

CHO-0002

Primary Health Care in Common Conditions



Overview of Common Surgical Conditions

5

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Block

5

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Appreciation of Collaborative Efforts

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BLOCK INTRODUCTION

While working in a sub centre, you may come across various cases of injuries, fractures and burns etc. So you should be able to identify these acute conditions, provide immediate first aid/ stabilization care, take appropriate measures to prevent further problems and make appropriate referral. If you come across such patients in a subcentre you should be able to take prompt action and advise the relatives for care enroute to higher health facility. You also need to develop skills in identifying congenital malformations and warning signals of cancer so that you can take decision for referral of such patient to appropriate health facility.

This block will enable you to develop knowledge, skills and competency in identifying the common surgical conditions and providing care as per protocols appropriate to sub centre. Some of the conditions are very life threatening so you should immediately refer such cases without any delay.

This block is divided into four units as given below

Unit 1 deals with Common Surgical Conditions -1

Unit 2 explains Common Surgical Conditions -2

Unit 3 focuses Common Surgical Conditions -3

Unit 4 describes screening of Common Cancers

Kindly note that your responsibility is to stabilize, provide first aid care, refer the cases promptly and counsel the relatives and attendants.

UNIT 1 COMMON SURGICAL CONDITIONS - 1

Structure

- 1.0 Introduction
- 1.1 Objectives
- 1.2 Injuries
 - 1.2.1 Head and Spine
 - 1.2.2 Thoracic
 - 1.2.3 Abdominal
 - 1.2.4 Fractures and Dislocations
 - 1.2.5 Soft Tissue Injuries
 - 1.2.6 Dog Bites
 - 1.2.7 Burns
- 1.3 Infections
 - 1.3.1 Cellulitis and Abscess
 - 1.3.2 Necrotising Fasciitis
 - 1.3.3 Associated with Limb Discolouration
- 1.4 Acute Gastro Intestinal Conditions
 - 1.4.1 Localised Abdominal Pain
 - 1.4.2 Gastro Intestinal Bleed – Upper and Lower
- 1.5 Acute Genito Urinary Conditions
 - 1.5.1 Retention of Urine
 - 1.5.2 Acute Scrotum
- 1.6 Common Eye Problems
 - 1.6.1 Acute Red Eye
 - 1.6.2 Trachoma
- 1.7 Common Ear, Nose and Throat Problems
 - 1.7.1 Epistaxis
 - 1.7.2 Foreign body – Ear, Nose, Tracheo-bronchial tree, Oesophagus
 - 1.7.3 Stridor
- 1.8 Important Points to Remember
- 1.9 Let Us Sum Up
- 1.10 Model Answers

1.0 INTRODUCTION

We all have experienced or seen some conditions that develop over a short time span, are often painful, occur due to injury or infection, or sometimes occur spontaneously, where the intervention of a surgeon can relieve the condition fairly rapidly. Whether it is burns that may happen in the kitchen or a collection of pus in the breast or around the nail bed, they demand early attention of a surgical colleague. In this unit you will learn about common acute surgical problems encountered in the community. You must be able to identify these acute conditions, provide immediate care to stabilise the patient, take measures to prevent further damage, and provide pain relief.

You should be able to decide when referral is required and to which level of facility. Where necessary you should be able to direct a person (could be one of the staff under you or the EMT(emergency medical technician) of the ambulance, to continue ongoing care enroute the higher facility.

1.1 OBJECTIVES

After completing this unit, you should be able to:

- identify acute surgical conditions in the community;
- triage them into A, B, C and also as per your ability to be able to manage them at your own level or need for referral;
- provide care - immediate care where referral is planned and while transport is being arranged, and definitive care where this is anticipated to be sufficient;
- identify referral facility – level of care required; and
- ongoing care and information sharing with the referral facility and EMT staff.

1.2 INJURIES

If you happen to be at the scene of an accident, it is very important to follow the ABC of first aid for an injured person as shown in Fig 1.1.

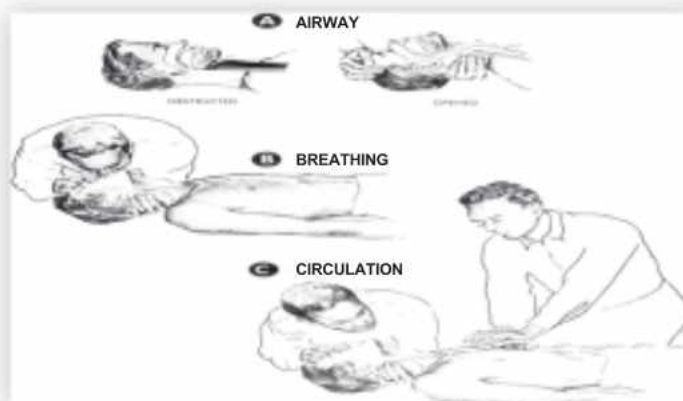


Fig. 1.1: ABC of First Aid

Once the injured person has been extracted to safety and laid on a sheet on the ground, first clear the airway by holding his jaw forward and clearing any blood, vomit or any foreign bodies from the mouth by using a soft cloth (such as a handkerchief) wrapped on your index finger. Insert an oropharyngeal airway if available and use suction if available. Then lie him on the side in Recovery Position (as shown in Fig. 1.2)

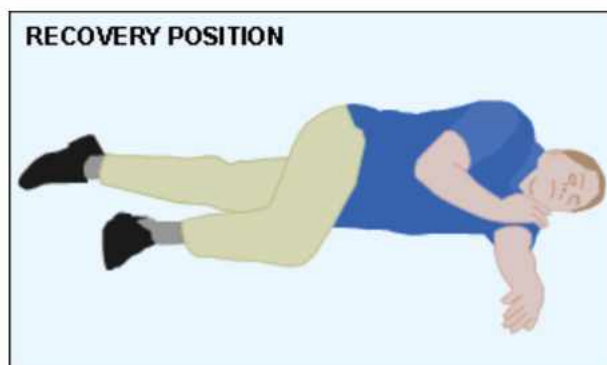


Fig. 1.2: Recovery position

Check for breathing and carotid pulse. If not breathing, begin mouth to mouth ventilation. You could, instead, use an Ambu bag and Mask if available. If pulses are feeble or not palpable, give external cardiac massage. You will need assistance when doing these, and so call for help immediately, including an Ambulance to transport the injured person. Control any bleeding sites by application of pressure locally or on appropriate pressure points. Stabilise the spine on a board while lifting him to the ambulance. Use a cervical collar as well.

Once at your facility or if you are transporting directly to a higher facility then along the way, systematically examine him for injuries which may be life or limb threatening.

This is done in order of priority.

- Clear his airway and maintain it.
- Control any external bleeding and check his Blood Pressure.
- Note his level of consciousness and look at his pupils for reaction to light.
- Examine his spine for any visible injury.
- Do a chest compression test for any chest injury.
- Do a pelvic compression test for pelvic injury.
- Examine his abdomen for obvious bruises and haematoma or swellings. There may be internal bleeding.
- Examine his long bones for obvious fractures or dislocations by moving the limbs at the hip, knee, shoulder and elbow.

If there has been any significant bleeding or the patient is unconscious, start an IV line, and give Normal saline or lactated Ringer rapidly. Also, if you suspect thoracic or abdominal injury, or a long bone fracture, IV fluids must be infused.

1.2.1 Head and Spine

Let us now learn about head and spine injuries as given below:

Check the sensorium of the injured person. Ask him his name, “where he lives”, “what happened to him” and “where he is now”. Ask him to open both eyes, show his tongue. If he is unable to do these, press his superior orbital margin to check his response to pain. If he is unconscious or ever became unconscious, he needs rapid admission to a hospital where he can be observed and imaging of his brain done as required. Bleeding from the nose could be because of a skull base fracture, and bleeding from the ear is almost always due to it. He could also be leaking CSF (thin fluid often mixed with blood) from his ear. These also require urgent admission to a referral hospital.

Ask him to move all his 4 limbs. If unconscious or not cooperative, elicit response to a painful pinch on the limbs. Movement of all limbs rules out a major spine injury. However, if he has bruising over the region of spine or pain and tenderness over it, it is still wise to assume a spine injury and move him accordingly i.e. without flexing or extending his spine and moving him flat on a hard board.

Most deaths following head injuries occur because of aspiration of vomitus or blood or a foreign body; hence clearing the airway is the most important aspect as the patient is shifted to a hospital.

Additionally, enroute an intravenous cannula should be fixed, IV Normal saline started, a first dose of antibiotic such as Cefazolin given and Tetanus toxoid dose given, besides a non narcotic analgesic such as Paracetamol.

1.2.2 Thoracic

To rule out thoracic injury, let us read the following to know in details as follows:

He may have painful breathing due to fracture of a few ribs. Chest compression may elicit tenderness and point to the same. However more extensive injuries could cause a segment of ribs broken at two points to move as a separate segment, what is known as a flail chest. This could embarrass his breathing.

A puncture into the lung by a fractured rib during the injury could cause air to leak into the hemithorax, causing a pneumothorax, as shown in Fig. 1.3 which will compromise his lung function significantly. It requires urgent recognition and release. The side of the hemithorax becomes hyper resonant and aspiration with a syringe and 21 or 22 gauge Needle releases air rapidly.

