PRINCIPLES OF ILLUSTRATED CLINICAL SURGERY
HOW TO EXAMINE A SURGICAL PATIENT
1ST EDITION

BY

DR AHMED HUSSEIN ABDULRAZEK
ASSOCIATE PROFESSOR
CONSULTANT PLASTIC SURGEON
SURGERY DEPARTMENT
FMHS, UNIMAS
SARAWAK, MALAYSIA
2004-2005
INTRODUCTION

PRINCIPLES OF ILLUSTRATED CLINICAL SURGERY

by

Associate Professor Dr. Ahmed Hussein Abdul Razek

The first edition

I have been requested by the author of this book, Associate Professor Dr. Ahmed Hussein Abdul Razek to write on the introduction to the first edition.

Associate Professor Dr. Ahmed Hussein Abdul Razek is one of the academic staff at the Faculty of Medicine and Health Sciences, University Malaysia Sarawak. He is a trained plastic surgeon and has vast experience in this specialty. This book, a result of his own effort and dedication, is meant to impart knowledge to those interested to know about clinical surgery.

The information and illustrations are arranged to facilitate the readers to follow and understand the concept easily. This book will be useful to students in the medical, nursing and allied health sciences.

I appreciate the work contributed by Associate Professor Dr. Ahmed Hussein Abdul Razek for completing the write up of this book as well as getting it printed on his own.

Prof. Dr. S. Hassan Ahmad
Dean
Faculty of Medicine and Health Sciences
University Malaysia Sarawak
29 April 2005
<table>
<thead>
<tr>
<th>NO</th>
<th>ITEM</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Essentials for clinical examination</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>How to take a history</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Face as a mirror of the body</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Swellings</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>Ulcers In surgery</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>Sinuses and Fistulae</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>Some Common Swellings</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>Peripheral Arterial Diseases</td>
<td>22</td>
</tr>
<tr>
<td>9</td>
<td>Arterial Pulses</td>
<td>27</td>
</tr>
<tr>
<td>10</td>
<td>Varicose veins</td>
<td>28</td>
</tr>
<tr>
<td>11</td>
<td>Deep Vein thrombosis</td>
<td>32</td>
</tr>
<tr>
<td>12</td>
<td>Diabetic Foot</td>
<td>32</td>
</tr>
<tr>
<td>13</td>
<td>Breast Examination</td>
<td>34</td>
</tr>
<tr>
<td>14</td>
<td>Lymph Nodes Examination</td>
<td>46</td>
</tr>
<tr>
<td>15</td>
<td>Parotid Gland</td>
<td>51</td>
</tr>
<tr>
<td>16</td>
<td>Abdominal Examination</td>
<td>53</td>
</tr>
<tr>
<td>17</td>
<td>Jaundice</td>
<td>64</td>
</tr>
<tr>
<td>18</td>
<td>Hernias</td>
<td>68</td>
</tr>
<tr>
<td>19</td>
<td>Scrotal Swellings</td>
<td>70</td>
</tr>
<tr>
<td>20</td>
<td>Chest Examination</td>
<td>73</td>
</tr>
<tr>
<td>21</td>
<td>Peripheral Nerve Injuries</td>
<td>76</td>
</tr>
<tr>
<td>22</td>
<td>- Upper Limb</td>
<td>78</td>
</tr>
<tr>
<td>23</td>
<td>- Lower Limb</td>
<td>82</td>
</tr>
<tr>
<td>24</td>
<td>Joint Examination</td>
<td>82</td>
</tr>
<tr>
<td>25</td>
<td>Hand Examination</td>
<td>93</td>
</tr>
<tr>
<td>26</td>
<td>Foot Examination</td>
<td>99</td>
</tr>
<tr>
<td>27</td>
<td>Nervous System Examination</td>
<td>101</td>
</tr>
<tr>
<td>28</td>
<td>References</td>
<td>106</td>
</tr>
</tbody>
</table>
Essentials for clinical examination

Gloves
Measuring tape (Linen)
Ruler
Light torch
Wooden tongue depressor
Skin marking pin

Magnifying lens
Clinical thermometer
Tendon hammer
Pins
Tourniquets or gauze bandages
Hand watch

Attitude of a student:

**Do:**

- Appear gentle, smart, polite and professional
- Talk clearly, slowly and concisely
- Look confident
- Sound interested and listen to the examiner’s point of view to know his approach
- Lead the examiner to areas of discussion which you know well
- Thank the examiner at the end.
- Trust your knowledge, be sure of these knowledge.
- Be honest if you do not know the answer.

**Don’t**

- Don’t be hesitant, nor panic.
- Don’t argue with the examiner.
- Don’t repeat his question.
- Don’t make bizarre facial expression.
- Don’t tell jokes.
- Don’t ask the examiner to help you move or carry the patient.
- Don’t be over confident.
- Don’t be afraid of any examiner only respect if requested.
- Don’t change your mind easily if you are sure of your answer.

Plate 1 — Don’t panic
HOW TO TAKE A HISTORY

Aims of history taking
1- Personal history
2- Present complaint
3- History of the present illness
4- Systemic screening
5- Past history of any illness
6- Treatment (drug or surgery) history
7- History of immunization.
8- Family and social history
9- Special habits

1-PERSONAL HISTORY

| 1- | Name | a- for registration  
b- familial disease (e.g: Cancer colon) |
|----|------|--------------------------------------------------|
| 2- | Age  | Infancy 0-2 Years  
Child 2-12 Years  
Adolescence 12-20 Years  
Adulthood 20-40 Years  
Middle age 40-60 Years  
Old age >60 Years |
| 3- | Sex  | Breast Cancer in female |
| 4- | Race, religion , nationality | Malay, Iban, Bedayuh, Chinese, Indian.... |
| 4- | Residence | Temperate areas for Filariasis |
| 5- | Occupation | Varicose veins (Long standing) and Cancer bladder (Dye factories) and renal stone in hot climates farmers, |
| 6- | Marital status | Single or married, number of children and age of the youngest. |
| 7- | Menstrual history | Onset of menarche, regularity, onset of menopause, contraceptive pills) |
| 8- | Special habits | Smoking, Alcohol, drugs, promiscuity |

How to present?

