

Q12: What are the factors affecting the prognosis of injured nerve ?

1. **Neuroapraxia** : The best prognosis.
2. **Motor or sensory nerve** : Better prognosis than mixed nerves.
3. **Nerve supply bulky Muscle**: Better prognosis than which supply fine muscles.
4. **Good apposition** of the cut ends of the nerve.
5. **Asepsis**: Sepsis interfere with nerve generation

Good luck

Lymphadema sheet

Chapter 11

LYMPHOEDEMA "ELEPHANTIASIS"

* AETIOLOGY

A. Congenital (1^{ry} Lymphadema) rare

- Congenital aplasia or hypoplasia of lymphatics.
- It may be → Hereditary or familial (**Milroy's disease**)
→ Congenita - precox- tarda.

B. Acquired (2^{ry} Lymphadema)

- **Post Traumatic** : A-V fistula or circumferential skin loss.
- **Post Operative** : Extensive block dissection of inguinal or axillary L.Ns
Which operations ? (See Q: 1)
- **Post Parasitic** : Filariasis *Why? (See Q: 2)*
- **Post Inflammatory** : → Chronic specific: T.B & \$
- **Post Neoplastic** : (usually 2ries & rarely lymphoma)
→ Malignant axillary L.Ns due to cancer breast

* PATHOLOGY

lymph stasis → lymphangitis (streptococcal) → More obliteration of lymphatics

→ 4 stages .

- ① **Stage of Pitting oedema** : (Early)
- ② **Stage of Lymphorrhoea** : (Rupture of lymphatic vesicles)
- ③ **Stage of non pitting oedema** : (fibrosis) *why? (See Q: 3)*
- ④ **Stage of warty pseudopapillomatus** i.e. Elephantiasis

I- LYMPHODEMA SHEET

* PERSONAL HISTORY

1. Name

2. Age

- At birth → Lymphoedema **congenita**
- At puberty → Lymphoedema **precox**
- At adult → Lymphoedema **tarda**.

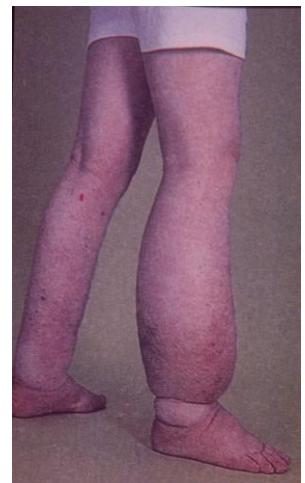
3. Sex

4. **Occupation**: Barefooted i.e. Farmers

5. **Residence**: Endemic area for filariasis
(Rashid. Damietta. Mansoura, Giza, Embaba).

6. **Marital status**

7. **Special habits of medical importance**



* COMPLAINT

Swellings ± pain ± fever

* **PRESENT HISTORY**

- I. Analysis of complaint
- II. Analysis of **part** affected
- III. Analysis of **other parts** affected
- IV. Ask about the **possible causes**

I. **Analysis of complaint (Swelling ± pain)**

SWOLLEN LIMB

1. **O.C.D.** (Onset - Course - Duration)

2. **PAINS**

- ☆ **S**ite & **S**ide (If localized)
- ☆ **N**umber = (Unilateral or bilateral).
- ☆ **I**nvestigations & treatment (done before)
- ☆ **A**ssociated swelling (L.Ns) *why? (See Q: 4)*
- ☆ **P**ain (painless) except if lymphangitis

1. **O.C.D**

2. Site

3. Extent

4. Characters

5. ↑ by

6. ↓ by

7. Associated symptoms

II. **Analysis of part affected**

i.e. **Local** complications of lymphoedema

ASK ABOUT : 1. **Recurrent** cellulites & lymphangitis.

2. **Blebs** : If infected → Painful

3. **Rupture Blebs** : i.e. Ulcer [at dorsum of foot]

4. **Heaviness** & limitation of movement : i.e. Huge limb.

III. **Analysis of Other parts affected**

i.e. **General** complications of lymphoedema

➤ **Toxic manifestations (F.H.M.A).**

- **Elephantoid fever** : High fever with rigors & associated with pain ± gradual increasing in size of swelling.

➤ **Metastatic manifestations (L.B.L.B)**

- To exclude **lymphangiosarcoma** (very rare)

IV. **Ask about the possible causes**

☆ **Post** [Traumatic - operative - parasitic - inflammatory - neoplastic]

☆ **History of DVT** → To exclude venous oedema

* **PAST HISTORY**

* Similar condition.

* Important disease as cardiac, renal, endocrinal.