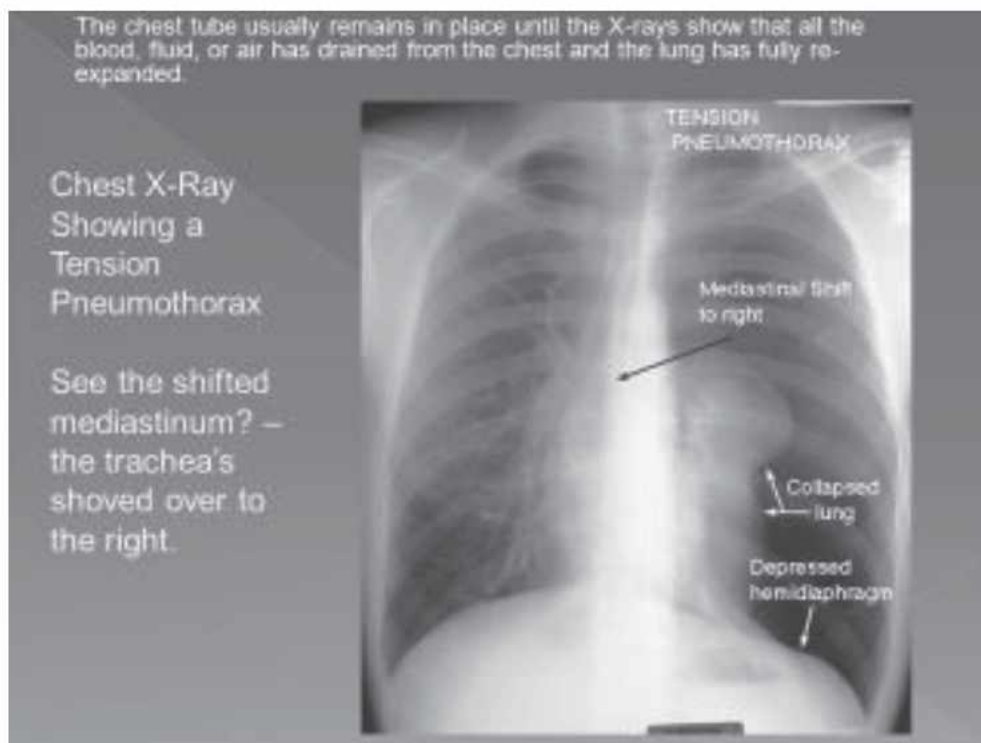


Fig. 1.3: Pneumothorax

Injury to lung parenchyma and vessels could cause blood to collect in the chest cavity that may need early evacuation using a chest drain. Penetrating chest injuries, of course require urgent transport to a hospital where chest drains can be placed and patient stabilised.

1.2.3 Abdominal

Blunt trauma causing fracture of the lower rib cage on either side could result in injury of underlying solid organs, the liver and spleen. There may be local signs of bruising or ecchymosis.



Fig. 1.4: Abdominal injuries (A,B)

Gentle palpation of the abdomen may reveal distension, tenderness, guarding or rigidity, all pointing to a possible intra abdominal injury as shown in Fig. 1.4 A, B. Hypotension due to significant blood loss not apparent from a visible laceration or fracture haematoma, are almost always related to blood in the abdominal cavity or pleural cavity. Pelvic fractures can also lead to large retroperitoneal haematomas and shock.

All of these conditions require rapid transport of a patient to a hospital where they can be managed. Initial fluid resuscitation with rapid infusion of Normal saline or Ringers lactate should commence.

1.2.4 Fractures and Dislocations

This is also very common injury which leads to fractures and dislocation.

Fractures of long bones cause obvious swelling and deformity, with abnormal mobility, of the fractured segments. The skin over the fracture site may be lacerated or punctured and contaminated with dirt or other material from the site of injury. Broken large bones such as in the thigh, upper arm or leg may cause significant blood loss within the fracture haematoma. Pain is also significant with fractures.

Care for the fracture includes:

Early immobilisation of fractured fragments using splints, reduces pain, ongoing damage and bleeding. If skin is broken and contaminated, wash thoroughly with copious normal saline and the dress the wound and immobilise the fracture site as shown in Fig. 1.6.



Fig. 1.5

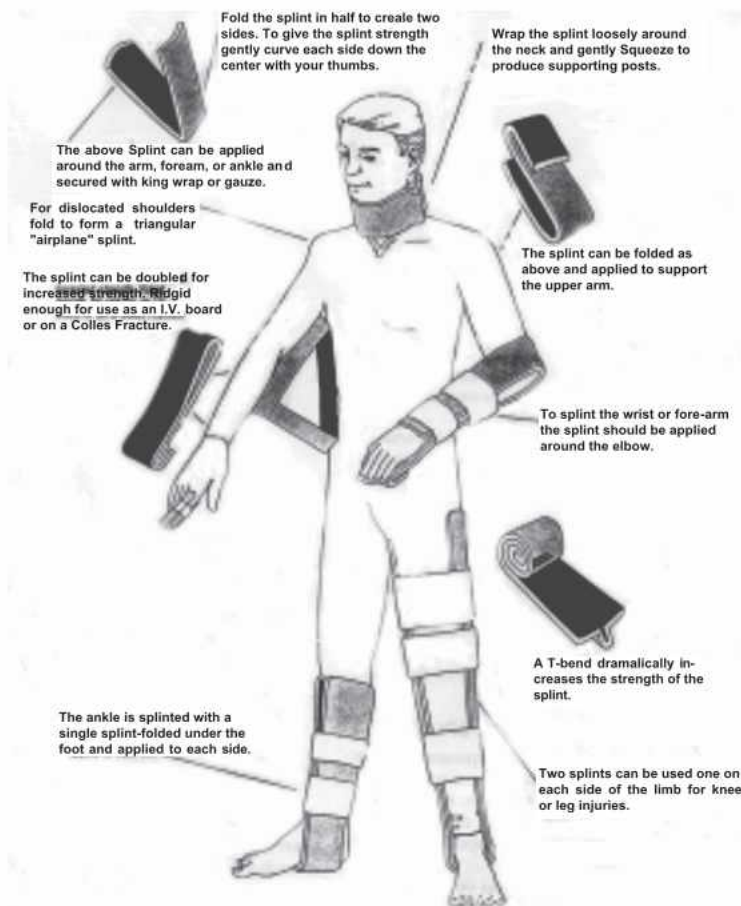


Fig. 1.6: Splint fractured sites

A dose of analgesic such as Inj Diclofenac or Paracetamol is given, and if skin is broken at the fracture site, an antibiotic such as Inj Cefazolin is also administered. IV fluids are infused fast for fractures of large bones with associated haematomas.

Some fractures may impinge on vessels and cause distal vascular compromise. A classic example is a supracondylar fracture of humerus, where the radial artery pulse may be absent due to pressure or injury to the brachial artery in the cubital region. These need to be reduced promptly, preferably within 2–4 hours of injury; hence they require immediate attention at a higher facility.

1.2.5 Soft Tissue Injuries

These injuries can be superficial or deep. Let us now learn these injuries in details:

Abrasions are superficial injuries, which though painful, are simple to treat. They require meticulous cleaning of the area, preferably with soap and water, and then application of topical antiseptic such as mercurochrome or Gentian violet.

Lacerations could be superficial involving only skin and subcutaneous tissue or deeper involving the Deep fascia, muscles and sometimes the tendons, nerves or vessels. However, cleaning the wound is of utmost importance before any attempt is made to suture them. Copious clean water or Normal saline should be used. Infiltrate the area topically with 2% Xylocaine after preliminary cleaning, and do a thorough cleaning with less pain after this. Suture close only if you are sure that there is no nerve, tendon or vascular injury. If any of these is suspected, it is better to leave the wound unsutured after cleaning it. Dress with sterile dressing after applying Povidone iodine solution 5%. Please refer BNSL-043, Block 2, Unit 7 for practical details.

Scalp and face lacerations could bleed significantly. Clean them as usual, and suture. If not possible, apply sterile pressure dressing before shifting for definitive care.

The sutured wound needs to be inspected at 48 hours and if appears clean with no pus or redness around it, can be dressed for a week before suture removal. Sutures need to be removed earlier, i.e. on day 6 or 7 when applied on the face.

Check Your Progress 1

- 1) What are the ABC of Resuscitation for an injured person?
.....
.....
- 2) What would you do if a young man becomes severely breathless after a chest injury?
.....
.....
- 3) What would you suspect if a segment of chest wall in a young man moves in and out with each breath following a road traffic accident?
.....
.....
- 4) What would you do if you had a young woman with a possible fracture of the shaft of her right femur?
.....
.....

1.2.6 Dog Bites

You have read under communicable disease BNS-041, Block 3, Unit 4 regarding Rabies as one of the zoonotic disease. Let us read with perspective of dog bite also.



Fig. 1.7

Even a puncture site of a pup's bite is significant enough to initiate a full drill of thorough cleaning with soap and water for a full 5 minutes, rabies immunoglobulin (20 IU/kg of Human Immunoglobulin or 40 IU/kg of Equine) half given around the site of bite in the subcutaneous and deeper tissues, and the remaining half given intramuscularly. The wound after toilet MUST NEVER be sutured and is inspected and cleaned daily, until it appears healthy red and clean (usually after 24–72 hours). Only then can it be sutured. Even licking by a dog on any raw area can transmit rabies. Therefore this too merits the same treatment.

RIG should be administered for severe category III exposures. Wounds that require suturing should be sutured loosely and only after RIG infiltration into the wound.

Remember:

Fox, cat, monkey and other mammal bites can also potentially transmit rabies and must be treated in a similar fashion.

Rabies vaccine is given in a dose of 0.5 ml IM on days 0, 3, 7, 14, and 28 of the bite (WHO). Oral broad spectrum antibiotic is also administered (Cap Ampiclox) as per body weight as well as Intramuscular Tetanus Toxoid (0.5 ml). Oral analgesic such as Ibuprofen or Paracetamol is given.

It is important to emphasise to the patient the need for the complete course of the vaccine, because Rabies is incurable and 100% fatal when contracted, but 100% vaccine preventable.

PEP for rabies-exposed individuals of all ages and who were not subject to previous PrEP or PEP:

Rabies vaccines can be administered by two different routes, intradermal (ID) or intramuscular (IM), and according to different schedules.

- For adults, the vaccine should always be administered in the deltoid area of the arm; for young children (aged < 2 years), the anterolateral area of the thigh is recommended.
- One ID dose is 0.1 ml of vaccine and one IM dose is an entire vial of vaccine, irrespective of the vial size. • ID PEP regimens have cost- and dose-sparing effects, even in clinics with low patient throughput.
- The recommended WHO option is, therefore, the cost-, dose- and time-sparing ID PEP regimen: --- 2-site ID vaccine administrations on days 0, 3 and 7

The previously WHO-recommended IM PEP regimens below are still considered valid options, but may not be as cost-, dose- or time-sparing. The feasibility of either regimen is also dependent on the clinical setting and patient preferences. --- 1-site IM vaccine administration on days 0, 3, 7 and the fourth dose between days 14 to 28; --- 2-site IM vaccine administration on day 0 and 1-site IM on days 7 and 21. • Changes in rabies vaccine product and/or the route of administration during the same PEP course are acceptable, if unavoidable, to ensure PEP course completion.