A male patient named .........., xx years old, from......, working as....., married since...years, and has ..children, last one is ...years old, smoking ....cigarettes per day for ...years.

2-COMPLAINT

1- In patients own words, no scientific words
2- Only the presenting complaint (cause of coming to the hospital)

Example: patient is complaining of a swelling or rupture in the right groin
Main Complaints in Surgery: pain, Swellings, Bleeding, Deformity, Ulcer.

3- PRESENT HISTORY

History of the present illness
a-Analyze the complaint:

<table>
<thead>
<tr>
<th>Onset</th>
<th>Course</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudden: after trauma</td>
<td>Progressive</td>
<td>Short</td>
</tr>
<tr>
<td>Acute: infections</td>
<td>Regressive</td>
<td>Long</td>
</tr>
<tr>
<td>Insidious: gradual</td>
<td>Stationary</td>
<td></td>
</tr>
<tr>
<td>Accidentally discovered</td>
<td>Variable: (intermittent)</td>
<td></td>
</tr>
</tbody>
</table>

b- History of the disease in a chronological order:
If the disease has a history which is related to the same complaint of the patient we can correlate the history and write it in the same order.
Example: The condition started 5 years ago insidiously and has a slowly progressive course, for which the patient went to … hospital and…..

**Essential complaint:**

1- **Pain**

1- Site  
2- Mode of onset: Sudden, gradual or insidious  
3- Severity: Severe or mild tolerated.  
4- Progression: steady, gradual decline, gradual increasing, fluctuating  
5- Mode of cessation: sudden, gradual or crescendo and sudden cessation  

<table>
<thead>
<tr>
<th>6- Character:</th>
<th>Colicky, dull-aching, stitching, throbbing, burning, stabbing, constricting, distension</th>
<th>7- Radiation:</th>
<th>8- Precipitating factors</th>
<th>9- Relieving factors</th>
</tr>
</thead>
</table>

2- **Swelling**

1- Site  
2- Onset: Sudden, gradual, accidentally discovered.  
3- Symptoms  
4- Change in the size  
5- Does it ever disappear?

<table>
<thead>
<tr>
<th>6- Any other lumps.</th>
<th>7- Relation to pain or trauma</th>
<th>8- Constitutional manifestations</th>
</tr>
</thead>
</table>

3- **Bleeding:**

Site (GIT, Urinary, Skin tumour, pulmonary)  
Onset  
Duration  

<table>
<thead>
<tr>
<th>Amount</th>
<th>Associated manifestations as loss of weight, ascites, diarrhea, vomiting, cough, …etc</th>
</tr>
</thead>
</table>

4- **History of trauma**

5- **Constitutional manifestations:**

Acute: fever, headache, malaise, rigors,  
Chronic: weight loss, anorexia, loss of appetite, low grade fever, night sweat

6- **Symptoms of complications of the condition:** in obstructive jaundice ask about symptoms of possible complications as infections, obstruction, pancreatitis………..

7- **Possible etiology of the condition:** Bleeding esophageal varices, due to portal hypertension due to liver fibrosis or cirrhosis due to Schistosomiasis, or alcohol or hepatitis affection

8- **Hiccups:** spasmodic diaphragmatic contractions due to peritoneal irritation. It occurs in peritonitis, advanced renal insufficiency.  
Post-operative hiccup indicates pressure on diaphragm by dilated loops of the bowel or stomach.

9- **Previous investigations or treatment:** use these information in the proper way and don’t mention the current diagnosis of the condition

4- **Systemic Review**

**I-GIT:**

- **Oro-esophageal:**
  1- Taste, sour taste and water brash in DU  
  2- Dysphagia, level, fluids or solids, progressive or intermittent

- **Gastric**
  1- Hematemesis,  
  2- Appetite, lost in malignancy

3- Vomiting, frequency, amount, contents, relation to nausea, pain, and meals

4- Heart burn, relation to posture

5- Eructation and water brash

**C- Colo-intestinal:**

1- Melena and fresh rectal bleeding (Hematochiasia)  
2- Defecation problems: frequency, amount, color, odour, contents
3- Abdominal distension
D- **Gall Bladder**: Fatty dyspepsia = flatulence in relation to fatty meals.
E- **Liver**
1- Jaundice:
2- Liver cell failure:
   A- Jaundice (Bilirubin),
   B- Edema and ascites (albumin),
   C- Bleeding tendency (prothrombin and other factors),
   D- Gynecomastia, loss of libido, palmar erythema, spider nevi (non deactivated Estrogen and other vasodilator agents),
   E- Ammonia encephalopathy, drowsiness, insomnia, flapping tremors and fetor hepaticus = Rotten apple odor (Non deactivated ammonia to urea)
F- **Diaphragmatic**: Hiccups spasmodic diaphragmatic contractions due to peritoneal irritation. It occurs in peritonitis, advanced renal insufficiency. Post-operative hiccup indicates pressure on diaphragm by dilated loops of the bowel or stomach.