* Allergic manifestation (skin rashes + itching)

} **If systemic oedema**

* **FAMILY HISTORY**

* Similar conditions as (**Milroy's disease**)

II- LOCAL EXAMINATION

✳ **Don't forget:** • Looking for other sites of Lymphoedema.

Q: What are the other sites of lymphoedema? (See Q: 5)

* INSPECTION

- 7 S**
- ☆ **Site & extent** usually lower 2/3 of the leg.
 - ☆ **Side** → Bilateral : If due to systemic cause.
→ Unilateral: If due to lymphoedema.
 - ☆ **Skin conditions**
 - ① Scars of trauma.
 - ② Papillary projections
 - ③ Cellulites & streaks of lymphangitis.
 - ④ Lymphocele or lymphorrhoea
 - ⑤ Café au lait patches *Why? (See Q: 6)*
 - ☆ **Sole of feet & creases** : not affected *Why ? (See Q: 7)*
 - ☆ **Scars of previous operation** :
 - ① **Axillary** region: [If lymphoedema in the **arm**]
 - ② **Groin** region: [If lymphoedema in the **leg**]
 - ☆ **Swelling at groin region** : i.e. A. V. fistula [expansile pulsation] or L.Ns
 - ☆ **Scrotum**
 - Oedema as part of systemic oedema.
 - Lymphoedema.



* PALPATION

- 3 T**
- Temp** → Warm if (infected).
 - Tenderness** → Tender if (infected).
 - Thrill** → If (A.V. fistula) i.e. continuous thrill.

Then palpate :

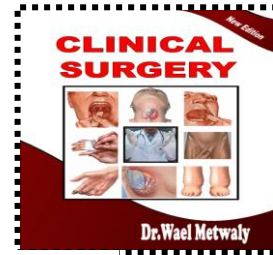
- ① **Skin** : To confirm inspection.
- ② **S.C** : Oedema (pitting or non pitting).
- ③ **Joint** : to exclude mechanical block *(See Q: 8)*
- V** ④ **Vein** : V. V or DVT to exclude (venous oedema).
- A** ⑤ **Artery** : If (A-V. fistula) i.e. localized swelling at groin region with expansile impulse & continues thrill.
- N** ⑥ **Nerve** : If elephantiasis neuromatosa . i.e. Café au lait patches
- L** ⑦ **L.Ns** : Draining L.Ns → If enlarged, tender & firm = Infection.
→ If Hard, 1st mobile later on fixed = Malignancy as complications or from the start.



DIAGNOSIS

➤ Lymphoedema (1^{ry} or 2^{ry}). → IF 2^{ry} lymphoedema (**Filariasis or not**)

OSCE EXAM



* **WE MUST TO LOOK FOR**

2^{ry} Lymphoedema **Filariasis** (Stage I)

+ve data

1. Odema on Rt. side **not** affect sole or skin crease
2. **Pitting** odema (stage I)
3. **+ve** inguinal L.Ns
4. **Endemic** area
5. **No** café au lait
6. **No** mechanical block of joints

**ORAL
DISCUSSION**

LYMPHOEDEMA

Questions on introduction



Q1: Which operations having high risk for lymphoedema ?

- *Extensive block dissection of inguinal L.Ns* e.g. Radical vulvectomy.
- *Extensive block dissection of axillary L.Ns* e.g. Radical mastectomy.

Q2: How can filariasis lead to 2^{ry} lymphoedema ?

- Filariasis → lymphatic obstruction then on top of this obstruction, streptococcal infection occur.

Q3: Why does fibrosis occur in lymphoedema ?

- ☆ Because, high protein level.

Questions on sheet

Q4: What are the causes of L.Ns enlargement with lymphoedema ?

- 2^{ry} infection if associated lymphangitis.
- Lymphangiosarcoma (as a complication) V. rare.
- Malignant L.Ns (as a causes) e.g. Axillary or inguinal L.Ns.

Questions on examination

Q5: What are the other sites of lymphoedema ?

- Upper Limb.
- Lower Limb.
- Scrotum.
- Vulva.
- Breast.

Q6: Why Café au lait patches can be detected in lymphoedema ?

- Because of elephantiasis neuromatosa.

N.B: Also mechanical block of joint is associated

Q7: Why skin creases & sole of foot not affected ?

- Because → **Skin creases**: Drained by deep lymphatics.
- **Sole of foot**: • Drained by deep lymphatics.
- Pressured by [planter apponeurosis].

Q8: Why mechanical block off joint can be detected in lymphoedema ?

- Because of elephantiasis neuromatosa.

