

# A Handbook of Surgery

*Question Answer Format*

*by*

**DR. MANSI SHARMA**



**B. Jain Publishers (P) Ltd.**

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**A HANDBOOK OF SURGERY**

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# FOREWORD

I happily have gone through this book and am surprised to see that the author has written a good book at such a young age. I, as a member of teaching faculty, had the privilege of knowing Dr. Mansi Sharma for a number of years. She was always admired for comprehensive knowledge of the subject discussed.

Author has tried to cover all the essential points to diagnose in a very compact, comprehensive manner. In fact, difficult subject is made easy and understandable especially by using flow charts and tables.

The book is specially designed and written in question-answer form to help the undergraduate students. The book will be very useful for revision before examination when time is short.

I am sure all will appreciate the book.

I congratulate the author, Dr. Mansi Sharma for this work and wish the best for on coming works.



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# **PREFACE**

This book has been written keeping in mind the vastness of the subject and the time constraint that students face before examination. The book has been written in a simple and easily understandable form with flowcharts and tables for easy comprehension and memorizing. It follows a uniform pattern and has been written in the question and answer form, based on the latest examination pattern for the students of IIIrd BHMS. Apart from this it can also be used as a reference text.

This is my maiden effort in this field and I would greatly welcome and appreciate suggestions, comments and criticism from the students and teachers to help me improve the book.

I wish good luck to all the students.

**Dr. Mansi Sharma**

# **ACKNOWLEDGEMENTS**

I take this opportunity to express my gratitude towards God, my Family for their patience and faithful support, Dr. L. M. Khan and Dr. Pankaj Aggrawal to whom I owe my existence in Homeopathy, Dr. S. P. Singh for his continuous guidance and motivation, Dr. Tapan for inculcating in me the spirit to study an allied subject so well; Dr. Cheshta Malhotra, Dr. Neetu Garg and Dr. Tanaya Samal for their simple suggestions and insights before I even started writing, and also to Aude Sapare team for their help in getting this book off the ground.

# **PUBLISHER'S NOTE**

The book is equipped with an idea to catch hold with the vast expanding field of surgery in simple and easy to understand manner for effective grasp of the subject. The work that gives thousands of questions and answers integrating the perception of exhaustive principles of surgery in the most simplest and effortless way. It is prepared strictly according to the Central Council of Homeopathy (CCH) syllabus. The questions are arranged to provide the best possible satisfaction to professors and students. Those who are learning surgery for medical examination will find it valuable and helpful.

The work ensures that no essential concept of surgery is missed out and also resolves all difficulties students face during exams, when there are time and word limit pressures.

This book is a part of HANDBOOK series which has been brought out on special demand of students who are always in need of books which can help them in revising and preparing for their exams.

We hope to bring relief to all the students for the strenuous exam time with this easy and simple tool of revision 'A Handbook of Surgery'.

**Kuldeep Jain**

C.E.O., B. Jain Publishers (P) Ltd.

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## Chapter 1

# GENERAL SURGERY

**Q. 1. Define shock. Explain its various types with causes and clinical features.**

**Ans. Definition** – Shock is a condition in which vital functions of the body are depressed due to severe and acute reduction in cardiac output and circulation.

### Types of Shock

#### 1. Hematogenic or Hypovolemic shock

##### Causes

Due to loss of blood, plasma or body water and electrolytes, *i.e.* loss of intravascular volume. It is often caused by:

- i. Hemorrhage.
- ii. Vomiting.
- iii. Diarrhoea.
- iv. Dehydration etc.

##### Characteristic Features

- i. Decreased filling pressure of the heart.
- ii. Decreased systemic arterial pressure.
- iii. Tachycardia.
- iv. Increased vascular resistance.

##### Clinical Features

- i. Loss of cardiac output.
- ii. Low blood pressure.
- iii. Tachycardia.

iv. Vasoconstriction revealed by cold clammy extremities.

## **2. Traumatic Shock**

### **Causes**

- i. Major fractures.
- ii. Crush injuries.
- iii. Burns.
- iv. Extensive soft tissue injuries.
- v. Intra-abdominal injuries.

## **3. Neurogenic Shock**

### **Causes**

- i. Paraplegia.
- ii. Quadriplegia.
- iii. Trauma to the spinal cord.
- iv. Spinal anesthesia.

### **Patho-physiology**

Blockage of sympathetic nervous system → Loss of arterial and venous tone with pooling of blood in the dilated peripheral venous system → Heart does not fill properly → Cardiac output falls → Low B.P. with a normal cardiac output and a normal pulse rate with a warm and dry skin.

### **Vasovagal or Vasogenic Shock**

It is also a part of neurogenic shock in which there is pooling of blood due to dilatation of peripheral vascular system particularly in the limb muscle and in the splanchnic bed → Reduced venous return to the heart → Low cardiac output and reflex bradycardia → Reduced cerebral perfusion → Cerebral hypoxia and unconsciousness.

### **Psychogenic Shock**

It may follow sudden fright from unexpected bad news or from the sight of a horrible accident. Its effect may vary in intensity from temporary unconsciousness to even sudden death.

## **4. Cardiogenic Shock**

### **Causes**

- i. By injury to the heart.
- ii. Myocardial infarction.

- iii. Cardiac arrhythmias.
- iv. Congestive cardiac failure.

### **Patho-physiology**

In this condition, the heart fails to pump blood → Left ventricle mainly fails → Over-distension of the right ventricle → Increase of back pressure in the pulmonary capillaries → Pulmonary oedema and hypoxia → Gradually, the vascular volume will increase as a result of salt and water retention by hypoperfused kidneys.