**II) Urinary tract symptoms:**
(1)- Urine:
   A- Amount,
   B- Color odor (bad in infection), content (necroturea, pyuria, hematuria
(2)- **Micturition**:
   1- Difficulty = dysuria
   2- Urgency (intense desire to micturate)
   3- Strangury (painful intense desire to micturate) = similar to tenesmus
   4- Precipitancy (Inability to hold the Micturition)
   5- Hesitancy (Difficulty to start Micturition)
   6- Intermittency (Interrupted Micturition)
   7- Dribbling
(3) **Uraemic manifestations**:
   1- Skin: dry, inelastic, urea frost, and itching
   2- GIT: dry tongue, thirsty, diminished appetite and altered taste of food.
   3- CNS: Headache, insomnia, drowsiness, tremors and lack of concentration
   4- Respiratory: Hiccough and uriniferous odor
   5- CVS: Anemia, hypertension, bradycardia
(4) **Suprapubic mass**.
   (III) – **Musculoskeletal symptoms**:
   (IV) – **Cardiovascular symptoms**:
   Palpitation
   Headache and dizziness
   3- Ankle edema
   4- Pain: Cardiac pain is retrosternal, constricting, related to activity, released by rest.
   5- Orthopnea
   (V) **Peripheral vascular symptoms**
   (VI) **Genital tract**

**5- PAST HISTORY OF ANY MEDICAL ILLNESS**

1- Similar condition
2- Medical disease: DM, Hypertension, T.B…

**6- TREATMENT HISTORY**

Detailed informations about drugs, surgery, the surgeon
duration type of anesthesia
type of operation hospital stay
any complications

**7- IMMUNIZATION HISTORY**

**8- FAMILY HISTORY**

Of similar diseases, or any other medical diseases as DM, Hyper tension, Syphilis, Ischemic heart disease or malignancy. If one of parents died ask about the cause of his death.
# GENERAL EXAMINATION

## 1- General appearance

<table>
<thead>
<tr>
<th>Mental status</th>
<th>Alert, confused, or drowsy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture</td>
<td>Unable to keep standing, recumbent, fetal posture in pancreatitis (on side with legs and knees bent over), lying still in peritonitis, restless in intestinal obstruction, renal or biliary colic.</td>
</tr>
<tr>
<td>Body built</td>
<td>Over weight or under weight (BMI= weight/ squared height)</td>
</tr>
<tr>
<td></td>
<td>-- Fat loss: over triceps, mid axillary line and interosseous area on the hand and deltoid region</td>
</tr>
<tr>
<td></td>
<td>-- Muscle wasting: facial muscles, interosseous, and quadriceps muscles</td>
</tr>
<tr>
<td></td>
<td>-- Edema: over ankles and over the tibia, one minute pressure</td>
</tr>
</tbody>
</table>

**Dehydration**

1. Tilt test: Patient lies supine 2 minutes = record pulse and BP
   - Ask patient to stand record pulse and BP,
   - Increase in HR > 30/minute = with postural dizziness = hypovolemia
   - Capillary refilling time: hand of the patient is at level of his heart, press over the distal phalanx for 5 seconds then release. Normally regain color in 2-4 seconds.
   - Skin turgor: poor skin turgor indicates dehydration. Pinch out skin over chest abdomen, leave, (normally returns rapidly) to normal. Elastic

**Face**

Toxic, pale, or cachectic..... see facies

## 2- Vital signs:

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Normal = 36.5-37.2°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continuous fever: does not fluctuate more than 1°C for 24 hours</td>
<td></td>
</tr>
<tr>
<td>2. Remittent fever: fluctuates more than 2°C but does not reach to normal</td>
<td></td>
</tr>
<tr>
<td>3. Intermittent fever: persists for few hours and the returns to normal e.g: Relapsing fever: few days then return to normal for other few days( Malaria, brucellosis, TB, Hodgkin’s disease( Pel-Ebstein fever)</td>
<td></td>
</tr>
<tr>
<td>1°C rise increases pulse by 10 beats / min. Dissociation is seen in Typhoid, Brucellosis, drug induced fever, or in patients on B-blockers or digitalis.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory rate</th>
<th>14-18/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.P.</td>
<td>120 / 80</td>
</tr>
</tbody>
</table>

**Pulse:** rate, rhythm, volume, special character, equality,

- Normal: 60-90/min
- Rhythm and bilateral equality
- Character: e.g < water hammer pulse
- State of vessels

**Weight and height**

BMI = weight / squared height

<table>
<thead>
<tr>
<th>Age</th>
<th>HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fetus</td>
<td>140-160</td>
</tr>
<tr>
<td>0-1</td>
<td>135</td>
</tr>
<tr>
<td>1-2</td>
<td>120</td>
</tr>
<tr>
<td>3-4</td>
<td>110</td>
</tr>
<tr>
<td>5-8</td>
<td>90</td>
</tr>
<tr>
<td>9-11</td>
<td>85</td>
</tr>
<tr>
<td>12-17</td>
<td>80</td>
</tr>
<tr>
<td>Adult</td>
<td>72</td>
</tr>
</tbody>
</table>
3- Head examination:

1- Skull and scalp: for swellings
   1- Brows: for hair loss in Leprosy
   2- Eyes: upper lids for ptosis, lid lag, tremors, Moebius sign, Von Graeffe's sign, Joffroy's sign
   3- Exophthalmos
   4- Jaundice and pallor,
   5- Puffiness of eye lids
3- Lips: cyanosis and pallor, ulcer or swellings

4- Tongue:
   1- Coated in chronic renal failure
   2- Tremors in toxic goiter
   3- Pallor
   4- Cyanosis (Central)
   5- Wasting
   6- Ulcers or swellings

5- Mouth: oral hygiene

6- Parotid Gland: upper, anterior, posterior and lower poles

4- Neck examination
   1- Veins: position of patient is important.
   2- Thyroid gland
   3- Lymph nodes