N.B. : Also Café au lait patches is associated

Good luck

Lymphadenopathy sheet

Chapter 12

LYMPHADENOPATHY

Introduction

* Generalized lymphadenopathy

☆ **Start as one group then becomes generalized :**

1. **T.B. (2^{ry})** rare

(Night sweat & night fever + loss of weight & loss of appetite).

2. **Lymphoma (Hodgkin & non Hodgkin)**

(multiple swelling at anatomical site of L.Ns)

☆ **Start generalized from the start :**

3. **Leukemia**

(Bone ache + bleeding tendency from orifices)

4. **2^{ry} syphilis**

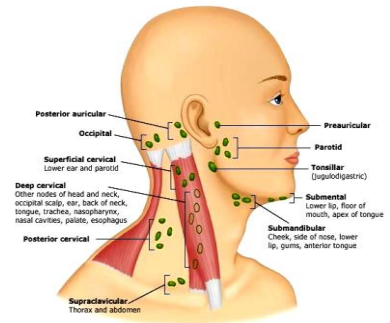
(Skin rashes + genital ulcer).

5. **Infectious mononucleosis (IMN).**

(Skin rashes + glandular fever).

6. **AIDS**

Q: What are the causes of L.Ns with skin rashes?



→ **Mouth** • Bleeding gums.
• Haemoptysis.
• Hematemesis.
→ **Nose** → Epistaxis
→ **Rectum** → Bleeding
→ **Bladder** → Hematuria
→ **Vagina** → Menorrhagia

* Localized lymphadenopathy

1. **T.B. (1^{ry})** → No toxemia (Young + bad hygiene + cold abscess)

2. **Acute lymphadenitis**

(1^{ry} septic or malignant focus e.g. ulcer or swelling or septic trauma] at draining are).

Don't forget	1 ^{ry} TB (common)	2 ^{ry} TB (rare)
Route	• Lymph borne	• Blood borne
Clinical picture	<ul style="list-style-type: none"> • Localized lymphadenopathy (Upper deep cervical L.Ns) • No toxemia. • L.Ns : <ul style="list-style-type: none"> - Painless, enlarged. - (Firm, cystic, hard) - Matted or rosary beads. "Can be counted" 	<ul style="list-style-type: none"> • Generalized lymphadenopathy (Lymphadenoid.) • Toxemia. • L.Ns : <ul style="list-style-type: none"> - Painless, enlarged. - Firm. - Discrete & mobile (uniform size)
Complications	<ul style="list-style-type: none"> • Cold abscess. • T B sinus (describe) • Calcification.

Acute lymphadenitis	Non Hodgkin	Hodgkin (Lymphadenoma)
Tender & enlarged	Painless & enlarged	Painless & enlarged
Firm	(Firm, Soft, Hard)	Firm
Single	Amalgamated "can't be counted "	Discrete & mobile (different size)
-----	Infiltration (bad prognosis)	No infiltration but pressure symptoms.

Don't forge



⇒ **Lymphadenoid** = 2^{ry} T.B
 ⇒ **Lymphadenoma** = Hodgkin's disease
 ⇒ **Adenolymphoma** = Adenocystic lymphoma (Warthin's tumor) of salivary gland.

I- LYMPHADENOPATHY SHEET

* PERSONAL HISTORY

1. Name
2. Age
 - If young → T.B.
 - If adult → Acute leukemia or **Hodgkin** (10 - 30 years).
 - If Old → Chronic leukemia or **Non Hodgkin** (30 - 70 years)
3. Sex → Malignancy more common in male.
4. Residence : T.B (low socioeconomic standard area)
5. Occupation : Brucellosis (*in those contact with animal*)
Because brucellosis → **Pel Epstein** fever which is similar to **Hodgkin's disease**.
6. Marital status
7. Special habits of medical importance (Alcohol). **Why?**
Because alcohol induce pain at site of **Hodgkin's disease**.

* **COMPLAINT** * Multiple swellings (at anatomical site of L.Ns) ± pain.

* PRESENT HISTORY

- I. Analysis of complaint (swelling ± pain)
- II. Analysis of symptoms related to **part** affected
- III. Analysis of symptoms related to **other parts** affected

I. Analysis of complaint (Swelling ± pain)

1. **O.C.D.** (Onset - Course - Duration)

2. PAINS

- ☆ **Site & Side** (If localized)
- ☆ **Number** (If multiple ask about 1st group).
- ☆ **Investigations & ttt** (Ask about biopsy)
- ☆ **Associated swelling** (L.Ns) if generalized.
- ☆ **Pain** " If present"

Q : What are the causes of painful L.Ns?