## **5. Septic Shock**

### **Causes**

Due to gram negative septicemia, occurs in cases of:

- i. Severe septicemia.
- ii. Cholangitis.
- iii. Peritonitis.
- iv. Meningitis.

### **Patho-physiology**

In early stages, cardiac output increases vascular resistance decreases. In late cases, vascular permeability increases → Blood volume decreases → Hypovolemia.

In further advanced cases, the cardiac function is damaged due to toxins liberated by the organism.

## **6. Anaphylactic Shock**

### **Causes**

Usually seen after penicillin administration or administration of serum, dextrose anesthetics, etc. Such shock is usually caused by bronchospasm, laryngeal edema and respiratory distress which leads to hypoxia. This is aggravated by massive vasodilatation → Hypotension → Shock.

This type of shock is said to be due to increased release of histamine and Slow Release Substance (SRS) of anaphylaxis by combination of antigen with IgE on the mast cells and basophils. Histamine and SRS cause bronchospasm, laryngeal edema, respiratory distress and severe vasodilatation.

## Q. 2. Write a short note on Crush syndrome.

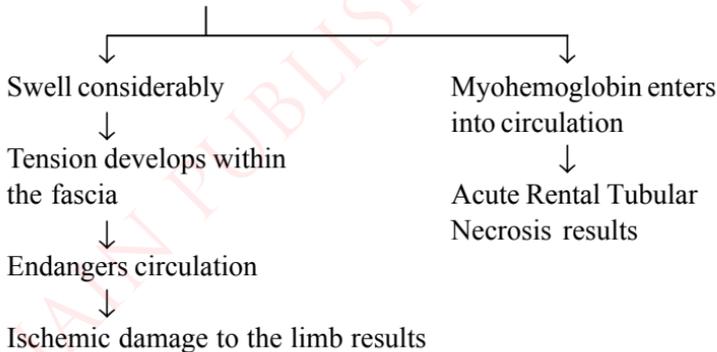
**Ans. Definition** – Crush syndrome is a symptom complex in which a portion of the body becomes crushed due to a heavy weight which falls on that portion of the body resulting in crushing of all the tissues in that portion of the body.

### Etiology

1. After earthquakes.
2. Mine injuries.
3. Air-raids.
4. Collapse of a building.
5. Use of tourniquet for long period.

### Pathology

1. Extravasation of blood into the muscles in the affected portion of the body → Oligemic shock results.
2. Muscles become crushed.



### Clinical Features

1. Patient complains of severe pain in the limb.
2. The limb feels tense.
3. If uremia occurs, urine output is reduced.
4. Restlessness, apathy and mild delirium results.

### Treatment

1. Application of tourniquet to the affected limb above the crush injury.
2. To relieve tension, parallel incisions may be applied.

3. IV fluid administration to combat shock.
4. Hemodialysis should be used as a life saving procedure in grave conditions.

### **Q. 3. Define Burn. What are its various types and degrees?**

**Ans. Definition** – A wound in which there is coagulative necrosis of the tissue is called Burn.

### **Types of Burns**

1. *Ordinary Burns* – Caused by dry heat of fire, open flame, hot metal or aeroplane crash in civil life and bomb injuries in war time.
2. *Scalds* – Caused by moist heat. e.g. steam or hot liquid.
3. *Electric Burns* – Caused by high-voltage electric current.
4. *Chemical Burns* – Caused by strong acid or base coming in contact with skin or any other tissue.
5. *Radiation Burns* – Caused by X-ray or any such medium.
6. *Cold Burns* – Caused by exposure to cold. e.g. frostbite, chilblains, trench foot, etc.

### **Degrees of Burns**

#### **1. First Degree Burns**

- i. Simply hyperemia of skin.
- ii. Slight edema of the epidermis.
- iii. Microscopic destruction of superficial layers of epidermis.
- iv. No scarring.
- v. Healing occurs rapidly.

#### **2. Second Degree Burns**

- i. Entire thickness of the epidermis is destroyed.
- ii. Blebs of vesicles are formed between the separating epidermis and dermis.
- iii. Vesiculation is the hallmark.

#### **3. Third Degree Burns**

- i. Complete destruction of epidermis and dermis.
- ii. There is irreversible destruction of dermal appendages and epithelial elements including sensory nerves.
- iii. It is very painful.
- iv. To cover the area, skin grafting becomes obligatory.

**Q. 4. Write in brief on Rule of 9's in Burns.**

**Ans. Definition** – The extent of burns is most commonly estimated by 'Rule of Nines'. Rule of nines is used for estimating the percentage of body surface involved in burns.

It is as follows:

Area	% of body surface
Head, face and neck	9%
Right upper extremity	9%
Left upper extremity	9%
Right lower extremity	9% (Thigh) + 9% (Leg and foot)
Left lower extremity	9% (Thigh) + 9% (Leg and foot)
Anterior trunk	9% (Chest) + 9% (Abdomen)
Posterior trunk	9% (Upper half) + 9% (Lower half)
External genitalia	1%
	100%

**Exception to Rule of Nines**

Not applied to infants and children as the surface area of the head and neck of children is significantly larger than 9%.

*E.g.* in a 1 year old child, head area is 19% compared to 7% in adults and each lower extremity represents only 13% of total body surface area.