The WHO Categories of contact severity and recommended.

Post exposure prophylaxis is given in the following table.

Table 1.1: Categories of contact and recommended post-exposure prophylaxis (PEP)

Categories of contact with suspect rabid animal	Post-exposure prophylaxis measures
Category I – touching or feeding animals, licks on intact skin	None
Category II – nibbling of uncovered skin, minor scratches or abrasions without bleeding	Immediate vaccination and local treatment of the wound
Category III – single or multiple transdermal bites or scratches, licks on broken skin; contamination of mucous membrane with saliva from licks, contacts with bats.	Immediate vaccination and administration of rabies immunoglobulin; local treatment of the wound

When to Refer?

- i) If you do not have a stock of Rabies vaccine or Immunoglobulin, refer for these.
- ii) If the bite wound is large and deep, after the initial cleaning and local infiltration with immunoglobulin and the antirabies vaccine, transfer for better surgical care of the wound.

1.2.7 Burns

Thermal Burns: The patient is removed from the site to a safe place, and the flames doused with water. Copious tepid water is poured over the burn area, as the clothes and other materials stuck to the skin are removed gently. Keep pouring more water so that the burned area gets cooled. Then clean with sterile normal saline, povidone Iodine solution and then apply silver sulfadiazine cream. Cover with sterile Petroleum dressing. If burnt area is more than 10% (The palm of a patient's hand is roughly 1% of body surface area or see Fig. 1.8 for Rule of 9s for calculating surface area burned) or involves hands, feet, perineum or face or eyes, or is circumferential around a limb, shift the patient to a bigger hospital after starting IV fluids (NS or Ringer's, 1 Litre in the first hour). Give Inj Pentazocine 30 mg IM for pain relief, Inj Ranitidine 50 mg IV and Inj Tetanus Toxoid 0.5 ml IM, before shifting. Also, if there are signs of inhalational injury, such as persistent cough, hoarseness, stridor, and soot covering the nostrils or mouth, transfer to a good secondary care facility.

For other lesser burns, the initial management remains the same, and time of referral to a higher facility can be left to the discretion of the patient. Additional Oral antibiotic (Cap Ampicillin + Cloxacillin 1 gm 6 hourly for 7 days for an adult) and analgesic (Tab Ibuprofen 400 mg tid for 7 days for adults) are given.

Burn Percentage in Adults: Rule of Nines

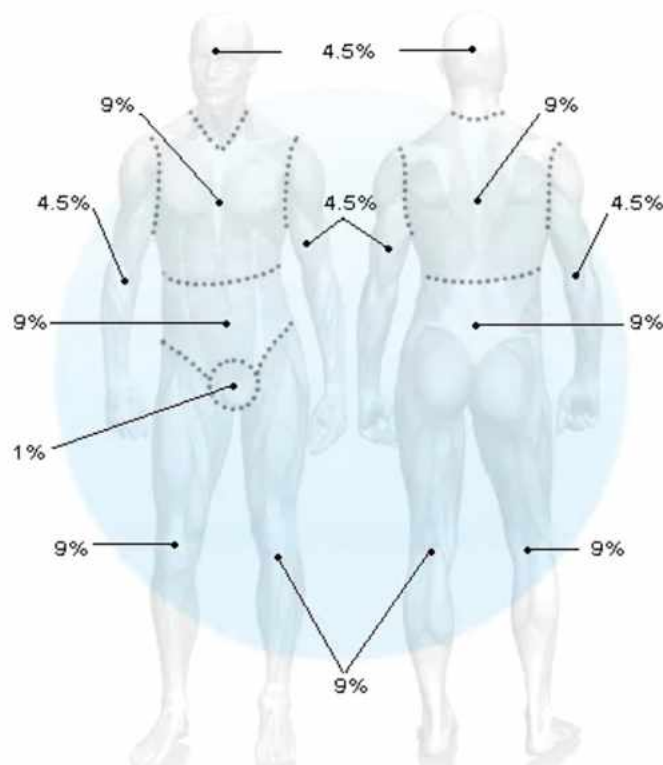


Fig. 1.8: Burn in Adults of Nine

When burns are in the healing phase, it is important to continue to do full range of motions across an involved joint to prevent contractures. Also pressure dressings must be applied for atleast 4–6 months as the scar is moulding and settling, in order to prevent ugly hypertrophic scars. Any non healing ulcers or repeated breakdown of scar needs a surgical opinion to decide on grafting. Long standing ulcers can turn malignant as seen in this lady with a back ulcer following burns as shown in Fig. 1.10.



Fig. 1.9: Contraction

1.3 INFECTIONS

Let us now go through various infections and learn when to refer if not able to manage at your end.

1.3.1 Cellulitis and Abscess

Cellulitis is swelling seen on the skin, which is recent onset and associated with redness, pain and raised local temperature points to an underlying infection in the soft tissues by bacteria, most commonly Staphylococci. If not treated appropriately and timely, it may result in liquefaction of tissues with destruction and pus formation, commonly known as abscess. as shown in Fig. 1.10



Fig. 1.10: Abscess

An abscess is usually fluctuant, has a point of maximum tenderness, and the overlying skin becomes shiny. However, in tight spaces, pain may be out of proportion to the amount of pus collected, such as in pulp space of fingers, palmar spaces of hand, submental space, where fluctuation and pointing may not be seen. Also deep seated abscesses may become fluctuant much later, when a lot of local tissue has been destroyed and the patient often has signs of systemic toxicity. These include fever, nausea, anorexia, weakness and prostration. Bacteremia can occur leading to infection spreading to other parts of the body including the liver, lungs, bone, brain and heart.



(A)

(B)

Fig. 1.11: Types of Abscess A, B

The initial treatment of cellulitis is with antibiotic, usually oral Cloxacillin, along with oral analgesic such as paracetamol. The affected part is rested and elevated, where possible, and antibiotics continued for 7 to 10 days. The patient must be reviewed at 48 hours to assess response to therapy. If progressive symptoms and signs or symptoms of abscess formation develop, the patient needs IV antibiotic therapy (Cefazolin) and if necessary diagnostic wide bore needle aspiration, before incision to drain the abscess.

The method of abscess drainage commonly used is the Hilton's method. Skin at the proposed site of incision is cleaned and draped. The fasting patient is given IV Ketamine (1–2 mg/kg bolus) after premedication with Inj Atropine and Midazolam. The skin over the most prominent part is incised in line with the Langer's lines, trying not to cross a major underlying vessel or nerve. The incision

is deepened with a haemostat or sinus forceps to drain the abscess cavity. All loculi are broken with a finger and cavity flushed with normal saline. The cavity is packed with roller gauze soaked in Povidone Iodine and re-dressed daily for the first three days and then as required.

Methods for drainage of abscesses at different sites, including breast, limbs, scalp, neck, chest wall, abdominal wall, groin and perianal region will be discussed in the practical sessions BNSL-043.

When to Refer?

- i) If signs of systemic infection, such as persistent fever, tachypnea, anorexia, vomiting and prostration appear, refer immediately after starting IV Cefazolin and infusing a bolus (1 Litre) of Normal Saline.
- ii) If the patient is a known Diabetic.
- iii) If the abscess involves the palmar spaces of hand, feet, submental space, parotid region or throat (Peritonsillar or Retropharyngeal).
- iv) If the abscess seems to arise from an infection in the bone (probe going down to bone) or joint (movement of the joint is extremely painful and resisted).
- v) Suspect tuberculosis if pus discharge persistent (>1 week), caseous material in discharge, or patient has systemic symptoms.
- vi) If there are multiple abscesses or more appear as you start treatment.

1.3.2 Necrotising Fasciitis

Necrotising fasciitis is a rapidly progressive, serious infection involving the the subcutaneous tissues and deep fascia. The infection often starts after a thorn prick or an organic foreign body, triggering multiplication of both aerobic and anerobic bacteria that synergistically destroying the fascia. The involved limb, due to oedema and pus in the subfascial planes, may be pushed to a 'compartmental syndrome', jeopardising the vascularity of the entire limb distal to it. The patient with necrotising fasciitis is often toxic, looks ill with high fever and severe pain at the site of infection. The affected part has superficial blebs almost like a scald, and the skin under these blebs is often white and dead.



Fig. 1.12: Necrotising fasciitis

It is important to recognise this condition early, because it may spread rapidly to involve the tissues on the torso, by which time the systemic toxicity may become overwhelming. Start the patient on IV fluids using NS and correct fluid deficit. Intravenous antibiotics are essential and could use Inj Ampicillin, along with Inj Metronidazole. Give IV Paracetamol infusion of 1 gm (or Inj Diclofenac 75 mg IM) for pain relief. Make extensive longitudinal incisions into the involved skin and fascia. A diagnostic sign is the ease with which the surgeon's finger slides into the plane superficial to the deep fascia, releasing plenty of oedema fluid and some pus. The 'white looking' dead skin and fascia is debrided away until there is bleeding from the cut margin. These debridements may lead to some blood loss and of course large raw areas which need grafting later.

When to Refer?

As soon as you suspect the condition, start the patient on IV fluids and IV antibiotics. Give Inj Diclofenac or Paracetamol for pain relief and if possible, do the initial debridement under Ketamine before transferring to a higher facility with blood transfusion and skin grafting.

1.3.3 Associated with Limb Discolouration

If there is tender swelling in the hand or feet with bluish or black discolouration at the tips or patchy discolouration of the limb, suspect ischemia in addition to infection. Such limbs may occur in a diabetic, with peripheral vascular disease, a sudden embolic phenomenon or sometimes with severe infection causing ischemic changes. They need urgent referral as they could be limb or life threatening.