4- Trachea for any shift

5- Carotid pulsations

5- Upper Limbs:

(I) Hands

1- Temperature
2- Moisture
3- Palmar erythema
4- Tremors: fine (thyrotoxicosis), Flapping (Liver failure), Coarse (Parkinsonism)
5- Capillary circulation
6- Cyanosis: to distinguish between central and peripheral cyanosis

<table>
<thead>
<tr>
<th>Central cyanosis</th>
<th>Peripheral cyanosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of complete oxygenation of blood due to heart failure, lung disease, or right to left shunt in the heart</td>
<td>Due to excess reduction in oxyhemoglobin in the capillaries with slow blood stream due to exposure to cold or arterial ischemia or venous obstruction or heart failure</td>
</tr>
<tr>
<td>It is generalized and peripheries are warm</td>
<td>Extremities are cold</td>
</tr>
<tr>
<td>Affects tongue</td>
<td>Tongue is free</td>
</tr>
</tbody>
</table>

7- Nails for

a- Clubbing: (bilateral or unilateral).
   Theory of pathogenesis:
   • increased sponginess of the nail bed
   • loss of the usual acute angle between the nail and the nail bed

• increased curvature of the nail
• increased mass of the soft tissues over the terminal phalanges
• Signs of clubbing:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of subungual angle (Lovibond's angle) = angle between the nail base and skin. Normal is &lt;180 O</td>
<td>Ballotability of the nail, due to spongy tissues under the nail.</td>
<td>Abnormal phalangeal depth ratio N : DPD/IPD=0.895 &gt; 1 in clubbing</td>
<td>Drum stick form</td>
</tr>
</tbody>
</table>
b- Spinning (Iron anemias)
c- Polished (Obstructive jaundice)
d- Onycholysis: separated nails in fungus infection, thyrotoxicosis, psoriasis
e- Paronychia: infection of the peri-onychium—pus
f- Leukonychia (White nails): white spots under nail
g- Brittle nail: irregular nail borders in hyperthyroidism, Calcium and iron deficiency
h- Ingrowing toe nails; at great toe

- Onychogryposis: nail is thick, heaps up and grows vertically to look as an animal claw, seen in elderly and after trauma.
- Splinter hemorrhage due to minute arterial emboli, long thin, red brown streaks of hemorrhages. Seen in bacterial endocarditis and fulminating septicemia.
- Subungual hemATOMA or melanoma

<table>
<thead>
<tr>
<th>Hematoma</th>
<th>Melanoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>No trauma</td>
</tr>
<tr>
<td>Reddish brown</td>
<td>Brown grayish tinge</td>
</tr>
<tr>
<td>Sharp edge</td>
<td>Irregular edge</td>
</tr>
<tr>
<td>Spread under nail</td>
<td>Does not spread</td>
</tr>
<tr>
<td>No blood vessels</td>
<td>Lens shows new blood vessels</td>
</tr>
</tbody>
</table>

- Glomus tumour: rare angio-neuromyoma often occurs under nail. It causes severe pain. It presents as a small purple-red spot.
- Beau’s lines: transverse lines following episodes of illness or malnutrition, age of a nail = 6 months

(2) ARM FOR
1- Epitrochlear and axillary LNs
2- Pulse collapsing pulse.
### Plate-3: Different conditions affecting the face.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Leonine face-Leprosy</td>
<td>B</td>
<td>Face tattooing after accident</td>
</tr>
<tr>
<td>C</td>
<td>Cushing Syndrome</td>
<td>D</td>
<td>Scleroderma face</td>
</tr>
<tr>
<td>E</td>
<td>Huge facial neurofibroma</td>
<td>F</td>
<td>Cleft lip and palate</td>
</tr>
<tr>
<td>G</td>
<td>Facial eczema</td>
<td>H</td>
<td>Face after trauma</td>
</tr>
<tr>
<td>I</td>
<td>Raccoon eye</td>
<td>J</td>
<td>Burn contracture</td>
</tr>
<tr>
<td>K</td>
<td>Mental retardation face</td>
<td>L</td>
<td>Facial cleft face</td>
</tr>
<tr>
<td>M</td>
<td>Big sarcoma in the face</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Plate-4: Some skin and subcutaneous lesions

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Necrotizing fasciitis</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>Post-operative synergistic gangrene</td>
<td></td>
</tr>
</tbody>
</table>

### 6- LOWER LIMBS:
1. Pulses
2. Lymph Nodes
3. Motor and sensory supply
4. Trophic changes

### 7- CHEST:
- Inspection, palpation, percussion and auscultation
- Sternal tenderness
- Spider naeves
- Gynecomastia

### 8- ABDOMEN
- Inspection, palpation, percussion, auscultation, PR and PV

5. Edema
6. Venous tree
7. Reflexes
FACE IS A MIRROR FOR THE BODY

1- LEONINE FACE: due to paralysis of facial nerves, expressionless, in leprosy
2- ADENOID FACE: long, dumb looking in children
3- HIPPOCRATIC FACE: sunken eyes, sharp nose, hollow cheeks, open mouth, dry cracked lips, cold drawn ears, in sever prolonged illness or infection and premortal.
4- RACOON EYES: swellings around the eyes and head trauma
5- SCLERODERMA FACE: sharp nose, shiny tight skin, narrow mouth.

6- GRAVES' FACE: see thyroid gland
7- MYXEDEMA FACE: puffy face, yellow color due to carotene, dry rough skin, coarse hairs, boggy eyes, and loss of outer third of eye brows.
8- CHRONIC RENAL FAILURE FACE: edema, pale, anemic
9- ACROMEGALY FACE: thick bones, large nose and lips, big hands and feet.
10- CUSHING FACE: moon face, round, plethoric, oily, with acne and alopecia. Face may be hairy, with buffalo hump.