**Q. 5. Write in brief about dermoid cyst.**

OR

**What is dermoid cyst? Explain its various types.**

**Ans. Definition** – A dermoid cyst is defined as a cyst which lies deep to the skin and is lined by skin, also called an epidermoid cyst.

**Types of Dermoid Cyst****1. Sequestration Dermoid Cyst****Origin**

Congenital variety

**Sites**

- i. In the midline of the body, particularly in the neck.
- ii. External angular (above the outer canthus of the eye).
- iii. Post auricular.
- iv. On the skull at the site of fusion of skull bones.
- v. Midline of face (especially at the root of the nose).

**Symptoms**

Slowly growing painless swelling.

**Signs**

Smooth surface, soft, ovoid in shape and punctum absent (Puncture is found in a sebaceous cyst). It is not attached to the skin. Transillumination test is always negative.

**2. Implantation Dermoid Cyst****Origin**

Acquired variety, Common in gardeners.

**Sites**

- i. Palm of the hand.
- ii. Any part of the finger especially pulp or tip of finger.
- iii. Sole.

**Symptoms**

- i. History of puncture injury is usually available. Thus, commonly found in gardeners, tailors and ladies.
- ii. Swelling in the finger or palm.
- iii. Cyst may be slightly painful.

**Signs**

- i. Consistency firm even hard; quite tense, in the finger or palm, with a history of punctured wound.
- ii. Fluctuation difficult to elicit.

**3. Tubulo-dermoid Cyst****Development**

Develops from an unobliterated portion of a congenital ectodermal duct or tube. The secretion of the living of ectodermal cells of the unobliterated portion of the embryonic duct. *Examples:*

- i. Thyroglossal cyst – Developing from thyroglossal duct.
- ii. Post-anal dermoid from remnant of post-anal gut or neurenteric canal.
- iii. Ependymal cyst in the brain.

**4. Teratomatous Dermoid****Development**

Develops from totipotent cells with ectodermal predominance.

Hairs are almost always present in such cyst. Bone, cartilage, tooth and cheesy material, are the other contents commonly found in these cysts.

### Sites

These cysts are commonly found in:

- i. Ovary – Ovarian cyst.
- ii. Testis – Teratoma.
- iii. Mediastinum – Mediastinal cyst.
- iv. Retroperitoneum – Retroperitoneal cyst.
- v. Post – anal dermoid.

### Q. 6. Distinguish between sinus and fistula.

Ans. Sinus and Fistula.

Sinus	Fistula
<ul style="list-style-type: none"> <li>• A sinus is a blind track from the surface down to the tissues. There may be a cavity in the tissues which is connected to the surface through a sinus.</li> <li>• The sinus is lined by granulation tissue which may be epithelialised subsequently.</li> </ul>	<ul style="list-style-type: none"> <li>• A fistula is a communicating track between two epithelial surfaces, commonly between a hollow viscus and the skin (external fistula) or between two hollow viscera (internal fistula).</li> </ul>
Cases of Persistence of Sinus	Causes of Persistence of Fistula
<ul style="list-style-type: none"> <li>• Presence of foreign body or necrotic tissue in the depth.</li> <li>• Absence of rest.</li> <li>• Non-dependent drainage or inadequate drainage of an abscess.</li> <li>• Specific chronic infection (e.g., T.B.) can be the cause.</li> <li>• Epithelialisation of track has occurred.</li> <li>• Malignant disease is present.</li> </ul>	<ul style="list-style-type: none"> <li>• Once a fistula has been formed, it seldom shows any intention towards healing.</li> <li>• Irritant discharges like urine, feces, bile, etc. are passed through the fistula and prevent its healing.</li> <li>• Obstruction of the lumen of the viscus or tube distal to the fistula is often a main cause of persistence.</li> </ul>

Sinuses or fistulae may be *congenital* or *acquired*. Below few examples of the same are given.

Congenital Sinus and Fistula	Acquired Sinus and Fistula
<ul style="list-style-type: none"> <li>• Branchial fistula</li> <li>• Tracheo-oesophageal fistula</li> <li>• Arteriovenous fistula</li> <li>• Preauricular sinus etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Perianal abscess may burst resulting in fistula-in-ano</li> <li>• Acquired atrio-venous fistula</li> <li>• Pilonidal sinus</li> </ul>

### Q. 7. Discuss an Ulcer and its classification.

**Ans. Definition** – An ulcer is a break in the continuity of the covering epithelium-skin or mucous membrane.

## Parts of an Ulcer

### 1. Margin or Edge

An ulcer has a *margin* or *edge* which takes a characteristic shape in a particular form of ulcer. Thus, the edge not only points towards the diagnosis of the ulcer, but also suggests the condition of the ulcer, but also suggests the condition of the ulcer. For e.g.: a spreading ulcer has an inflamed and edematous edge; a healing ulcer shows a blue zone and a white zone, from centre to periphery.