Fig. 1.13: Patchy discolouration of limb

Pus in Bones (Acute Osteomyelitis)

This occurs usually in a child or young adult, where the child presents with history of fever of recent onset and a painful limb. The child may be limping or the mother may say that the child is refusing to use one limb. Often a history of trauma (usually minor) confuses the picture. Suspicion for pus in the bone should remain high despite the distracting history of trauma. The tenderness is maximal at one end of a long bone. In order of frequency Upper Tibia, Lower end Femur, Upper humerus, Ulna or Radius are commonly affected sites. If not treated early, the pus within the tight space of bone metaphysis, kills that bone and then oozes out into the subperiosteal space, ultimately causing irreversible bone loss and sinuses discharging pus. These are difficult and expensive to treat, and so every effort should be made to refer early for drilling and drainage of pus when localised inside the metaphysis alone.

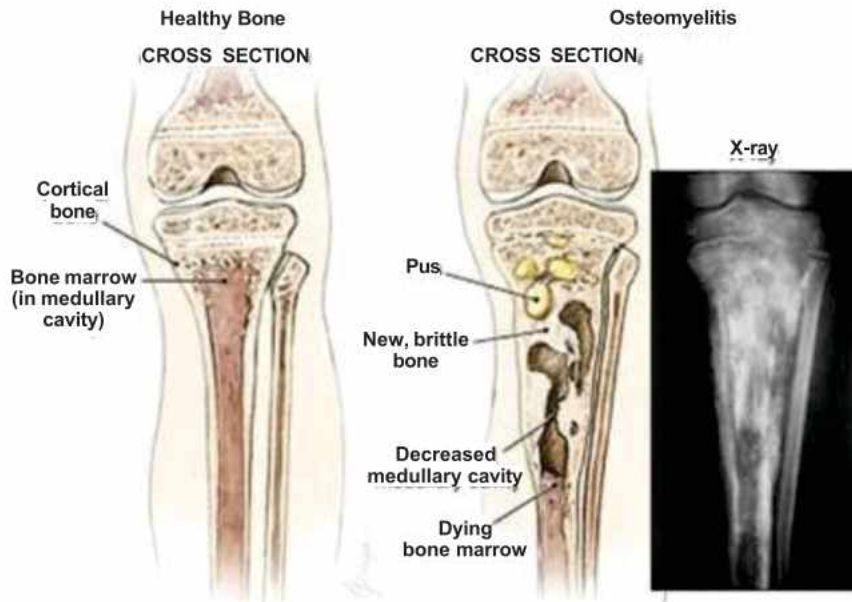


Fig. 1.14 Pus in Bones

In areas where Sickle cell disease is frequently seen, pus can also accumulate in the shaft (or middle) of the long bones and the infecting organisms could be different. These patients may have repeated attacks of bone pain due to multiple small infarctions of the bone. After starting fluid hydration and analgesics, they should be referred early too.

1.4 ACUTE GASTRO INTESTINAL CONDITIONS

After reading various sites of infection, let us now learn abdominal pain in details. Abdominal pain is one of the commonest symptoms for seeking medical attention. The causes can be many as shown in this Fig. 1.15, and many can be diagnosed on the basis of a good history and physical examination. Abdominal pain can be localised to a particular area or quadrant of the abdomen. Its character and severity are different and need to be asked, as also where it is moving or radiating. There can be associated symptoms like fever, vomiting, diarrhoea, blood or mucous in stools, haematuria or burning micturition. It is important to record vital signs including pulse rate, respiratory rate, blood pressure and temperature. Initial management can be initiated on the basis of a tentative diagnosis, and a referral plan must be made quickly.

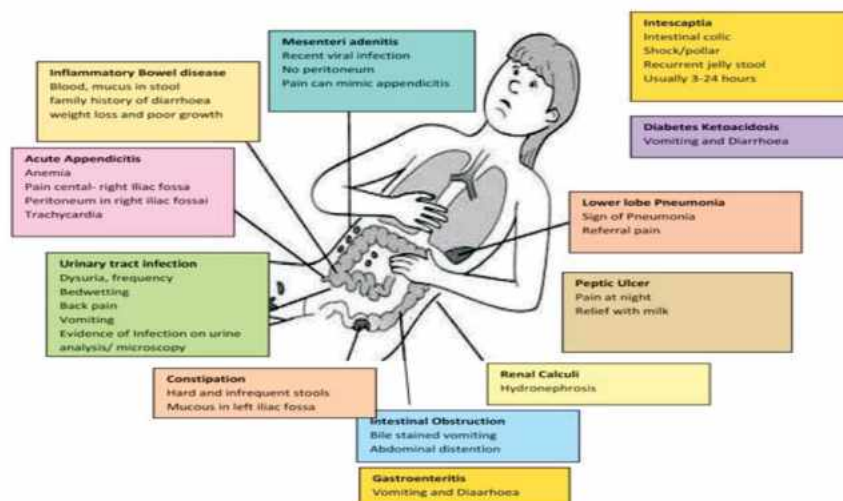


Fig. 1.15: Causes of Abdominal pain

1.4.1 Localised Abdominal Pain

Epigastric pain which is continuous, often burning, sometimes boring to the back and relieved by taking food is usually caused by peptic ulcer. This pain can be treated by taking Tab Ranitidine 50 mg BD or Tab Famotidine 20 mg BD for a few days. An Upper GI endoscopy should be done early especially if the pain does not subside completely by two weeks or appears in older adults (age >40 years).

Severe epigastric pain with radiation to back, especially after a bout of alcohol ingestion in the recent past, points to an acute inflammation of the pancreas (acute pancreatitis). They are often tender in the upper abdomen, have a rapid pulse rate, some fever and appear distressed. There may be some relief felt on lying prone. They need to be referred early after a dose of Inj Ranitidine and analgesic such as IM Tramadol.

Sudden onset, severe epigastric pain (patient can often remember the precise time) which spreads rapidly to the whole abdomen, causing the patient to lie down to reduce body movements, is often a sign of peptic ulcer perforation and peritonitis. The abdomen is distended, tender to touch, has a board like rigidity, and even respiratory excursions are shallow. There is tachycardia and with elapsing time the patient turns ill. Percussion over the liver in the right hypochondrium and right lower ribs is often resonant.

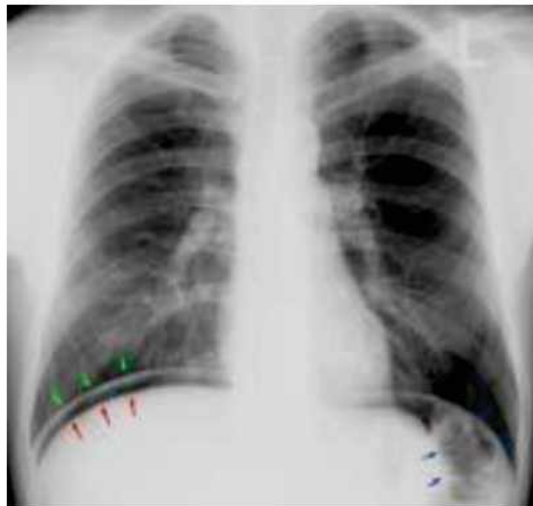


Fig. 1.16: Right hypochondrium and right lower ribs

When suspected early referral should be planned to a hospital where emergency laparotomies are performed. Prior IV Ranitidine, Inj Tramadol, placement of a Ryles (nasogastric) tube and IV fluids (Normal saline 1 Litre over 2 hours) should be initiated. A first shot of Injectable antibiotic such as Inj Ampicillin 1 gm and Inj Metronidazole 500 mg may be given prior to transfer, if travel time is likely to be long (>2 hours).

Pain arising in the loin, on either side and moving to the groin, with a waxing and waning character is usually due to a renal or ureteric stone. It may be associated with vomiting, burning micturition, or blood in urine. The patient may have had previous similar episodes of pain. Injectable analgesic such as Inj Pentazocine 30 mg IM may be given with Inj Promethazine to prevent vomiting. The patient can then be referred for further evaluation and management.

Central abdominal pain, which, a few hours later shifts to the right iliac fossa and increases progressively, could be due to acute appendicitis. The patient is often a child or young adult, and has loss of appetite, may have vomited, and may have fever. There is exquisite tenderness on palpation of the right lower quadrant. Sometimes a vague, tender lump may be palpable in the region. There may be burning micturition, and either intestinal hurry or constipation. Early surgical

intervention is needed, therefore refer early. An initial dose of IV Ampicillin, Gentamycin and Metronidazole should be given, IV fluids started and an analgesic such as IM Tramadol given, prior to transfer.

In women in the reproductive age and adolescent girls, sudden onset pain starting in either iliac region or suprapubic region, often associated with some vaginal bleeding, could be due to a ruptured ectopic pregnancy. It is important to ask about her last menstrual period. She may lose a significant quantity of blood in a couple of hours, and appear very pale and tachycardic. Start her on IV NS rapid infusion and transfer to a facility where she can surely be transfused blood and undergo surgery, if required. Fig. 1.17 show typical sites of various causes of acute abdominal pain

Typical Sites of various causes of chronic abdominal pain

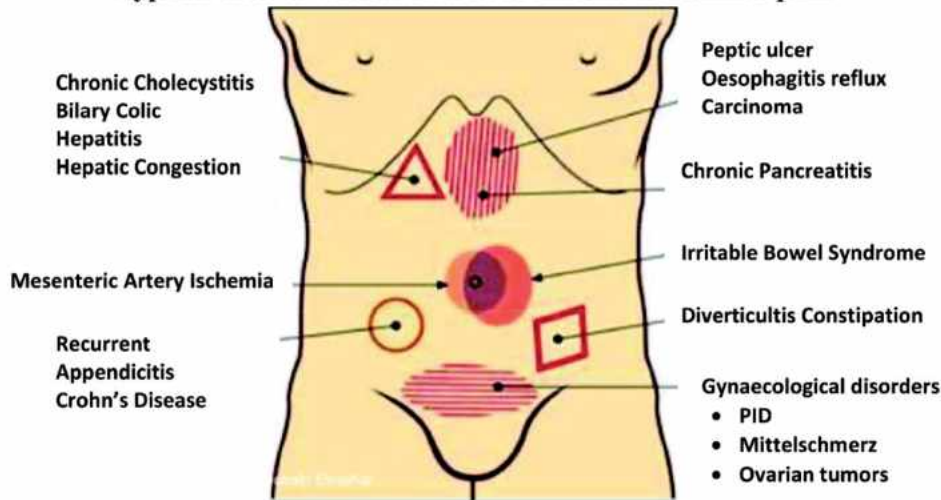


Fig. 1.17(A): Causes of acute abdominal pain

Another cause of lower abdominal pain seen among women is torsion of an ovarian cyst or tumor. The pain is sudden in onset and continuous, progressive. She needs quick referral after giving a dose of IM Tramadol.