11- SKIN LESIONS

1- Macule: flat nonprojecting circumscribed discolored area smaller than 1 cm in diameter.
2- Patches: Flat nonpalpable areas larger than 1 cm in diameter as (Vitiligo)
3- Papules: Raised palpable skin lesions less than 1 cm in diameter.
4- Plaques: Raised palpable lesions more than 1 cm in diameter. It remains in the dermis superficially.
5- Nodules: Raised palpable lesions more than 1 cm. It lies deep in the dermis or projects outward from the skin surface.
6- Tumours: Nodules larger than 2 cm in diameter or poorly determined.
7- Wheals: Raised transient circumscribed edematous plaques pink or pale (Mosquito bites)
8- Vesicles: Lesions containing fluid and raised with diameter less than 1 cm. Herpes
9- Bullae: Vesicles more than 1 cm in diameter in burns
10- Cysts: Raised encapsulated and filled with fluid or secretion
11- Pustules: Papules filled with pus (Acne)
12- Petechiae: Reddish-purple discoloration of skin due to escape of blood into the skin. It is flat and less than 1 mm in diameter.
13- Purpuric eruption: same as before but diameter is 2-5 mm
14- Ecchymoses (bruises): Escape of blood into skin in areas larger than 5 mm, elevates skin and known as hematoma.
15- Skin gangrene as in necrotizing fasciitis eg: Fournier’s gangrene, post-operative synergistic gangrene

---

Plate-5
1- LOCAL EXAMINATIONS: will be discussed below.

2- CAUSES OF ANY PATHOLOGICAL PROBLEM
   A- Congenital
   B- Traumatic
   C- Inflammatory
   D- Neoplastic
   E- Others

3- OVER WEIGHT IS DUE TO: Obesity, pregnancy, Myxedema, Cushing syndrome

4- SOURCES OF BONE METASTASES:
   1- Thyroid
   2- Breast
   3- Kidneys
   4- Prostate
   5- Lung

5- Sites for secondary malignancies
   1- Lung
   2- Liver
   3- Bone
   4- Brain
   5- Endocrine glands

6- SPREAD OF MALIGNANCIES BY
   1- Lymphatic
   2- Blood stream
   3- Transcelomic
   4- Direct spread
   5- Intracavitary or luminal spread
   6- Transmural (in the wall of the viscous)
   7- DIRECTIONS OF LYMPHATIC SPREAD

   1- Ante grade extension: normal pathway from the viscous to the surrounding LNs to the central LNs, to the Thoracic duct to the venous circulation

   2- Retro grade spread: if the opening of the lymphatic channel is blocked, lymph will go backwards to the lymph nodes. E g : supra-clavicular LNs in abdominal malignancy.

Common specific presentations
Lumps, ulcer, vessels, nerves, fractures, dislocations, abnormal function of an organ or a gland,

**LOCAL EXAMINATION**

**SWELLINGS IN SURGERY**

**Definition:** an abnormal mass or a lump in any place in the body.
Remember:  
  a- Position of the patient
  b- Exposure

**HISTORY**
As described before

**GENERAL EXAMINATION**
As described before
LOCAL EXAMINATION

INSPECTION

CHARACTERS OF THE SWELLING

1- Single or multiple (number)
2- Site: anatomical location
3- Size: in two diameters
4- Shape: (rounded, oval, spherical, oblong, horse shoe……)
5- Surface: smooth, lobulated, nodular……..
6- Skin overlying:
   - Normal
   - Inflamed: redness, dilated veins
   - Signs of malignancy as nodularity, dilated veins, retraction, dimpling or tethering.
   - Scars
7- Surrounding structures:
   a- Relation to muscles: ask patient to contract muscles and see effect on size of the swelling
   if size increases: = superficial to muscle
   if decreases = deep to the muscle
b- Effects on the muscles, blood vessels, nerves, and other luminal structures…
8- Other swellings: lymph nodes or other similar lumps
9- Special Signs:
   a- Pulsations: in aneurysms, or vascular tumors
      - Expansile: pulsation in aneurysm, and transmitted in masses overlying artery.
   b- Impulse on cough in hernias
   c- Movement on swallowing or tongue projection

<table>
<thead>
<tr>
<th>Horse-shoe</th>
<th>Spindle shaped</th>
<th>Sausage</th>
<th>Reniform</th>
<th>Ovoid</th>
<th>Rounded</th>
<th>Hour-glass</th>
<th>Pyriform</th>
<th>Butterfly</th>
<th>Club</th>
</tr>
</thead>
</table>

Plate-5 Shape variations

<table>
<thead>
<tr>
<th>Smooth</th>
<th>Lobulated</th>
<th>Nodular</th>
<th>Papillary</th>
<th>Cauliflower</th>
<th>Villous</th>
</tr>
</thead>
</table>

Plate-6 Varieties of surface

<table>
<thead>
<tr>
<th>Edge</th>
<th>Connecting stalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ill defined</td>
<td>Well defined</td>
</tr>
<tr>
<td>Sessile</td>
<td>Pedunculated</td>
</tr>
</tbody>
</table>

Plate-7
PALPATION

1- Tenderness
2- Temperature: use dorsum of the hand, and compare with normal areas
3- Single or married (Multiple)
4- Site: anatomical location
5- Size: in two diameters, measure using tape
6- Shape: (rounded, oval, spherical, oblong, horse shoe...)
7- Surface: smooth, lobulated......, For a lipoma pinch the whole swelling to make skin overlying tense, lobulated surface will appear. In phyllodes tumour of breast the surface is bossellated.
8- Edge: the edge may be well defined or ill defined
9- Skin overlying:
   - Pinching test
   - Gliding the skin over the swelling
   - Push the swelling a side and observe any skin dimpling
   - Scars