The 5 common types of edges are:

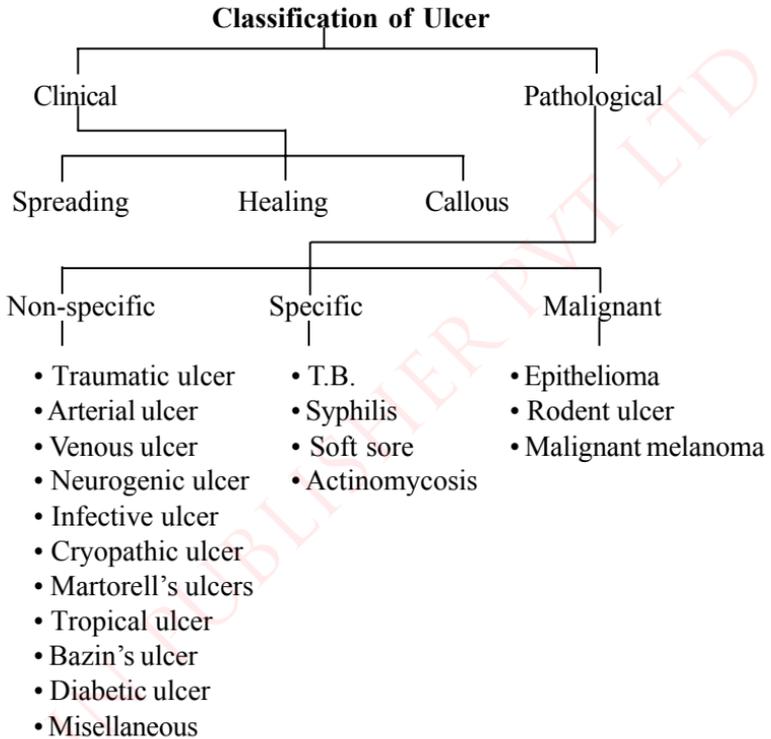
- i. Undermined edge: Commonly seen in tuberculosis.
- ii. Punched-out edge: Commonly seen in gummatous ulcers.
- iii. Sloping edge: Mostly seen in healing venous or traumatic ulcers.
- iv. Raised and pearly-white beaded edge: Found in rodent ulcers.
- v. Rolled-out or everted edge: Characteristic of squamous cell carcinoma and ulcerated adenocarcinoma.

### 2. Floor

It has a *floor* which means the exposed surface of the ulcer. The floor of the ulcer must be noted carefully. When it is covered with red granulation tissue, the ulcer is healthy and healing. If it is pale and smooth, it is a slowly healing ulcer. Presence of wash leather slough on the floor is pathognomic of a gummatous ulcer. If the floor penetrates deep (upto the bone) it is indicative of a trophic ulcer. A black mass on the floor indicates malignant melanoma.

### 3. Base

It has a *base* on which the ulcer rests. *Base* is better felt than seen. In chronic ulcers, there is slight induration of the base. However, in squamous cell carcinoma and Hunterian chancre, there is marked induration.



### Spreading Ulcer

Surrounding skin inflamed; floor covered with slough; no granulation tissue.

### Healing Ulcer

Surrounding skin not inflamed; edge has bluish outline; slight serous discharge; granulation tissue present at the floor.

### Callous Ulcer

Considerable induration at the base and edge; pale granulation tissue on floor; shows no tendency towards healing.

## **Non-specific Ulcers**

### **Traumatic Ulcer**

- i. Mechanical: Eg. – dental ulcer from a Jagged tooth, from the pressure of a splint, etc.
- ii. Physical: From electrical or X-ray burn.
- iii. Chemical: On contact with caustics.

### **Arterial Ulcer**

- i. Atherosclerosis.
- ii. Raynaud's disease.
- iii. Buerger's disease.

### **Venous Ulcer**

In post-phlebitic limbs.

### **Neurogenic Ulcer**

Eg. – Syringomyelia, bed sores, etc.

### **Infective Ulcer**

Pyogenic ulcers.

### **Tropical Ulcer**

Occur commonly in the legs and feet of people living in tropical countries from vincent's organisms. Also includes ulcer from:

- i. Malnutrition.
- ii. Avitaminosis.
- iii. Anemia.
- iv. Rheumatoid arthritis.

### **Cryopathic Ulcer**

From cold injury or chilblains.

### **Martorell's Ulcer**

There are hypertensive ulcers.

### **Bazin's Ulcer**

Erythrocytoid ulcers

### **Diabetic Ulcer**

Due to diabetes.

### **Miscellaneous**

Ulcers associated with:

- i. Polycythemia.
- ii. Leukemia.
- iii. Systemic sclerosis.
- iv. Ulcerative colitis.
- v. Poliomyelitis.
- vi. Arterio-venous fistula.
- vii. Acholuric jaundice.
- viii. Various collagen disorders.
- ix. Chronic lymphedema.
- x. Cortisone ulcers.

### Specific Ulcer

Include ulcers of:

- i. Tuberculosis.
- ii. Syphilis.
- iii. Soft sore.
- iv. Actinomycosis.

### Malignant Ulcer

- i. Epithelioma.
- ii. Rodent ulcer.
- iii. Malignant melanoma.

### Q.8. What are the indication for blood transfusion?

**Ans.** Indications for Blood Transfusion.

1. The commonest indication for blood transfusion is *acute hemorrhage* whether it is external or internal.
2. During certain *major operations*, where a good amount of blood loss is inevitable e.g. radical mastectomy, abdomino-perineal resection, etc.
3. Blood transfusion is indicated in *deep burns*, besides fluid and plasma administration.
4. In *anemic patients pre-operatively*, blood transfusion is required when there is no adequate time for iron-replacement therapy.
5. If the patient has become considerably anemic and debilitated *after an operation* due to excessive bleeding during the surgery, blood transfusion is required.
6. In *anemic patients*, particularly when  $Hb\% < 10\%$ , blood transfusion is often indicated to treat anemia.