- **Acute lymphadenitis**
- **Late lymphoma**

1. **O.C.D**
2. Site
3. Extent
4. Characters
5. ↑ by (e.g. alcohol)
6. ↓ by
7. Associated symptoms

II. Analysis of symptoms related to part affected

i.e. Pressure(infiltrations) symptoms = **local** complications

✧ In neck lymphadenopathy

Dyspnea (trachea or larynx).

Dysphagia (oesophagus).

Horner's syndrome (sympathetic chain).

V Face oedema (int. jugular v. compression)

A Fainting attacks (carotid a. compression)

N Hoarseness (recurrent laryngeal nerve).

✧ In abdominal lymphadenopathy

• Abdominal pain or back pain.

• Jaundice (L.Ns in porta-hepatis).

• Leg oedema (compressed iliac veins or I.V.C by iliac & Para-aortic lymph nodes).

• Renal pain (ureteric compression)

✧ In chest lymphadenopathy

• Chest pain, cough and dyspnea .

✧ In axillary lymphadenopathy

• Oedema (Vein compression).

• Ischemia or gangrene (Arterial compression).

• Tingling, numbness... (Nerve compression)

✧ In inguinal lymphadenopathy

• Same as axillary but ask about :

V → V.V. of L.L.

A → Claudication pain on walking.

III. Analysis of Symptoms related to other parts affected

① Toxic manifestations (FHMA)

[1] **Hectic fever** : As in acute lymphadenitis (abscess).

[2] **Night fever** : As in T.B. (2^{ry}).

[3] **Glandular fever** : [Fever + rashes] as in I.M.N.

[4] **Pel. Epstein fever** = Irregular = periodic → As in (Hodgkin).

② Aetiological manifestations (See introduction)

A. Generalized lymphadenopathy :

- | | |
|------------------------------|--|
| 1. T.B. (2 ^{ry}). | } (Start as one group then becomes generalized). |
| 2. Lymphoma | |
| 3. Leukemia. | } (Start generalized from the start). |
| 4. 2 ^{ry} syphilis. | |
| 5. I.M.N. | |
| 6. AIDS. | |

B. Localized lymphadenopathy :

1. T.B. (1^{ry}).
2. Acute lymphadenitis.

* PAST HISTORY

- * Similar condition i.e. Recurrence
- * Important disease as D.M., hypertension, heart diseasesetc.
- * Previous operation or biopsy (which L.Ns ?)
The moderate size because {Not big (degenerated) & Not small (no pathology)}
- * Previous exposure to irradiation

* FAMILY HISTORY

- * T.B. may affect members (same environment)

EXAMPLE OF

LYMPHADENOPATHY SHEET

* PERSONAL HISTORY

..... male patient, 70 years old, from غمرة seller (خضري) married since 30 years & has 5 children, the youngest 10 years old. He smokes 30 cigarettes per day for 30 years with No other special habits of medical importance.

* COMPLAINT

Multiple bilateral swellings in the neck, axilla & groin 2 years ago

* PRESENT HISTORY

- The condition is started by multiple, bilateral, painless swellings in the upper part of the neck 2 years ago by gradual onset & slowly progressive course.
- The condition was associated with night sweat, night fever, loss of weight & loss of appetite.
- 2 days later multiple, bilateral swellings appears in both axilla.
- 7 days later multiple, bilateral swelling appears in both groin.
- The patient was admitted to (حميات العباسية) for 7 days and investigated by urine, stool, CBC and chest x-ray then received medical treatment and fever disappear.
- The patient is still complain by dyspnea and cough. so admitted to (مستشفى الصدر) and received medical treatment. The symptoms disappeared but the swellings persist. so admitted also to (معهد الاورام) & received medical treatment in form of (4 types of drugs) so swelling ↓ in size and persist until now.
- **No symptoms suggesting pressure in axilla** : in form of oedema, tingling, numbness or claudication pain.
- **No symptoms suggesting pressure in groin** : same as axilla.
- **No symptoms suggesting pressure inside abdomen** : In form of renal pain, jaundice or leg oedema.
- **No symptoms suggesting causes as** : Leukemia (bleeding tendency), 2^{ry} syphilis (Skin rashes with genital ulcer or IMN (skin rashes & glandular fever). [There are bilateral varicose vein & Rt. side hernia].

* PAST HISTORY

No past history about recurrence, No DM, No hypertension, No T.B, No Bilharziasis, there past history about Lt. side hernia operation

* FAMILY HISTORY

No family history of similar condition (irrelevant)

DIAGNOSIS

Generalized lymphadenopathy most probably **2^{ry} T.B**

II- GENERAL EXAMINATION

A. **VITAL SIGNS** For normal "See page 2"

[Temp, Pulse rate, A.B.P., R.R.]