10—Consistency:

1- Consistency sensation: for solid masses, soft or hard, tense cystic swelling may feel hard
   * Soft------like lip
   * Firm------tip of the nose
   * Hard ------like the forehead
   * Fleshy------like a relaxed biceps muscle
   * Rubbery------like a rubber ball
2- Fluctuation test: sensation of displacement of fluid in two directions in cystic swellings
   * Fix the swelling if it is mobile
   * Use two hands
   * Keep receiving finger pressing
   * Apply a sharp pressure with the other finger
   * Always test for fluctuation in two planes.
   Pseudo fluctuation is sensation of displacement in one direction and is observed in lipoma, soft fibroma, myxoma and highly vascular sarcomas.
   Cross fluctuation: to test if two adjacent cysts are communicating with each other eg Psoas abscess.
   Bipolar fluctuation: for swellings with two poles as vaginal hydrocele.

3- Paget's test: (Plate-8.G) compares the consistency in the center of a swelling and its periphery
   A solid swelling is harder at the center than the periphery, while cystic one is softer in the center.
   It is helpful in
   * Too deep swellings < 2 cm
   * Too tender swellings
   * Too small swellings
   * Too tense swellings
   * Pseudo-fluctuant swellings
   * Inconclusive fluctuation test
4- Fluid thrill: for large cystic swellings with fluid inside
5- Compressibility: emptying on pressure in hemangiomas, meningiocele, varicocele,
6- Reducibility: for reducible hernias.
7- Transillumination: in a dark room
8- Pulsations: in aneurysms, or vascular tumors
- Expansible pulsation in aneurysm, and transmitted in masses overlying artery.
  Use two fingers perpendicular to the surface and observe movement of fingers. If both move together
  without separation, means transmitted if both became separated apart, means expansible.
  For abdominal swelling, put the patient in knee-chest position to separate the swelling from aorta,
  pulsations disappear if it is not an aneurysm.

9- Edema: pressure by finger leaves a depression mark.

11- Special Signs:
   a- Impulse on cough in hernias by feeling
   b- Movement with swallowing, or on tongue protrusion
   c- Crepitus: is a crackling sensation felt on compression or manipulation of a swollen area. Felt in
      fractures, surgical emphysema, tenosynovitis, or arthritis.

12- Mobility: in all directions
   1- Freely mobile one moves in all directions and is not affected by contraction of the underlying muscles.
   2- Fixed swellings do not move in any direction
   3- Swellings from longitudinal structures move in one direction

13- Surrounding structures:
   1- Skin: Skin pinch test, or move the swelling under the skin.
   2- Relation to muscles: ask patient to contract the muscle, feel changes in the swelling
   3- Effects on the muscles, blood vessels, nerves, and other luminal structures as trachea. Feel the structures
      or test the related nerves.

14- Other swellings:
Lymph nodes or other similar lumps, number, consistency, adherence to other structures

For resonance of a swelling

For bruits systolic bruits in cases of aneurysm or vascular tumour
Continuous machinery murmur is audible over arteriovenous fistula.
Venous hum in portal hypertension.
Bowel sounds are heard over hernias.

I- ANATOMICAL:
II-PATHOLOGICAL:
II-FUNCTIONAL:
EXAMPLES: Chronic Calcular Cholecystitis with CBD stones complicated with Acute Pancreatitis.
Right oblique irreducible inguinal hernia, Right primary varicose long saphenous system with perforators’
incompetence.
A- Transillumination

B- Test for reducibility and compressibility

C- Relation to overlying skin by lateral displacement

D- Transmitted and expansile pulsations

E): a- Wrong, b-c: Correct way of percussion: movement at the wrist, vertical direction of the percussing finger

(F) a- Correct way, b- Incorrect way of percussion

G- Paget’s test for fluctuation

H- Small swelling, finger displaces the swelling instead of increasing the tension.

Plate -8

A- Intramural, B- Endophytic, C- Exophytic

Relation of a swelling to a muscle A- Superficial to muscle
B- Intramuscular C- Deep to the muscle

Plate-9
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipoma on the back</td>
<td>Metastatic Malignant melanoma</td>
<td>Supra-pubic swelling (lipoma, or neurofibroma)</td>
</tr>
<tr>
<td>D</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>Cystic hygroma</td>
<td>Malignant thyroid swelling</td>
<td>Recurrent right inguinal hernia</td>
</tr>
<tr>
<td>H</td>
<td>I</td>
<td>J</td>
</tr>
<tr>
<td>Swelling due to placed tissue expander</td>
<td>Advanced lymphedema</td>
<td>Hyper-trophic scar on the chest wall</td>
</tr>
<tr>
<td>L</td>
<td>M</td>
<td>N</td>
</tr>
<tr>
<td>Huge sarcoma of the left hip bone</td>
<td>Meningomyelocele</td>
<td>Hemangioma scalp</td>
</tr>
</tbody>
</table>

Plate-10
ULCERS IN SURGERY

DEFINITION: ULCER: is loss of continuity of skin or mucous membrane.

Personal history
As before

Complaint
An ulcer at..... since.....