7. Blood transfusion is indicated *before any surgery in severe malnutrition and hypoproteinemia*.
8. In *certain coagulation* disorders like hemophilia, Christmas disease, thrombocytopenic purpura, etc. blood transfusion is required.
9. Due to *Rh incompatibility* in cases of erythroblastosis fetalis, exchange transfusion is often performed through umbilical vein of the new born baby.
10. During *chemotherapy for malignant diseases*, blood transfusion is often indicated.

### Q.9. Give a brief account on Boil.

**Ans. Definition** – Boil is an acute Staphylococcal infection of a hair follicle with perifolliculitis. Such infection usually proceeds to supuration and central necrosis. It is also called *Furuncle*.

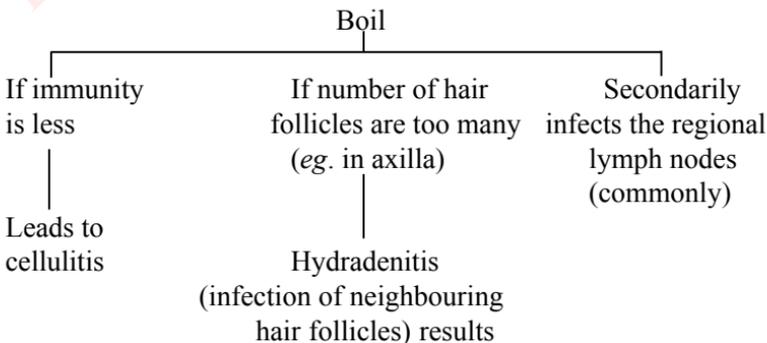
### Clinical Features

It starts with a painful and indurated swelling. It gradually extends and is associated with tremendous tenderness and surrounding edema. After a few days, there is a softening at the centre, on the summit of which a small pustule appears. It bursts spontaneously discharging a greenish-yellow; small amount of slough. Later, a deep cavity develops lined by granulation tissue. It heals by itself.

### Sites

1. Boils are common on the back and neck.
2. Furuncle on the external auditory meatus is very painful.
3. Infection of the peri-anal hair follicle is a peri-anal boil. If it ruptures, it results in peri-anal sinus or fistula.

### Complications



## Treatment

1. General health of the person affected should be improved as boils generally appear in people suffering from debility and ill-health.
2. Incision is unnecessary as pustules are very small.
3. If pus does not escape; remove the affected hair, which allows ready escape of pus.
4. If boils are recurrent, diabetes should be excluded.
5. After escape of pus, the affected part should be cleaned well with a suitable disinfectant.

### Q.10. Write a short note on carbuncle.

**Ans. Definition** – Carbuncle is defined as an infective gangrene of the subcutaneous tissue due to staphylococcal infection. Streptococci and gram-negative bacilli may also be found.

## Sites

Mostly seen on the back, at the nape of the neck where the skin is coarse and vitality of the tissue is less. Hairy portions of the chest and abdomen are also common sites.

## Clinical Features

1. It generally affects *males above 40 years of age*.
2. Generally the subject is *diabetic*.
3. It commences as a painful and stiff swelling which spreads very rapidly with marked induration.
4. Overlying skin becomes red, dusky and edematous.
5. Subsequently the central part softens and multiple vesicles appear on the skin.
6. Later on these vesicles transform into pustules. These pustules subsequently burst allowing the discharge to come out through several openings in the skin producing a *sieve-like* or *cribriform appearance* which is pathognomonic of carbuncle.
7. These openings enlarge and ultimately coalesce to produce an ulcer.
8. Presence of ashy-grey slough at the floor of the ulcer, which later separates leaving an excavated granulation tissue which heals by itself.
9. If the resistance of the person is poor, as in diabetes, the slough may extend to the muscle or bone.
10. Constitutional symptoms and toxemia varies according to degree of resistance.

## Treatment

1. Rest and elevation of the affected part to reduce edema.
2. Appropriate medicinal therapy.
3. Failure of inflammatory swelling to subside after 48-72 hours suggests that an abscess has developed. In that case, incision and drainage of pus should be accomplished.

### Q.11. Write a brief description of erysipelas.

**Ans. Definition** – It is an acute inflammation of the lymphatics of the skin or mucous membrane.

## Causative Organism

Usually streptococcus haemolyticus group A (*Strep. pyogenes*)

## Pathology

Organism usually gains entrance through a minor wound like a scratch, which may escape notice.

1. The disease spreads from the site of inoculation and the advancing margin becomes bright, red and slightly raised above the general surface.
2. Margin itself is irregular in outline.
3. Just beyond the sharp margin, the lymphatics are crowded with streptococci.
4. The inflammatory cells are mainly lymphocytes and wandering mononuclear cells.
5. Noticable absence of pus.
6. After the inflammation subsides, a brownish discoloration of the skin may remain.

## Clinical Features

1. The conditions which predispose to this disease are a debilitating state and poor health.
2. Commences as a rose-pink rash which extends to the adjacent skin like a drop of grease spreading on a piece of paper.
3. Vesicles appear sooner or later over the rash and rupture.
4. Serous discharge comes out from these vesicles.
5. Fever and other constitutional symptoms may be present in varying degrees.

## Complications

1. Sloughing or gangrene rarely occurs in severely debilitated or diabetic individuals.
2. Lymphedema may rarely occur due to lymphatic obstruction.

## Treatment

1. General improvement of health.
2. Blood glucose level should be controlled.
3. Surgery may be required if:
  - i. Toxemia and pain persist even after treatment.
  - ii. When carbuncle is more than 2 ½ inches in diameter.