B. **GENERAL EXAMINATION** (A.B.C.D.E.F) "See page 2"

A = Appearance	→ Ill with cachexia as in late lymphoma
B = Built	→ Under built as in T.B & lymphoma .
F = Face	→ Toxic face as in acute lymphadenitis .

C. **SYSTEMIC EXAMINATION**

AIM : Examine all accessible L.Ns **except** the presenting group
+ detection of the cause.

- I. HEAD** :
- ① **Skull** : for bone metastasis:
 - ② **Eye** : for jaundice (if L.Ns in porta-hepatis).
 - ③ **Lip** : for pallor & cyanosis (if L.Ns in mediastinum).
 - ④ **Tongue** : Paralysis (If infiltration of hypoglossal nerve).
 - ⑤ **Parotid region** for swelling → **Mikulicz** (auto-immune)

- II. NECK** :
- ① **Thyroid gland** : for enlargement
 - ② **Trachea** : Central or not.
 - A** ③ **Carotid pulsation** : (i.e. cervical L.Ns).
 - V** ④ **Congested neck veins** : (i.e. mediastinal L.Ns)
 - L** ⑤ **Other L.Ns** : If not the presenting group.
- 1^{ry} toxic goitre (auto-immune)
Hashimoto's thyroiditis (auto-immune)
Occult carcinoma

III. UPPER & LOWER LIMB :

For **V** → **V**enous oedema
A → **A**rterial pulsation
N → **N**ervous sensation
L → **O**ther **L**.Ns if not the presenting group

- IV. CHEST** :
- ① **Bone** (chest wall) metastasis.
 - ② **Lung** (consolidation) as in T.B.
 - ③ **Sternum** (tenderness) as in leukemia.
 - ④ **Despine's sign** (mediastinal L.Ns) = Bronchial breathing is auscultated below level of T₄ on **back**

- V. ABDOMEN** :
- ① **H.S.M** as in leukemia.
 - ② **Abdominal organs** as in spleen.
 - ③ **L.Ns** if not the presenting group.

- VI. PELVIS** :
- ① **Testis** : if testicular tumors

N.B.: **Seminoma** one of **occult carcinoma**

- ② **PR** or **PV** = for pelvic tumors or nodule in the Douglas pouch.

VII. DON'T FORGET (BACK) : For metastasis



III- LOCAL EXAMINATION

* INSPECTION N S E D

N— ☆ **Number** (Single or multiple)
i.e. localized or generalized.

- 8 S** ☆ **Site** (Anatomical site of L.Ns)
- T.B → Upper D.C.L.Ns.
 - Hodgkin → Lower D.C.L.Ns.
 - 2ry \$ → Epitrochlear L.Ns.
 - IMN → Occipital L.Ns.
- ☆ **Side** → Rt. or Lt or both
- ☆ **Shape** → (Oval, rounded or irregular)
- ☆ **Size** → in (cm×cm)
- ☆ **Surface** (Smooth, nodular or lobulated).
- ☆ **Skin over**
- **Redness** : If acute lymphadenitis.
 - **Infiltration** : If lymphoma.
 - **Sinus** : If T.B. or cold abscess.
- ☆ **Special sign**
- **Transmitted pulsation** : If para-aortic L.Ns.
 - **Moving up & down** : If pre-tracheal L.Ns.
- ☆ **Other swellings**
- If generalized lymphadenopathy look for other L.Ns all over the body.
 - If localized lymphadenopathy look for infectious or malignant focus at draining area.



E— ☆ **Edge** : Well defined or ill defined (or difficult to be seen)

D— **Distal effect:**

- V** → **V**ein → oedema.
- A** → **A**rtery → colour changes & trophic changes.
- N** → **N**erve → deformity

* PALPATION TMSEC D

2T— ☆ **Temperature** → Warm as in acute lymphadenitis.

☆ **Tenderness** → Tender as in acute lymphadenitis.

M ☆ **Mobility of L.Ns to each other :**

- **Discrete** ① 2^{ry} T.B.
② Early Hodgkin.
- **Matted** 1^{ry} T.B (See Q:1) [fused but **can be** counted].
- **Chain** : T.B **Q: Why giving Rosary beads ? (See Q:2)**
- **Amalgamated** : Non Hodgkin [fused and **can't be** counted].



8 S ☆ Site , Side, Shape, Size, Surface.

☆ **Skin over** (To show if swelling attached to skin or not) by ⇨

1. **Pinching skin** : (not done).

2. **Sliding** the skin or **pushing** mass under skin

→ If puckering = infiltrated = lymphoma.