Present history
1- Ulcer-
- Onset, course, duration.
- Possible causes Trauma, Inflammation (T.B, Osteomyelitis), Arterial, or Venous, Lymphatic, or neurological
2- Pain:
3- Swellings
4- Other swellings
5- Fever:
6- Any treatment

Past history
As before

Family history
As before

I- General examination as usual
II- Local Examination:

1- Number:
2- Site: rodent ulcer in face, epithelioma in lower limbs.
3- Size:
4- Shape: round, oval, elongated irregular, or serpiginous.
5- Floor: visible side, sloughs, necrotic materials, or tumour tissues.
6- Edge:
   A- Sloping edge: healing ulcer,
   B- Punched out edge: traumatic ulcer and trophic ulcer.
   C- Undermined edge: TB
   D- Rolled-in edge: rodent ulcer.
   E- Everted edge: squamous cell carcinoma
7- Margin: surrounding area of the ulcer.
8- Discharge: blood, pus...
9- Regional lymph nodes

1- Margin:
2- Base: underlying part of the ulcer and is felt for temperature, tenderness, consistency, mobility, and induration.
3- Lymph nodes: palpate regional lymph nodes.
4- Arterial system; examine arterial pulses in case of leg ulcer.
5- Venous system: examine the venous system of the lower limb
6- Nervous system
### A- Gross features of an ulcer

- **Edge**
- **Floor or surface**
- **Margin**
- **Base**

### B- Vesico-vaginal fistula, 1-UB, 2-Vagina, 3-Uterus

### C- A sinus

### D- Different types of ulcer edges.

#### SINUSES AND FISTULAE

**Sinus:** is a blind tract connecting a cavity lined by granulation tissue (abscess cavity) with an epithelial surface (a cutaneous or mucous surface).

**Fistula:** is a complex tract connecting two epithelial surfaces.

#### Examination:

1. **Number:** one or more opening. Multiple in osteomyelitis.
2. **Site:** congenital: pre-auricular in front of ear, branchial fistula at anterior border of lower third of sternomastoid, pilonidal sinus over coccyx.
3. **Opening:**
4. **Discharge:** amount, type of contents (pus, or bloody, serum, bile, or intestinal secretion)
5. **Surrounding skin:** for scarring, dermatitis, excoriations, and pigmentation.
6. **Deeper structures:** for temperature, tenderness, induration, lumps or tracks,
7. **Track:** mobility of the track, insert a probe gently to determine its length, direction, and contents
8. **Lymph nodes:** for enlargement, consistency mobility and tenderness.

#### Some common Swellings

**Skin masses:**

**PAPILLOMA**
- **Site:** Any area common on the trunk
- **Size:** Attain any size
Shape: Sessile or pedunculated, cauliflower mass covered with skin
Colour: same skin colour or pigmented.
Changes: can be infected and swollen.
Consistency: soft non compressible,
Draining Nodes: not enlarged.

WARTS

Commonly on fingers, on the plantar surface of the foot, or on toes, extend, or remain or regress, they are grayish white, hard and non compressible. See plate 48

MOLES

1- Normal melanin cells producing excess melanin: Freckle (Ephelis)
2- Increased number of Melanocytes producing a normal amount of melanin= Lentigo
3- Increased number of Melanocytes in abnormal clusters producing normal or abnormal amount of Melanin = Moles or Pigmented Naevus.

Benign Moles are of three types:
1- Intradermal: lies in the dermis
2- Compound: lies separately in epidermis and dermis
3- Junctional: lies in contact between dermis and epidermis.

Types of Moles:
1- Hairy mole
2- Non Hairy mole
3- Blue naevus
4- Halo naevus

MALIGNANT MELANOMA

See plate 10-B, is suspected in already present mole if:
1- Rough and scaly surface
2- Itching
3- Increased size, and thickness.
4- Change in colour = deep darker, or black.
5- Bleeding
6- Satellites nodules around
7- Lymph nodes invasion, the original lesion may be small but the metastatic nodes become very big.

Some Associated pigmented Lesions:
1- Café au Lait Patches.; neurofibromatosis or pheochromocytoma
2- Multiple circumoral moles in Peutz-Jeghers Syndrome: Multiple polyposis of stomach, small intestine, multiple skin moles on the face, lips, buccal mucosa.

HAEMANGIOMAS

Three types are known (See plate 10-J +M)
1- Port-wine stain: patches of intradermal haemangiomas giving a purple-red colour. Common on the face, limbs, and trunk.
2- Strawberry naevus (Haemangioma): strawberry shape, on the face limbs or trunk. Appear commonly at birth and may regress with age. Soft, compressible, red swellings. Surface is irregular.
3- Osler’s disease: is a hereditary hemorrhagic telangiectasis, a familiar disease with scarring and bleeding tendency.
4- Campbell de Morgan’s spots are small red spots composed of dilated capillaries on abdomen, and chest of middle aged people. It may precede carcinoma.
5- Spider naevus: solitary arteriolar dilatation giving many branches in the dermis. Commonly acquired due to liver disease. Appear on the upper half of the body. Test: they blanch out by pressure using a glass rod.
6- Cavernous haemangioma: soft circumscribed or diffuse swellings with lobulated surfaces. Compressible, and refill slowly. Occurs on the face and limbs.
7- Plexiform haemangioma: soft compressible pulsating swellings with bruit. Occur on the scalp.
8- Compact haemangioma: solid or partial cystic pale blue incompressible. They are deep seated in subcutaneous tissues. They are excessive capillary haemangiomas.
9- Glomangiomas: Glomus Tumour: bluish pinhead spot under the nail. From normal arterio-venous shunts.

PYOGENIC GRANULOMA

Acute wound on the face or lips left untreated. Forms a mass which is soft friable and tender.