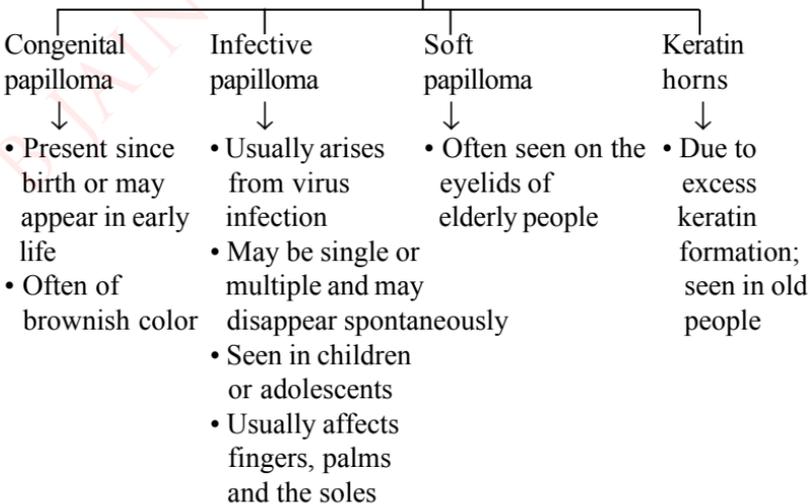
### Q.12. Give a brief description of a papilloma.

**Ans. Definiton** – Papilloma is a common benign sessile or pedunculated tumor composed of squamous epithelium. It always contains a core of connective tissue element which contains blood vessels and lymphatics. In other words, it is just a simple overgrowth of all the layers of the skin. A papilloma may arise in any situation from an epithelial surface either from the epidermis or from the mucous membrane. *Example:*

**Papilloma of the skin:** Develops from the epidermis. It is of 2 types:

- i. Squamous cell type
- ii. Basal cell type

#### i. Squamous Cell Papilloma



## ii. Basal Cell Papilloma

(Also called as seborrheic or senile warts)

- a. Seen in middle or old aged individuals.
- b. Occur in numbers on trunk, face, arms and arm pits.
- c. Appears as raised brownish warts.
- d. Have distinct edge and rough surface (papilliferous surface).
- e. Slightly harder and stiffer than normal skin.

### Treatment

Papillomata are usually excised for cosmetic reasons.

### Q.13. What is a Neurofibroma? Describe its various types.

**Ans. Definition** – Neurofibroma is a developmental disorder arising from the connective tissue of the nerve sheath. It often runs in families. It is not a typical tumor.

### Types

1. Local or solitary neurofibroma
2. Generalised neurofibromatosis (or Von Recklinghausen's disease of nerve)
3. Plexiform neurofibromatosis or Pachydermatocele
4. Elephantiasis neurofibromatosa
5. Cutaneous neurofibromatosis or Molluscum Fibrosum

## LOCAL OR SOLITARY NEUROFIBROMA

Such a neurofibroma is usually found in the subcutaneous tissue. It is usually seen in the extremities, *e.g.* median nerve, ulnar nerve, etc. Cranial nerves may be involved, *e.g.* acoustic neuroma.

### Clinical Features

1. Swelling is the main clinical feature; may be painful.
2. Paraesthesia or pain likely to occur from pressure of the tumour on the nerve fibres.

### On Examination

Smooth, firm swelling of the skin and subcutaneous tissue occurring along the course of a nerve. It has a well defined margin. There can be sideways movement of the swelling but no longitudinal movement along the long

axis of the nerve. There may be weakness of the muscles supplied by the nerve.

### Sites

1. Skin.
2. In the cranial nerve, especially the 8<sup>th</sup> cranial nerve.
3. Dorsal nerve root or ganglion.
4. Intramuscular.
5. In the bone, which is extremely rare.

### Complications

1. Cystic degeneration.
2. Sarcomatous changes.

### Differential Diagnosis

1. Lipoma.
2. Fibroma.
3. Large lymph node.
4. Hemangioma.
5. Some cystic lesion.

### Treatment

Appropriate medical treatment. Recurrence is a problem after resection.

## GENERALISED NEUROFIBROMATOSIS OR VON RECKLINGHAUSEN'S DISEASE OF NERVE

In this condition there are multiple neurofibromas arising from the cranial, spinal and peripheral nerves. (This is an autosomal dominant inherited disease.) Such tumors arise from the endoneurium.

### Clinical Features

1. Multiple nodules of varying sizes can be seen scattered over the face, neck, trunk and limbs.
2. Majority of the neurofibromata are present at birth. During the course of life, they increase in size and number gradually.
3. Consistency varies from soft to hard. Each nodule has a distinct margin.

4. Often associated with pigmentation of the skin. The pigment is melanin and the pigmented patches are called *cafe au lait* patches. These are diagnostic features of Von Recklinghausen's disease.

## Complications

- i. Cystic degeneration.
- ii. Sarcomatous changes.

## Treatment

Excision of all the tumors is impossible except when:

- i. A swelling is very large.
- ii. Swelling is painful.
- iii. It is causing pressure symptoms.
- iv. Causing a mechanical disorder.
- v. Suspicion of malignancy.

## PLEXIFORM NEUROFIBROMATOSIS (OR PACHY- DERMATOCELE)

It is defined as an excessive overgrowth of neural tissue in subcutaneous fat and makes the tissue look edematous. It is rarely seen. Branches of the trigeminal nerve (5th cranial nerve) are mostly involved. Occasionally seen on extremities and scalp.