☆ **Special sign** : to confirm the (inspection).

☆ **Other Swellings** → If generalized lymphadenopathy look for ⇨ examination of L.Ns all over the body.

→ If localized lymphadenopathy look for ⇨ infectious or malignant focus (at the draining area)

➤ **In cervical lymphadenopathy** : Examine (oral cavity).

[Tongue, teeth, cheek, lips, tonsil, thyroid, face, scalp, parotid, pharynx & larynx]

➤ **In axillary lymphadenopathy** : Examine breast, upper limbs, ant. wall of the trunk until level of umbilicus & post, wall of the trunk until level of umbilicus

➤ **In supra-clavicular L.Ns (Virchow's gland)**

*Q : What are the surgical importance of supra-clavicular L.Ns?
(See Q: 3)*

➤ **In inguinal L.Ns** : Examine lower limbs, genitalia, perineum, anal canal, gluteal region & ant., abdominal wall below level of umbilicus.

E ☆ **Edge** : Well defined or ill defined

C ☆ **Consistency** → **Hard** → Calcified 1^{ry} T.B or Non Hodgkin.

→ **Soft** → Degenerated non Hodgkin.

→ **Cystic** → Cold abscess.

→ **Firm** → Acute lymphadenitis, 1^{ry} T.B., 2^{ry} T.B. & lymphoma.

2 D ① **Deep structure** :

i.e. Relation to deep muscle

② **Distal effect** :

V → **V**ein → oedema.

A → **A**rtery → colour changes & trophic changes.

N → **N**erve → deformity

* **PERCUSSION**

- ⊛ **Sternum** for
 - Mediastinal mass.
 - Tenderness as in leukemia

* **AUSCULTATION**

- ⊛ **Despine's sign** (mediastinal L.Ns) = Bronchial breathing is auscultated below level of T₄ on **back**



HOW TO EXAMINE "LYMPH NODES"

A. Head & neck

I. Circular group

✧ Inner ring (Waldeyer's ring) (See Q: 4 & 5)

✧ Outer ring

① Sub-mental L.Ns (in submental Δ)

- **AFFERENT (drains)**
 - Central part of tongue.
 - Floor of mouth.
 - Middle part of lower lip

- **EFFERENT** → Submandibular L.Ns but few Lymphatics into jugulo-omohyoid L.Ns → Lower deep cervical L.Ns)

② Sub-mandibular L.Ns (in sub-mandibular Δ) (See Q :6)

- **AFFERENT (drains)**
 - Inner angle of eye & side of nose.
 - Cheek, angle of mouth, upper lip, side of tongue & lower lip except middle part. .

- **EFFERENT** → Jugulo-omohyoid group of L.Ns → Lower deep cervical L.Ns.

③ Facial L.Ns (on buccinator muscle).

- **AFFERENT (drains)** part of cheek.
- **EFFERENT** → Upper deep cervical L.Ns.

④ Parotid L.Ns (In parotid substance) (See Q:7)

- **AFFERENT (drains)** : front of scalp
- **EFFERENT** → Upper deep cervical L.Ns

⑤ Pre-auricular L.Ns (in front of tragus).

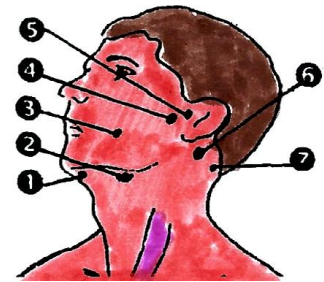
- **AFFERENT (drains)**: side of scalp
- **EFFERENT** → Upper deep cervical L.Ns

⑥ Post-auricular L.Ns (on the mastoid process).

- **AFFERENT (drains)** : temporal part of scalp.
- **EFFERENT** → Upper deep cervical L.Ns

⑦ Occipital L.Ns (between mastoid process & external occipital protuberance)

- **AFFERENT (drains)**: back of scalp. (See Q:8)
- **EFFERENT** → Lower deep cervical L.Ns

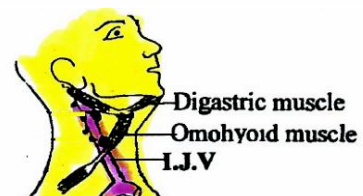
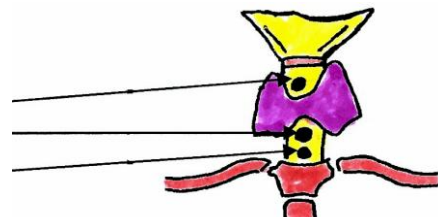


II. Vertical group

- ✧ Middle line L.Ns
 - ① Pre-laryngeal L.Ns
 - ② Pre-tracheal L.Ns.
 - ③ Supra-sternal L.Ns.