KERATOACANTHOMA

- (Adenoma sebceum, Molluscum pseudo-carcinomatous)
- In adults, mass, non painful, takes 2-3 weeks to grow and 2-3 months to regress.
- common on the face usually single rarely multiple. Shape is circular; size is always 2-3 cm in diameter with central brown necrosis. It is rubbery in consistency, freely mobile, no extension to surroundings. No lymph node invasion.

GANGLION

A protrusion of synovial membrane lining a joint. It appears on the volar or dorsal aspect of a joint. Also may arise from synovial membrane of a tendon sheath.
It is circular, tense, non fluctuant, mobile in one direction, skin overlying is normal and not adherent.

HYPERTROPHIC SCAR

- It occurs at an incision line, or old wound or burn.
- Two types are present:
  a- Immature scar: red, itchy, painful, with a history of recent wound or burn.
  b- Mature: white old scar, non tender, non itchy.

LIPOMA

- Common on the trunk and limbs. (See plate 10-A)
- Take any size
- Not adherent to skin or underlying structures.
- Lobulated surface, sliding edge, soft consistency.
- Pseudo fluctuating
- Danger of liposarcoma in: Shoulders, Thighs, retroperitoneal lipomas.

**BASAL CELL CARCINOMA**

**RODENT ULCER**

It is a locally malignant tumour of the basal layer of the epidermis. Site is always on the mid face, but can be seen any where.
Can take any size, and is seen in older ages. It is predominant in exposed areas due to long exposure to ultraviolet rays. Males are more affected than females. It takes long time.
Shape: may be an ulcer, nodule, or a mass. It is often multiple. It erodes deeply in underlying tissues including bone.
Colour is brownish, black or colourless. If ulcer is formed, its edge is usually rolled in or inverted. Draining lymph nodes are not enlarged.

**SQUAMOUS CELL CARCINOMA**

**Epithelioma**

It is the malignant lesion in the skin. There is a long history of exposure to sun or ionizing radiation or a chronic ulcer. It is more common in exposed areas of skin. It may be colourless or dark red-brown.
Age is usually advanced. It is a slowly growing mass which ulcerates with everted edge and necrotic floor. Draining lymph nodes are enlarged by metastases. (See plate 40-D)

**MARJOLIN ULCER**

It is squamous cell carcinoma in a chronic ulcer. It is common on limbs as a complicated residual chronic ulcer after burns.

**DERMOID CYST**

Two types:
a- **Congenital:** arises in the longitudinal body lines as angular dermoids at the outer or inner canthus of the eyes, frontal dermoids, or post auricular.
b- **Acquired:** implantation due to sequestration of epidermal layer into the dermis after pin prick. Usually is seen in the fingers or toes.
Clinically: a swelling in the dermis non tender, non fluctuant if tense, mobile in both directions, causing depression atrophy in the deeper structures as bones of the skull. No punctum is seen over it.
In facial dermoids X-ray and CT scan should be done to exclude any intracranial extension.

**SEBACEOUS CYST**

It is a cyst due to inflamed sebaceous gland. It starts by obstruction of the duct of the gland then sebum accumulates which can predispose to secondary infection later.
Common sites are in the face and trunk.
Locally: a swelling usually small less than one cm but can be more. Swelling is cystic, fluctuant, with skin adherent and a punctum is seen over. Sometimes a comedo is there (Acne vulgaris). It may be multiple or single.

Complications: abscess formation, or malignancy in long standing cases (>20 years)

BURSAE

Fluid filled cavities lined with flat endothelium like synovial membrane. Site; between tendons, bones and skin to allow easier movements between them. There are many bursae but some can develop if there is friction and called adventitious bursae. Age: uncommon in young unless there is a skeletal deformity. Usual in middle age, and late life. Symptoms; pain, discomfort, and enlarged swelling at site of repeated trauma. Crepitus is a grating sensation is felt if there is loose fibrinous particles. It may be single or multiple. Examination; student’s elbow (skin and olecranon), tender, circular, 3-4 cm in diameter, fluctuates, and it transilluminates. Can be complicate with infection. Baker’s cyst; swelling protruding from knee joint into the popliteal fossa. It lies below joint line. DD; semimembranous bursa; is above joint line, behind semimembranous tendon.

Between
1. Skin & Olecranon = Student’s bursa
2. Skin & Patella = housemaid’s knee
3. Skin & Patellar ligament = Clergyman’s knee
4. Skin & Head of metatarsal = bunion

NEUROFIBROMA

Benign mixed ectodermal (Neural) and mesodermal (Fibrous) tumours. It arises from fibrocytes and nerve sheaths. It may be single or multiple. If multiple congenital and familial called Von Recklenhausen’s disease
- Fibro-epithelial skin tags
- Café au lait patches
- Acoustic neuroma or dumb-bell neuroma
- Malignant changes (neurofibrosarcoma)
- phaeochromocytoma

KAPOSI SARCOMA

A form of angiosarcoma. Incidence is high due to HIV infection. It forms a painless, reddish blue, hemispherical nodules in the subcutaneous tissues. Skin overlying is red, often breaks down to make an ulcer.

PILONIDAL SINUS

Pilonidal= nest of hairs. A chronic long standing sinus over the sacrum and coccyx, or interdigital areas or umbilicus. Hairs inside are short broken segments of hair that is sucked in the clefts. No hair grows inside. Age: rare before puberty, but common after 40 common in males. Occupations: hair dressers get interdigital type. Clinically: pain and discharge are common, with recurrent acute exacerbation when an abscess is formed. In between attacks there is little discharge. Examination: sinus lies in the mid anal cleft. Slight pressure discharges little pus. No lymph nodes enlargement.

PERIANAL WARTS (CONDYLOMA ACUMINATA)

They are multiple pedunculated, papilliferous lesions. Extend over perineum and may be sacrum and labia majora.