## Clinical Features

1. There is a big swelling with thick and edematous overlying skin which becomes folded and pendulous. Appears like a mass hanging from the face.
2. Thickened nerves (like varicose veins) may be felt on palpation.
3. Pigmentation of skin may be seen.

## ELEPHANTIASIS NEUROFIBROMATOSA

It is a severe form of plexiform neurofibromatosis affecting the subcutaneous nerves of the limbs, particularly the lower ones. The overlying skin becomes coarse, dry and thickened like an elephant's skin (hide) often congenital.

## CUTANEOUS NEUROFIBROMATOSIS OR MOLLUSCUM FIBROSUM

These are also multiple subcutaneous nodules, sessile or pedunculated over the chest, abdomen or back. The nodules are small, firm, discrete and multiple. There is no hypertrophy of the skin. There may be skin pigmentation.

### Q. 14. Write a short note on Kaposi Sarcoma.

**Ans. Definition** – Kaposi Sarcoma is a malignant blood vessel tumor, multicentre in origin. 75-85% cases arise on the skin.

### Features

1. In this condition *multiple bluish nodules occur* especially on the limbs.
2. It is usually associated with *generalised lymphosarcoma*.
3. It is a *slow growing tumor*.
4. *Age* – Usually middle age or above.
5. *Sex* – Males are predominantly involved.
6. The nodules usually first appear in the skin of the lower limb. In the beginning, they may be slightly red in color and painless. In the course of time, the nodules enlarge and gradually become bluish.
7. They become ulcerated and infected.
8. *Signs* – *Of systemic lymphosarcoma*, enlarged lymph nodes and hepatosplenomegaly are the characteristic features of this condition.
9. *Treatment* – These tumors are sensitive to radiotherapy and chemotherapy.

### Q. 15. Write the various indications of Amputation.

**Ans.** Indications for Amputation.

1. *Congenital* – In case of supernumerary digits (polydactylism).
2. *Traumatic* – Due to advancement in medicine, amputation is rarely indicated in trauma.
3. *Inflammatory* – Amputations from this condition have considerably been reduced in recent years. Sometimes chronic infection of the foot, such as Madura foot, may require amputation.
4. *Vascular Insufficiency*
  - i. It is one of the most common indications for amputation. The main artery to the limb may be injured in which case, amputation becomes a necessity if arterial repair becomes impossible.

- ii. Atherosclerosis – Vascular insufficiency → Intermittent claudication → Rest pain which is intolerable and besides this, gangrene of distal parts of the limb will also require amputation, as it is the only method of giving relief to the patient.
5. *Malignant tumors* – Amputation is required in most of the times in malignant tumors like osteosarcoma, fibrosarcoma, chondrosarcoma, etc.
6. *Diabetes* – Diabetic atherosclerosis → Gangrene of the limb. Sugar-laden edematous tissue often becomes infected and makes the condition worse, requiring amputation of the limb.

**Q.16. What is Hypovolemic Shock? Give its causes and clinical features. How will you manage a patient with shock?**

**Ans. Definition** – Hypovolemic shock is also called as *hematogenic shock*.

### **Causes**

Due to loss of blood volume, plasma or body water and electrolytes *i.e.*, loss of intravascular volume. It is often caused by:

1. Hemorrhage
2. Vomiting
3. Diarrhea
4. Dehydration etc.

### **Compensatory Mechanisms**

The compensatory mechanisms which occur after the hemorrhage include:

1. Adrenergic discharge
2. Hyperventilation
3. Release of vasoactive hormones
4. Collapse
5. Resorption of fluid from the interstitial tissue
6. Resorption of fluid from the intracellular to extracellular space
7. Renal conservation of body water and electrolytes

### **Clinical Features**

#### **1. Mild shock**

Loss of less than 20% of blood volume is included in this category.

## Chapter 2

# DISEASES OF ARTERIES, VEINS AND PERIPHERAL NERVES

## DISEASES OF ARTERIES

**Q.1. Write a note on Acute arterial occlusion.**

**Ans. Definition** – Acute Arterial Occlusion is sudden occlusion of an artery.

### Etiology

#### 1. Emboli

- i. *Cardioarterial Embolisation:*
  - a. Atrial fibrillation.
  - b. Mitral stenosis.
  - c. Myocardial infarction.
- ii. *Arterio-arterial Embolization.*

#### 2. Trauma

*Arterial trauma* due to lacerations or transections of the arterial wall.

### Clinical Features

Described by 5 P's.

Pain, Paralysis, Paresthesia, Pallor and absent Pulses.

1. Onset – Always abrupt
2. Severe pain in 80% cases, which is referred to the most peripheral portions of the limbs.

3. The color of the affected extremity – Extreme pallor or mottling due to alternate areas of pallor and cyanosis.
4. Neurologic symptoms like paresthesia to anaesthesia, paralysis (partial or complete).

## On Examination

### Inspection

Pale look of the affected extremity.

### Palpation

Local temperature is cold, below the site of lodgement of embolus. Palpation of arterial pulses is extremely important to know the site of obstruction. *Cardiac examination* is of utmost importance.

## Investigations

1. *Angiography* may be performed if it does not delay the operation.
2. *E.C.G and Chest X-ray* to evaluate the presence of cardiac diseases.

## Treatment

1. For Embolus – Arterial embolectomy.
2. For Arterial Trauma –
  - i. Operation, either repairing with a vein patch or end-to-end suturing.
  - ii. Ligation of an injured artery should be performed only in case of injury to minor arteries.