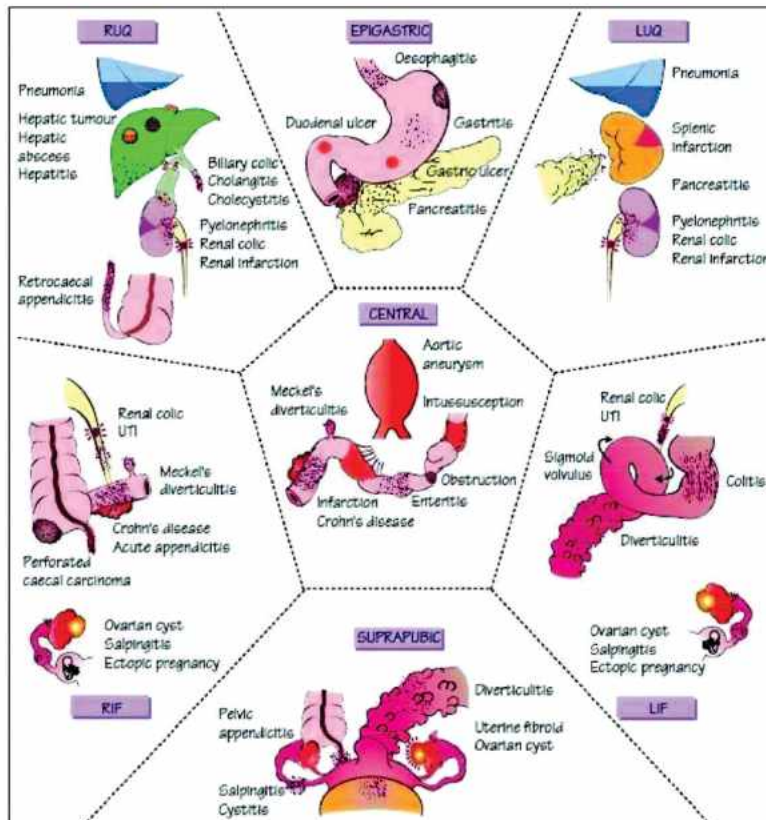


Fig. 1.17(B): Causes of acute abdominal pain

Abdominal pain, that is central, colicky in nature and associated with abdominal distension, bilious vomiting, and often constipation or obstipation, is likely due to intestinal obstruction. The patient writhes in pain during the colicky phase and then after a minute or two becomes relatively pain free. The abdomen looks full and sometimes bowel loops may be visible on the abdomen. Usually nontender, when the abdomen becomes tender, and the pain continuous and unabated, suspect perforation or gangrene of the bowel. Start the patient on IV fluids (Normal Saline or Ringers Lactate), IV antibiotics (Inj Ampicillin, Metronidazole) and Analgesic (Tramadol IM), put in an appropriate sized nasogastric tube and aspirate the gastric contents. Then refer her for definitive management.

1.4.2 Gastro Intestinal (GI) Bleed – Upper and Lower

Let us learn to identify upper and lower Gastro Intestinal Bleed.

A Upper GI Bleed

The patient presents to the health facility after a bout of vomiting which contains a lot of blood. The colour of the vomitus may be bright red or coffee coloured depending on how long it stayed in the stomach. With passage of time, the patient may pass dark, tarry stools. There may be history of recent and/or recurrent intake of pain killers such as Ibuprofen or Diclofenac to help relieve some painful condition. Such medications, alcohol ingestion and certain other irritants can cause erosion of gastric mucosa and lead to bleeding into the stomach. Other common causes include portal hypertension leading to variceal bleed from the oesophagus, bleeding from a chronic peptic ulcer, severe retching leading to tears at the GE junction. Ensure haemodynamic stability before referral. Start an IV line and rapid fluid resuscitation as required. Give Inj Ranitidine, Inj Metocloperamide and Sucralfate Gel or Tablet (1 gm) orally. Refer to a facility where blood transfusion is available and if required emergency UGI endoscopy to diagnose and tackle the cause of bleed.

Lower GI Bleed

Bleeding from the bowel distal to the ligament of Trietz presents as blood in stools. Clinically the patient may present with melena, that is dark, tarry stools. Others may have more red or maroon coloured blood in stools. The common causes include worm infestation (usually by hookworms or pin worms), colonic malignancies, inflammatory bowel disease and in children Intussusception. Fresh bleeding from the anal passage may occur due to piles. This is often painless, and there may be squirting of blood during defecation. Lesser amounts of blood with stools may be passed with hard stools associated with anal fissure, which is usually very painful. These patients must be referred for more detailed work up and management to higher facilities.

1.5 ACUTE GENITO URINARY CONDITIONS

Let us now go through acute genito Urinary Conditions as given below.

1.5.1 Retention of Urine

Acute urinary retention is a painful condition where the patient is unable to void despite a full bladder and a strong urge to pass. It can happen following progressive weakening/thinning of urinary stream as in a person with urethral stricture or urethral obstruction due to prostate enlargement. In some instances the obstruction may be sudden due to a stone passing into the urethra. The patient is in severe pain and discomfort, and if unrelieved, could lead to urine extravasation or rupture of bladder. The bladder is often palpable in the suprapubic region, extending

sometimes, beyond the umbilicus. Any attempt at urethral catheterisation must be done with full aseptic precautions. The parts are cleaned, and at least 10 ml of Xylocaine jelly is pushed into the urethra, which is then occluded distally. An appropriate size Foleys catheter is then inserted into the urethra (14 or 16 Fr for adults and 8 or 10 Fr for children) upto its Y junction when urine starts flowing out. The bulb is inflated with Sterile normal saline. Alternatively a Plastic Nelaton's catheter can also be used and neither are available, then an infant feeding tube. The catheter is connected to a urine collecting bag and strapped to the lower abdominal wall. Stop any attempts if there is severe pain or bleeding.

Retention must be distinguished from anuria, which occurs secondary to no or little urine formation. Clinical examination is usually sufficient although sometimes an ultrasound examination or even catheterisation may clinch the diagnosis. Female patients usually have retention due to pressure on the urethra or bladder neck by a tumor – may be cervical cancer or large cervical fibroids.

Once relieved of the acute retention by catheterisation, the patient can be asked to attend a hospital clinic for further work up and treatment.

If one is unable to catheterise, early referral is required. Prior to referral, especially if the journey is likely to be over an hour, supra-pubic aspiration of urine can be done using a 21 G needle and syringe. This too is performed in an aseptic manner, emptying the bladder as much as possible.

1.5.2 Acute Scrotum

An acutely painful, swollen and tender scrotum could be the result of several processes beginning with apparently benign insect bite to serious conditions such as acute epididymo-orchitis, torsion of testis or one of its appendages, and severe soft tissue infections including Fournier's gangrene. Diagnosis and management needs to be prompt and therefore the need for quick referral. In some conditions delay of even few minutes could increase the morbidity significantly.

1.6 COMMON EYE PROBLEMS

Let us learn about common eye problems.

1.6.1 Acute Red Eye

Acute red eye is often painful although the severity of pain may vary depending on the cause. A good history is important to ascertain the cause, as also an examination of the eye using a good torch light.

Conjunctivitis: Often both eyes are involved, the pain may be mild to significant, and there is significant watering from eyes with redness involving the entire conjunctiva, but more so in the fornices. The eyes are sticky with a muco-purulent discharge. There may be worsening of symptoms in bright light (photophobia), even as vision remains unaffected.



Fig. 1.18: Conjunctivitis

Treatment is by washing off the secretions with clean water and then using Gentamycin or Chloramphenicol eye drops hourly for first 4 hours and then every 4 hourly. Use tetracycline eye ointment or Neosporin eye ointment at night in both eyes. The patient usually is better by the next day. Treatment must be continued to for atleast 5 days or 2 days after the discharge abates.

Conjunctivitis in the newborn period, also known as ophthalmia neonatorum, could be Gonococcal and must be treated with topical Chloramphenicol eye drops. The mother should be given Inj Ceftriaxone 1 gm IV as a single shot.

Keratitis, Corneal ulcer: When there is abrasion over the cornea or infection denudes the epithelial layer, the underlying corneal stroma gets inflamed and oedematous. The condition is very painful, usually limited to one eye, and the redness is more pronounced around the rim of the cornea (ciliary injection). There is one sided (same side) headache and significant photophobia. On shining the torch light, a grayish ulcer may be visible on the cornea, which is a little hazy at the site. The anterior chamber also may not appear clear and the pupillary contraction to light may be irregular.



Fig. 1.19: Corneal Ulcer

This is an Emergency. The patient should receive topical eye drops in the eye of chloramphenicol or ciprofloxacin every 5 minutes for the first hour. Additionally, Atropine ointment should be applied to the the affected eye and an eye pad (sterile) applied. Oral analgesic like Paracetamol is also given before referral. He will require admission, and possibly subconjunctival injection of antibiotics after a complete examination. Besides bacterial, some ulcers can be viral or fungal in etiology.

In young patients, especially those between 6 months to 6 years age, the likelihood of this occurring secondary to malnutrition, Vitamin A deficiency or after an attack of measles (fever with rash) is high. These conditions must be sought and managed even as the eye emergency is being tackled. An initial dose of oral vitamin A, 2 lac units, must be given along with initiation of treatment.

Angle closure Glaucoma: Usually one eye is affected. There is acute onset redness and pain in the eye associated with some watering and one sided headache. There is often severe impairment of vision, so that the patient may only be able to appreciate hand movements, with halos around light. The cornea may become hazy due to the raised pressure inside the eye.

Foreign body in the eye: The history is typical and onset sudden after the foreign body is lodged in the eye. There is redness in that one eye, some pain, lot of watering, and a sensation of a foreign body. In good light and sometimes with lid eversion, the foreign body can be seen and removed by using a soft clean cloth (like a handkerchief) folded to form a narrow tip.