✧ Lateral group

- Upper deep cervical L.Ns
- Lower deep cervical L.Ns
- Intermediate group
 - Jugulo-digastric
 - Jugulo-omohyoid



B. Breast

مهم جدا

☆ Palpate axillary & supra-clavicular L.Ns.

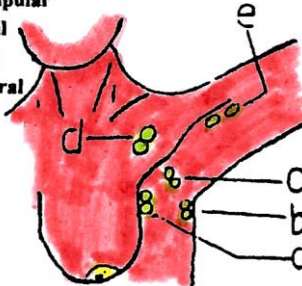
☆ On the diseased side 1st

☆ Axillary L.Ns

- They drain the upper limb down to umbilicus.
- They arranged in 5 groups.

Axillary L.Ns

- (a) pectoral
- (b) subscapular
- (C) central
- (d) Apical
- (e) Humeral



☆ Technique or palpations

- From **front**, palpate the pectoral, apical and central groups.
- From **side**, palpate the humeral group.
- From **behind**, palpate sub-scapular & supra-clavicular nodes.

1. The [Ant] Humeral group

- **SITE** : Under cover the pectoralis major.
- **DRAINS** : ① Chest wall.
- ② Whole breast **except** tail.
- ③ Ant. abdominal wall above umbilicus.

2. The [Post] Sub-scapular group

- **SITE** : Along post, axillary fold
- **DRAINS** : ① Axillary tail
- ② Post, abdominal wall above umbilicus.

3. The Lateral group

- **SITE** : Along upper part of humerus
- **DRAINS** : All the upper limb.

4. The Central group

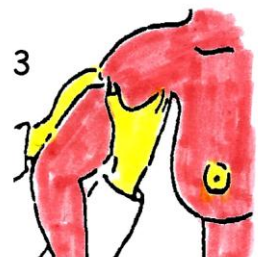
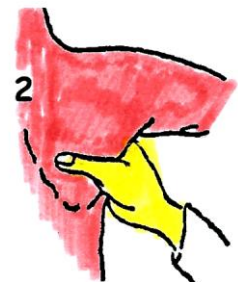
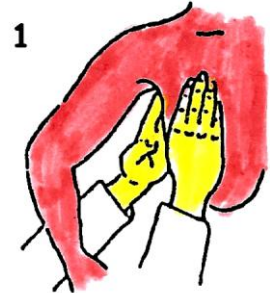
- **SITE** : Central part of axilla
- **DRAINS** : [1], [2], [3]

5. The Apical group

- **SITE** : External apex of axilla
- **DRAINS** : [1], [2], [3], [4] + infra-clavicular L.Ns.

N.B Supra-clavicular group

- **SITE** : above clavicle.
- **DRAINS** : from internal mammary L.Ns



C. Upper limb

1. Superficial group of L.Ns

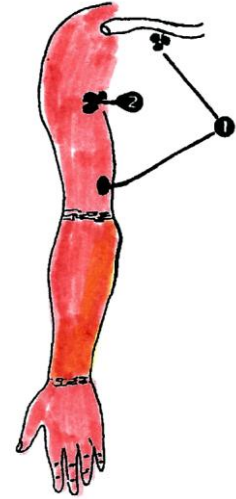
★ **Supra-trochlear (Epitrochlear) group** of L.Ns

- **SITE** : Above medial epicondyle of humerus (See Q:9)
- **AFFERENT** : Same as delto-pectoral group.
- **EFFERENT** : Deep group of L.Ns.

2. Deep group of L.Ns

★ **Lateral (Humeral) group** of L.Ns

- **SITE** : At surgical neck of humerus
- **AFFERENT** : Drains all upper limb (deeply).
- **EFFERENT** : Apical group of axillary L.Ns.



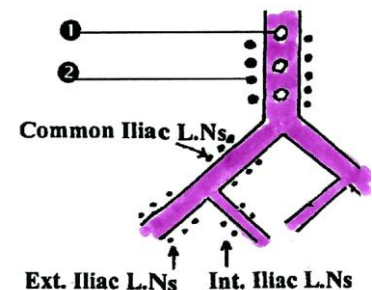
D. Abdomen

1. Ext. & Int. ILIAC L.Ns

2. Common ILIAC L.Ns

3. Para-aortic group of L.Ns

- **SITE** : One on each side of aorta & other one at common iliac vessels.
- **AFFERENT** : Drains internal Iliac L.Ns which drain pelvis and external iliac L.Ns which drain deep inguinal L.Ns
- **EFFERENT** : Cysterna chyli.