### Q.2. Define Raynaud's Syndrome. What are its causes?

**Ans. Definition** – Raynaud's syndrome is a condition characterised by episodic attacks of vasospasm that cause closure of the small arteries and arterioles of the distal part of the extremities in response to exposure to cold or emotional stimuli. The syndrome described by Raynaud is now termed as *Raynaud's phenomenon*. It is a primary disorder whose etiology is still unknown. It is also called *Raynaud's Disease*.

*Sites* – Fingers and hands are most frequently involved, although in many patients toes, feet, ears, nose and lips may be similarly affected.

*Age* – 90% of patients are below 40 years of age.

*Sex* – Females are more commonly affected than males (5 : 1).

Classically, the attack consist of 3 sequential phases –

1. Intense pallor.
2. Cyanosis.
3. Rubor upon warming requiring 15 - 45 minutes for full recovery.

## **Disorders in which Raynaud's Syndrome may be secondary are**

### **Immunologic and Connective Tissue Disorders**

1. Scleroderma.
2. Systemic lupus erythematosus (SLE).
3. Rheumatoid arthritis.
4. Dermatomyositis.
5. Sjogren's syndrome.

### **Obstructive Arterial Disorders**

1. Arteriosclerosis.
2. Buerger's disease.
3. Thoracic outlet syndrome.

### **Environmental Condition**

1. Vibration injury.
2. Direct arterial trauma.
3. Cold injury.

### **Drugs**

1. Ergot.
2. Betablocking drugs.
3. Cytotoxic drugs.
4. Birth control pills.

### **Miscellaneous**

1. Cold agglutinins.
2. Cryoglobulinemia
3. Neoplasia.
4. Neurologic disorders.
5. Endocrine disorders.

### **Clinical Features**

1. Environment plays an important role; cool, damp climates increase incidence.
2. Use of vibrating tools increases incidence.

## Chapter 7

# DISEASES OF BONES AND JOINTS

### Q.1. Write a short note on Ganglion.

**Ans. Definition** – A tense, cystic swelling due to myxomatous degeneration of the synovial sheath lining the joint or tendon sheath containing clear gelatinous fluid is called ganglion.

### Etiology

Is yet to be known. It is proposed to be due to myxomatous degeneration of the synovial sheath lining the joint or tendon sheath.

### Sites

1. The dorsum of the hand is the commonest site, at the scapho-lunate articulation.
2. In the foot, dorsal or lateral aspect.
3. Small ganglion in relation to flexor aspect of fingers.

### Clinical Features

1. *Age* – Usually between 20-50 years.
2. A round to oval swelling in the dorsum of the hand, with smooth surfaces and round borders. Skin over the swelling is normal.
3. The swelling is tensely cystic, fluctuant and transillumination is negative. It is mobile in the transverse direction.

4. The mobility of the swelling gets restricted when the tendons are put into contraction.
5. There is no connection of ganglion with the joint space.

## Treatment

1. It is better to leave the ganglion alone when it is symptomless.
2. To reduce the size of ganglion, aspiration of the ganglion can be done, and sclerosant injections may be given.
3. Surgical excision can be done. However, recurrence rate is high.

## Differential Diagnosis

1. Implantation dermoid cyst, when it occurs in the feet or hand.
2. If swelling is very hard, exostosis of the bone is to be considered.

### Q.2. Define Perthe's disease and explain it briefly.

**Ans. Definition** – Perthe's disease is a type of crushing osteochondritis, where the entire or a part of the femoral head becomes avascular.

## Synonyms

Legg-Calve-Perthe's disease, pseudocoxalgia, coxa plana and osteochondritis deformans coxae juvenilis.

## Etiology

Conditions which may diminish or block the arterial supply to the head of the femur are –

1. Traumatic effusion.
2. Inflammatory conditions *e.g.*, synovitis, septic arthritis.
3. Epiphyseal dysplasia which may cause irregular ossification.
4. Medical conditions like rickettsial infections, Caisson's disease and Gaucher's disease.
5. Metabolic, endocrine and constitutional factors.

## Pathology

### Stage I (Stage of Avascular Necrosis)

- i. Ischemia affects a part or whole of the femoral head.
- ii. On x-ray - avascular head looks dense.
- iii. The avascular head does not grow normally, so it becomes smaller than the non-affected side.

- iv. The cartilaginous envelop of the head is independently nourished by the synovial fluid and it continues to enlarge.

### Stage II (Stage of Regeneration)

Blood vessels gradually grow through the metaphysis and supply the neck and head of femur.



This creeping of new blood vessels into the dead head is called *regeneration by creeping substitution*.



As neck and head become more vascularised, they become soft and look rarefied on x-ray.  
(The soft bone squashes easily and bends easily, so the neck becomes thick and angled to cause coxa vara.)



When the blood vessels reach the femoral head, the dead bone is absorbed piecemeal, the head of the femur remains permanently flat and cannot gain its normal round appearance.

### Grading

Grade I	Only half the head is necrotic	No collapse occurs
Grade II	More than half the head is necrotic	No collapse occurs
Grade III	Most of the head becomes necrotic	Collapse occurs
Grade IV	Whole of the head becomes ischemic and is necrotic	Severe collapse occurs

### Clinical Features

*Age* – Between 5-10 years of age.

*Sex* – Male : Female ratio is 4 : 1.

### Symptoms

1. Ache and limp are the two symptoms which start almost simultaneously.