1.6.2 Trachoma

A chronic low grade conjunctivitis, often involving both eyes, causing a foreign body sensation in the eye due to yellow-gray follicles forming under the upper eyelid. The eyes are itchy and there is some increase watering and redness.

Use tetracycline eye ointment twice a day in both eyes for atleast four to six weeks, as well as oral Doxycyclin for two weeks.

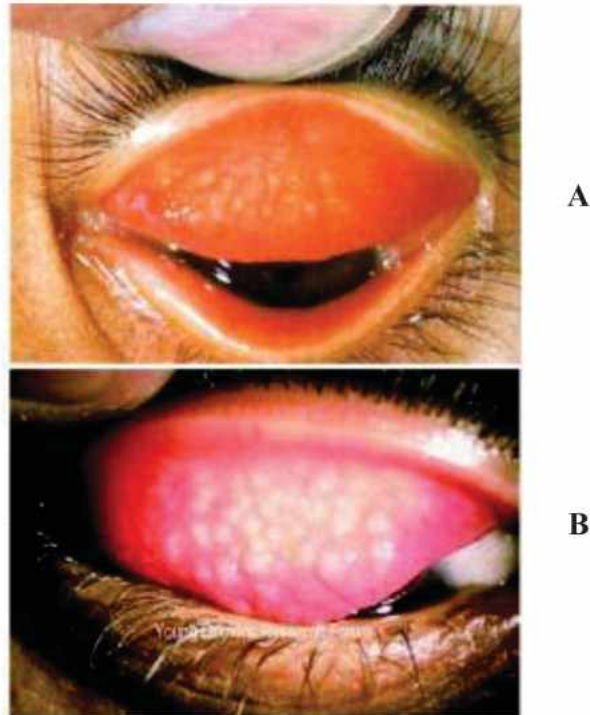


Fig. 1.20: Trachoma

1.7 COMMON EAR, NOSE AND THROAT PROBLEMS

Let us now read about common ENT problem and management.

1.7.1 Epistaxis (Nose Bleeding)

Epistaxis, or bleeding from the nose, is a common complaint. It is rarely life threatening but may cause significant concern, especially among parents of small children. Most nosebleeds are benign, self-limiting, and spontaneous, but some can be recurrent.

Types

Epistaxis can be divided into 2 categories,

- Anterior bleeds – from anterior part of nasal septum, more common
- Posterior bleeds – from posterior part of nasal septum, more serious

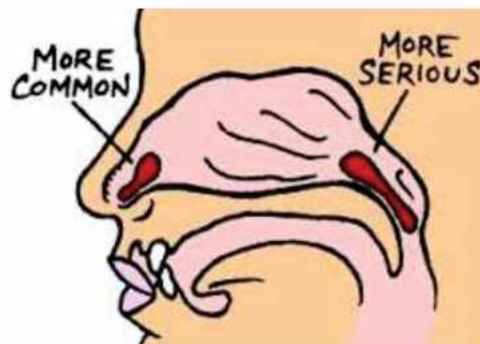


Fig. 1.21: Anterior and Posterior Bleeds

Anterior Epistaxis:

- 1) More common
- 2) From anterior nose vessels
- 3) Seen in children
- 4) Common cause- finger nail trauma, dry nose
- 5) Easy to control with nose pinching, anterior nasal packing with adrenaline soaked gauze piece.

Posterior Epistaxis:

- 1) Less common
- 2) From posterior nose vessels
- 3) Seen in adults usually with hypertension
- 4) Common cause – trauma, uncontrolled hypertension.
- 5) Difficult to localise and control, needs posterior nasal packing if does not stop.

	Anterior Epistaxis	Posterior Epistaxis
Incidence	More common	Less common
Localisation	Easy	Difficult
Common site	Little's area	Woodruff plexus
Age	< 18 yr.	> 40 yr.
Common Cause	trauma	Hypertension
Treatment	Anterior pack	Posterior pack

Treatment

Epistaxis is not life threatening but causes lot of anxiety for patients and parents if patient is a child. Stepwise approach should be as follows:

Check for vital parameters. If haemodynamically unstable resuscitate. If stable then proceed.

Allow blood to drain initially, blow off blood clot or mucous if any to clear airway.

Nose pinch with constant pressure for 10 minutes by patient or relative usually stops bleeding.

If bleeding does not stop, use gauze soaked in adrenaline or oxymetazoline nasal spray. This constricts bleeding vessels leading to cessation of bleeding. Local cauterisation with silver nitrate strips is another method.

If still uncontrolled go for anterior nasal packing-

Use sterile gauze, soak it with Vaseline or betadine ointment so it become easy for removal later. Instill lignocaine spray or solution into nose for anaesthesia.

By using forceps, put layers of gauze in affected nostril from posterior to anterior and base to top till it fills cavity fully. Keep the end outside securely for removal later. The other nostril may also be packed for counter pressure. Keep packs for 48–72 hours, and then remove. Patients with packing must be prescribed antibiotics to prevent toxic shock syndrome.

It is also essential to find cause for bleeding to treat completely and to prevent recurrence. For dry nose, saline drops or Vaseline application can be prescribed. For unknown recurrent bleeding, patient should be referred to a higher centre to rule out local growth, tumour etc.

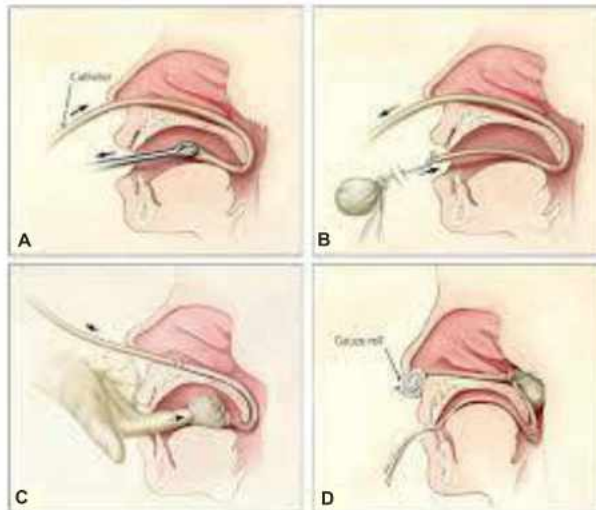


Fig. 1.22 Posterior Nasal Packing

Posterior Nasal Packing-

This is needed in posterior nose bleeds and requires more skill than anterior nasal packing. Steps are shown in Fig. 1.22

1.7.2 Foreign Body – Ear, Nose, Tracheo-Bronchial Tree, Oesophagus

Foreign bodies are commonly inserted by children into their nose or ear or an insect may accidentally enter these orifices. These need to be removed early and cautiously as unprofessional attempts could push them deeper and injure adjacent structures such as the eardrum or middle ear structures. Also, organic foreign bodies swell by imbibing moisture and get impacted at the site. They become more difficult to remove too, because of their friability. Hence the need for early referral for expert removal to a hospital.

Sometimes foreign bodies may be aspirated into the airway, where they lodge as per their size and dimensions. The patient, often a child chokes and has a bout of coughing. This may bring out the foreign body sometimes. A Heimlich's manoeuvre should be carried out (sudden pressure on the upper abdomen while the patient faces forward and downward) and may help to dislodge the foreign body and relieve the patient. If there is no immediate relief in symptoms, the patient should be referred immediately, preferably with oxygen support as breathing may become difficult.

Pieces of bone while eating meat, may be inadvertently swallowed and lodge in the food pipe. There are three physiological narrowings, where this usually gets stuck – in the neck (cricopharyngeus), the arch of aorta in the mid chest. And at the gastro-oesophageal junction in the upper abdomen. Removal usually requires endoscopy. Children also swallow different types of foreign bodies ranging from coins, screws, spring coil, etc and may require endoscopic removal when stuck.

Among these, the alkaline batteries of watches are notorious in releasing strong alkali which will damage the food pipe. Hence, these should be treated as an emergency.

1.7.3 Stridor

The patient presents with noisy breathing, the sound being more prominent during inspiration. This usually develops suddenly after a possible aspiration of some foreign body which may lodge in the larynx or trachea. There is then associated bout of coughing. This is an Emergency and requires urgent referral to a hospital where bronchoscopy can be done. Measure the oxygen saturation of the patient and if compromised (<95%), give oxygen until the patient reaches the referral centre.

Others may develop this over few hours or days, following an upper respiratory infection (croup, epiglottitis). This is usually associated with fever and history of cough and nasal discharge. Check the oxygen saturation, and give oxygen if required. Give an IV dose of Dexamethasone 8 mg and then refer to a centre where the patient can be monitored and seen by a specialist doctor.

In adults, cancer involving the larynx, or large neck nodes compressing the airway, may cause stridor that is more insidious in onset. They require detailed evaluation before treatment can be instituted, and should be referred early.

Check Your Progress 2

- 1) A dog has bitten a girl on her left calf, two days ago. There is a 3 cm laceration that looks covered with healthy granulation. What would you do?
.....
- 2) A young lady's clothes accidentally caught fire and she has come to you within minutes of the accident. She seems to have 18–20% burns over her chest, abdomen and one arm. What would you do?
.....
- 3) Pus proximal to a finger nail (acute paronychia) is treated by and
- 4) An 8 year old girl presents with history of swelling and pain in her right upper leg. She is also limping for one day and has mild fever. What would you suspect? How would you proceed?
.....
- 5) A 24 year old married lady developed severe abdominal pain in the lower abdomen, more to her right. She had her last menses 6 weeks ago but had some spotting two weeks prior. She looks pale and has tachycardia. What would you suspect and how would you manage her?
.....
- 6) A 35 year old young man with history of repeated alcohol ingestion, develops pain in the right upper abdomen. He has high grade fever with chills. He also has mild jaundice. What is the likely diagnosis, and how would you proceed?
.....
- 7) A 40 year old man develops sudden onset pain in his upper abdomen that spread to his entire abdomen rapidly. He has mild fever, bloated

abdomen that is tender and rigid, and is avoiding any movements. What is the likely diagnosis, and how would you proceed?

- 8) Name three common causes of Upper GI bleeding in adults.