E. Lower Limb

(A) Superficial group of L.Ns

★ **Vertical limb** (*lat. to long saphenous vein*)

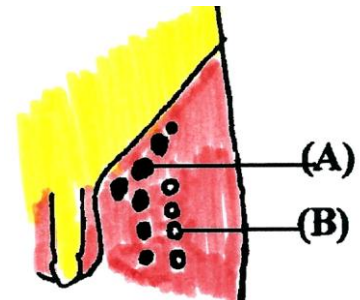
★ **Transverse limb** (*Below inguinal ligament*)

Medial portion

- **drains**
 - Ant. abdominal wall below level of umbilicus.
 - The perineum
 - The skin of external genitalia **except** glands of penis.

Lateral portion

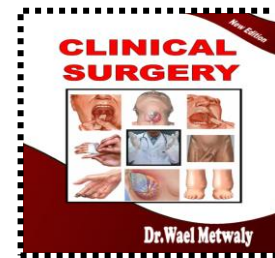
- **drains**
 - Post abdominal wall below level of umbilicus.
 - The gluteal region.



(B) Deep group of L.Ns (Along the femoral vein) the largest called **Cloquet**

- **drains**
 - Gland penis.
 - All lower limb.

OSCE EXAM



* WE MUST TO LOOK FOR

Lymphadenopathy

2ry T.B & HSM

+ve data

- History of T.B toxemia & treatment by Rifampicin (red urine)

+v L.Ns

- Bil. Submandibular L.Ns
- Bil. U.D.CL.Ns
- Rt. L.D.C L.Ns
- Bil. med. axillary L.Ns
- Bil. inguinal L.Ns
- Bil. Epi-trochlear L.Ns
- **2 Lt. Scars** from L.Ns biopsy
(Medial axillary & Post. cervical)

Lymphadenopathy

2ry T.B

+ve data

- History of T.B toxemia & treatment by Rifampicin (red urine)

+v L.Ns

- Bil. Submandibular L.Ns
- Bil. U.D.CL.Ns
- Bil. med. axillary L.Ns
- Bil. inguinal L.Ns
- Lt. Epi-trochlear L.Ns
- Pre-tracheal L.N

ORAL DISCUSSION

LYMPHADENOPATHY

Questions on examination



Q1: How can you examine 'matted' T.B L.Ns ?

- Hold 2 adjacent L.Ns, one on each hand than move them in opposite directions → never separated.

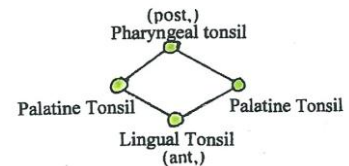
Q2: What is the cause of 'Rosary beads' ?

- [Lymphangitis + lymphadenitis]

Q3: What is the surgical importance of supraclavicular L.Ns ?

- **Lt. supra-clavicular L.Ns :**
 - Below diaphragm (Cancer stomach, cancer colon & hypernephroma)
 - Above diaphragm (Lt. cancer breast & Lt. bronchial carcinoma)
- **Rt. Supra-clavicular L.Ns:**
 - Below (Bare area of liver only).
 - Above (Rt. cancer breast only).

Q4: What is meant by 'Waldeyer's ring' ?



Q5: What are roles off 'Waldeyer's' in surgery?

- Waldeyer's ring.
- Waldeyer's ligament.
- Fascia of rectum.
- Fascia of lower 1/3 ureter.

Q6: How can you DD between submandibular gland & L.Ns ?

- Submandibular L.Ns only rolled on lower border of mandible.

Q7: How can you DD between parotid gland & L.Ns ?

- It is very difficult so → Biopsy must be done.

Q8: What Is the value of occipital L.Ns enlargement ?

- Enlarged with IMN (glandular fever)

Don't Forget:

1. Spinal accessory L.Ns enlarged with pediculosis & frunculosis.
2. Jugulo-omohyoid L.Ns enlarged with Cancer tongue.
3. Jugulo-digastric L.Ns enlarged with tonsillar diseases "tonsillar L.Ns"

Q9: What is the value of epitrochlear L.Ns enlargement ?

- Enlarged with 2^{ry} syphilis.

Q10: Where L.Ns arranged along [Arteries, veins & nerves] ?

- L.Ns arranged along veins : [Limbs and head & neck].
- L.Ns arranged along arteries : [Abdomen]
- L.Ns arranged along nerves:
 - Epitrochlear L.Ns [ulnar nerve].
 - Accessory L.Ns [spinal accessory nerve].
 - L.Ns along [Lat. popliteal nerve].

Good luck

تحذير

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