- 9) The testis after torsion may remain viable for ___ hours.

a) 1 hour b) 2 hours c) 3 hours d) 4 hours

1.8 IMPORTANT POINTS TO REMEMBER

- 1) Always follow the ABC of resuscitation when you see an injured person.
- 2) Chest injuries may cause ribs to fracture and pneumothorax or haemothorax.
- 3) Blunt abdominal injuries may injure the liver or spleen and cause significant internal blood loss. Suspect this, if there is no obvious external bleed or large haematoma.
- 4) Fractures of long bones, especially of the femur can lead to almost a liter or more of blood loss in the haematoma.
- 5) Soft tissue injuries, especially deep ones or extensive lacerations, must be thoroughly washed in two stages, so that no debris remains to contaminate the wound. Suturing such dirty wounds may be delayed by a day or two, to achieve good cleaning.
- 6) Dog bites must NEVER be sutured. The wound should be thoroughly washed with soap and water for five minutes, and Tetanus Toxoid and Rabies Vaccine given immediately. For deep cuts/wounds, rabies immunoglobulin must additionally be given, half around the area of wound and the other half intramuscular.
- 7) Except when burns are minor and involve less than 10% of body surface area, these patients should be referred for admission and better care. Also burns involving the face, hands, feet or perineum require admission to a hospital.
- 8) Where you suspect pus, think of how to let it out. Test for it with a wide bore needle (18G or 20G).
- 9) Severe infections such as necrotising fasciitis, Fournier's gangrene and pus in the chest or abdominal cavity can be life-threatening. They need quick referral and urgent surgical care.
- 10) Painful swelling of a limb in a child, without obvious fluctuant swelling, may mean pus in the bone (acute osteomyelitis). The child moves his limb much less. He should be referred for IV antibiotics and drainage of the bone by drilling.
- 11) Follow a systematic approach to arrive at a tentative diagnosis of abdominal pain. Refer early if in doubt. Give analgesics before referral.
- 12) Acute scrotum, may mean torsion of the testis. Early surgical exploration can help preserve the testis.
- 13) Haematemesis can cause significant blood loss within minutes, and must be managed urgently. The patient must be referred with IV fluids on flow to a centre which has facilities for Upper GI endoscopy.

- 14) Urinary retention acutely can be very painful. It should be relieved by urethral catheterisation. If this fails, aspirate and empty the bladder with a needle passed suprapubically. And then refer the patient to a higher centre.
- 15) An acutely red eye is an emergency. Based on history and examination, try to distinguish, infective from non-infective causes and manage accordingly. Early referral is appropriate.
- 16) In an adult with epistaxis, always measure the blood pressure, as hypertensive patients can bleed through the nose.
- 17) Learn the technique of anterior nasal packing.
- 18) Foreign bodies in the airway can kill rapidly. Try the Heimlich manouver if the aspiration of the foreign body is recent.

1.9 LET US SUM UP

In this unit we have focused on injuries , infections, common surgical conditions related to eye, ear, throat, nose and acute gastro intestinal and Genito urinary conditions you need to take prompt action in providing first aid/stabilization case and refer the patient immediately to appropriate health care facility and then follow up the patient.

1.10 MODEL ANSWERS

Check Your Progress 1

- 1) Airway, Breathing and Circulation.
- 2) Suspect pneumothorax. Confirm with chest percussion and needle aspiration in the second interspace anteriorly.
- 3) He has a Flail segment due to multiple rib fractures.
- 4) Measure her BP, if hypotensive give rapid IV fluids. Give analgesic (Inj Diclofenac) and Splint the limb using a Thomas splint (If unavailable, use a long flat piece of stiff board or straight wood to immobilise her right hip and knee joints).

Check Your Progress 2

- 1) Clean the wound thoroughly with soap and water. Give Inj TT. Give Rabies Immunoglobulin around the wound and IM, and also give Rabies Vaccine subcutaneous. Explain to the guardians of the child, about the need to have done this treatment early, as the disease (rabies) is 100% fatal, if contracted.
- 2) Pour a lot of Tap water (15–25°C) over the burnt area. This will cool the injured part and prevent ongoing injury. Remove burnt clothing that may be adherent to the burnt skin. Ensure she does not have any inhalational injury (No cough, Respiratory distress, Stridor). Give analgesic (In Tramadol). Start an IV line, give IV Normal saline and IV antibiotic (Cefazolin or Ampiclox). Enquire about the circumstances of the accident. Consider asking for clues to epileptic fit, suicide or homicide. Call for an ambulance and refer to a higher centre for admission with a referral note.
- 3) Incision under ring block of the finger and oral antibiotic (Ampiclox).

- 4) Suspect Acute osteomyelitis. Give her IV antibiotic and analgesic, and refer her for early drilling of the bone.
- 5) Suspect ruptured ectopic pregnancy. The spotting was probably warning haemorrhage. Check her vitals including Temperature, Pulse rate and BP. If pallor is severe, she has likely bled a significant amount in the peritoneal cavity. Start an IV line, rapidly infuse normal saline, give a first dose of IV antibiotic and advise against taking anything orally. She should then be referred to a higher centre for immediate surgical exploration.
- 6) Likely Liver abscess. Another possibility is acute Pancreatitis. Give IV antibiotics (Ceftriaxone and Metronidazole) and analgesic (Paracetamol and or Tramadol) and refer for further investigations and management.
- 7) Duodenal ulcer perforation leading to peritonitis. Keep him fasting, insert a nasogastric tube and aspirate, start IV fluids, antibiotics (Cefazolin, Gentamycin, Metronidazole), Inj Ranatidine, and analgesic (Tramadol); refer him to a higher centre for early surgery.
- 8) Portal hypertension (variceal bleed), bleeding peptic ulcer, erosive mucosal disease.
- 9) (d).
- 10) Catheterise after instilling xylocaine jelly into his urethra. Once relieved, refer to higher centre for investigations and management.

UNIT 2 COMMON SURGICAL CONDITIONS-2

Structure

- 2.0 Introduction
- 2.1 Objectives
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2.0 INTRODUCTION

The common problems which may require surgical intervention, contribute a significant burden of illnesses in the community. Their proper recognition through screening or when a patient seeks care are important. Most of these require some

investigations (such as blood tests, cytopathology/histopathology, imaging) and interventions which are likely to be beyond what is available at sub-centres or health and wellness centre level. However their correct identification is important to initiate timely referral to an appropriate level facility. Once treatment / surgical intervention has been done at a referral facility, these patients need to be followed up at the Health and wellness centres by the community nurse practitioner/ Middle level Health Worker and hence the importance of knowing about these problems.

In the previous unit we learnt about surgical conditions which require care urgently and early. We will now learn those common conditions which require surgical intervention electively and in a planned manner.

2.1 OBJECTIVES

After completing this unit, you should be able to :

- recognise common conditions which may require surgical intervention;
- identify the condition that can be managed at various PHC, CHC/FRU, District Hospital and advise referral accordingly; and
- advise patients on their follow up visits.

2.2 LUMPS AND BUMPS

It is very important to ask relevant questions about the swelling. Ask the patient about how long the swelling/lump has been present. Was it small when first detected? Is it increasing rapidly in size? Is it associated with pain, fever, or other swellings elsewhere? Is it causing any functional impairment such as reduced movements around a joint or localised weakness? Is it compressible or does it change size at different times?

Next the swelling must be examined in good light. The location, size, consistency, margins and mobility/fixity are important features based on which you can make a presumptive diagnosis of the swelling and its probable organ or tissue of origin.

Below are presented salient features of some of the commonly encountered swellings and lumps.

2.2.1 Subcutaneous Cyst

Sebaceous cysts are superficial, skin swellings which are soft elevated like a smooth mound, and contain yellowish white, cheesy, pultaceous material, that is sebum from the sebaceous gland whose duct is blocked. The obstructed opening is almost always seen as a black spot on the cyst and is called the Punctum. The swelling is fixed to the skin but mobile over underlying tissues. The common sites are scalp, face and scrotum, though they can occur anywhere on the body. They need to be removed surgically due to the risk of infection, ulcer or sinus formation and rarely carcinomatous change.



Fig. 2.1: Dermoid cyst in a child



Fig. 2.2: Sebaceous cyst with punctum

A **Dermoid cyst** is also a cystic swelling in the subcutaneous tissue. It is fluctuant, not fixed to the skin or deeper tissues, and is smooth and rounded. It contains pultaceous material that is formed as a result of shed epithelial cells and secretions from adjacent sebaceous glands. Common locations are the neck, lateral to the supraorbital ridge, behind the pinna of ear, or in the base of tongue. When located in the scalp, they may partially or completely erode the underlying bone. They too need surgical removal.

Lipoma is a soft, mobile, fluctuant swelling, often in the subcutaneous tissue. Its margin slips under the palpating finger. Lipomas grow slowly and contain fatty tissue that is often well encapsulated.

Haemangioma is a swelling, often congenital, formed by a cluster of blood vessels. Depending on the calibre of the vessels and blood flow through them, they can be capillary, cavernous or mixed. On pressure, the blood from the swelling can be squeezed and emptied, but it refills rapidly (faster in high flow lesions). Capillary haemangiomas appear in newborn or early infancy as strawberry like swellings on the skin, that involve the skin but are mobile over deeper tissues. They usually grow in size until the child is one year and then begin to regress spontaneously. Most do not require any intervention, unless there risk of loss of vision or ulceration and bleeding. It is advisable that they be seen by a surgeon for the right advice.

Ganglion is a common swelling encountered in young persons. The swelling is firm and is located over a tendon of the hand, forearm or foot. It has limited mobility in a plane perpendicular to the tendon underlying it. It contains viscous clear fluid. Usually they can be left alone and observed in children, but in adults they may be symptomatic and can be removed. Shown in Fig. 2.3.



Fig. 2.3: Ganglion



Fig. 2.4: Thyroglossal cyst



Fig. 2.5: Thyroid swelling
thyroid cancer

Neck swellings. Midline neck swelling that moves with swallowing is usually arising from the thyroid gland or its duct. This is a child in the picture has a midline cystic neck swelling since early childhood that occasionally flares and becomes tender, red and warm. This is a **thyroglossal cyst** and requires surgical removal. The older gentleman in the picture has a nodular, firm to hard, thyroid swelling that turned out to be a thyroid malignancy. Shown in Fig. 2.4 & 2.5.

A soft, cystic, transilluminant painless swelling arising in the neck of a child is often a **cystic hygroma**. This forms due to abnormal development of lymphatic channels and could turn very large, sometimes extending into floor of mouth, and mediastinum.



Fig. 2.6: A child with cystic hygroma



Fig. 2.7: Tubercular lymph node
with sinus formation

Soft to firm swellings in the neck that are single and discrete or multiple and matted are often arising from **lymph nodes**. Tenderness may indicate an infective process, usually from a site that the lymph node is draining. The nodes may enlarge with certain specific infections such as Tuberculosis, Infectious mononucleosis, etc or due to cancers. Primary cancers involving nodes include Lymphomas and Leukemias. Nodes also enlarge and become involved due to metastatic deposits from other cancers such as Oral cancer, Laryngeal cancer, gastric and other bowel cancers and thyroid cancers.



Fig. 2.8: Supraclavicular node enlarged
in a man with stomach cancer



Fig. 2.9: Submandibula and
upper neck lymph nodes

A swelling in the region of the lateral part of the lower jaw that often lifts the ear lobule is usually arising from the parotid gland. This picture shows a **parotid gland tumor** in a young man.



Fig. 2.10: Parotid tumor lifting the right ear lobule

2.2.2 Breast Lumps

May be encountered at any age. Those occurring in young women and adolescent girls are often benign. The lump in these patients is often mobile freely within the breast (Breast mouse) and is non-tender. They can usually be left alone or removed as per the wishes of the patient. Another common lump in younger women is due to fibroadenosis, which is a benign condition. Here the size of the lump waxes and wanes with menstrual cycles and often the margins are not discrete and separable from the breast tissue. These are also frequently associated with breast pain and heaviness.



Fig. 2.11: Breast cancer distortion the shape of the breast and nipple areola complex

Treatment may require medication for which a doctor or surgeon should be consulted.

The sinister lumps in the breast are those that are first seen after 25–30 years age, are progressively increasing in size, often deform the nipple areola complex, and are firm to palpation. These features suggest a breast cancer. Some may be associated with nipple discharge that might be bloody. These should be quickly referred to a surgeon for early investigations and appropriate management.

For more details please refer Unit 4 of this block on screening for common cancers.

All women beyond 30 years age must be taught self-examination of her breasts. This requires visualisation of her breasts in front of a mirror once every month, in both positions i.e. with hands by her side and with arms raised above her head. Then sequential palpation of the entire breast going from one quadrant to the next and finally the nipple areola complex and axilla should be palpated for any lump with the flat of her hand. Any abnormalities should be reported to a doctor.



Fig. 2.12: Osteosarcoma left lower femur in a 12 year old child

Swellings can often appear along the long bones. In children and young adults, **bone sarcomas** are fairly common and must be suspected with a recent onset bony swelling in the extremities. As the size of this swelling increases, there is increasing pain and sometimes redness and the overlying skin may become shiny with prominent vessels coursing over it. This is a typical picture of an Osteosarcoma in the lower end of femur in this child.

Check Your Progress 1

- 1) A superficial rounded swelling in the skin, that moves over underlying tissues but is adherent to the skin, and has a black spot on its dome, is likely to be___?

.....
.....

- 2) What is referred to as 'breast mouse'?

.....
.....

- 3) Name a swelling that is compressible.

.....
.....

- 4) A thyroglossal cyst need not be operated upon. True or False?

.....
.....

- 5) Neck nodes in Tubercular lymphadenitis are usually firm and matted. True or False?

.....
.....

- 6) Osteosarcomas are bone cancers that frequently occur among middle aged persons. True or False?

.....
.....

2.3 PILES, FISTULAS AND FISSURE, BLEEDING PER RECTUM

2.3.1 Anorectal Problems

Afflict many, but often remain in shadows as people are not easily forthcoming of these problems. These may include bleeding per rectum, painful defecation, discharge of pus or mucous, soiling of underclothes, incontinence or severe constipation. Delay in some circumstances can lead to picking up a malignancy in late stage and unnecessary suffering.

2.3.2 Piles or Haemorrhoids

Occur due to chronic constipation where venous congestion around the sphincter leads to prominent mucosa lined veins that appear bluish mounds on proctoscopic examination. The overlying tissue may be thin and could bleed due to trauma associated with passage of stools. The bleeding is often a squirt or jet of fresh blood into the pan and sometimes can be frighteningly large. Often this is painless and the patient presents with this history and anaemia. Treatment of piles is fairly straightforward and is carried out as an outpatient using either band ligation or infrared or cryo therapy. The patient must ensure soft stools using laxatives such as fiber, Bisacodyl, liquid paraffin, etc. Sometimes piles may prolapse and this is painful (see picture). Such prolapsed piles require sphincteric dilatation and reduction.



Fig. 2.13: Prolapsed piles

Chronic constipation may lead to ulceration of the mucosa at the ano-cutaneous junction. Such a boat shaped ulcer may be covered by a skin tag due to a process of scarring and healing. This ulcer is called a **Fissure** and the accompanying tag is a **Sentinel pile**. Initial treatment is conservative with topical analgesic ointment, high fiber diet, and stool softeners. If there is no relief, surgical options include sphincterotomy or anal dilatation.

Infection in the peri-anal region may lead to abscess formation. When such abscesses burst a communication may result from the rectal mucosa to the peri-anal skin. This is called a **fistula in ano**. Once the infection has subsided, pus discharge diminishes, but the patient may continue to have mucous soiling of clothes. Treatment is surgical.

2.3.3 Rectal Prolapse

Rectal prolapse Can result due to long standing constipation and poor sphincter tone. The prolapsed rectum must be reposed immediately and sphincter strengthening exercises should be taught to the patient along with stool softeners. If conservative treatment fails, surgery is necessary.



Fig 2.14: Rectal prolapse and Rectal mucosal prolapse

2.4 HERNIAS, HYDROCELE, VARICOCELE, EPIDYDMO-ORCHITIS, LYMPHEDEMA, VARICOSE VEINS

Let us now go through all these conditions as given below:

2.4.1 Hernia

Hernia is a protrusion of abdominal contents through a sac outside the abdominal wall musculature, leading to the appearance a bulge or swelling that is reducible (atleast initially). The contents of the hernia sac may be intra-abdominal fluid, omentum, bowel loops, etc. The swelling and prolapse of these intra-abdominal contents through the defect cause a dragging type of pain. If the neck of the sac is narrow and the protruding contents swell up, it may lead to the hernia becoming irreducible and painful. This could ultimately lead to vascular compromise and gangrene of the bowel. Therefore repair of hernias must be done.

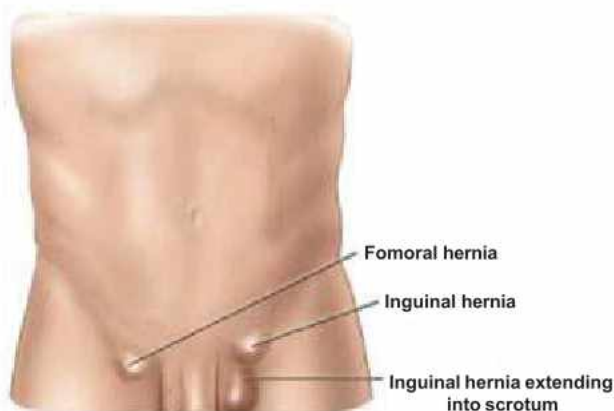


Fig. 2.15: Inguinal and femoral hernia sites

Standard techniques use a mesh at open surgery, though laparoscopic repair is also done. Once diagnosed, the patient should be advised not to lift weights and this advice should hold for atleast 3 months after repair.

The commonest defect is through the inguinal canal or directly behind it. These are Inguinal hernias. A defect through the Femoral canal could cause a Femoral hernia, which is seen more frequently among women. Other common sites include epigastric and incisional.

2.4.2 Hydrocele

Hydrocele is a scrotal swelling that contains fluid within the tunica vaginalis around the testis. It could be congenital due to patency of the processus vaginalis allowing fluid to accumulate in the sac. It is commonly acquired mostly following filarial infection, due to obstruction of lymphatics draining the tunica and scrotum. There may be history of minor trauma. The accumulated fluid causes an irreducible, fluctuant or tense cystic, transilluminant swelling in the scrotum, sometimes bilateral. Surgical treatment consists of drainage of fluid and eversion of sac.



Fig. 2.16: A large hydrocele on the left side

2.4.3 Varicocele

Varicocele is a soft swelling in the scrotum due to enormously dilated venous channels in the spermatic cord. These tortuous channels give the feel of a 'bag of worms'. Patients may be troubled by the swelling, some pain and sometimes infertility. Surgical treatment is required.

2.4.4 Epididymo-orchitis

Epididymo-orchitis or inflammation of the testis and epididymis may be chronic (Acute has been dealt with in the section on Acute Scrotum Block 5 Unit 1) and is often related to specific infections such as Tuberculosis or Filariasis. The feel of the epididymis in the former is craggy and nodular and the patient may have symptoms of urinary frequency due to simultaneous involvement of the urinary tract. Distinction and definitive diagnosis requires certain laboratory investigations for which the patient must be referred to a higher centre.

2.4.5 Lymphedema

Lymphedema is a swelling of the limbs secondary to lymphatic obstruction. Sometimes the obstruction can be congenital, manifesting at birth through childhood and puberty. This is usually slowly progressive and involves one limb.

However more commonly, lymphedema is acquired, due to obstruction of lymphatic flow due to filariasis, chronic scarring especially when circumferential or secondary to tumor deposits in the lymph nodes and lymphatic channels.

Filariasis should be treated medically and the major complication of lymphedema i.e infection has to be treated early and prevented. For this antibiotics have to be

used frequently, and drainage of lymph is assisted by compression bandaging or other assistive devices such as intermittent pumps.



Fig. 2.17: Lymphedema of the right leg

2.4.6 Varicose Veins

Varicose veins are dilated, tortuous veins seen most frequently in the lower limbs. They occur because of incompetence of valves in the perforator channels that connect the superficial and deep venous systems of the lower extremity. Increased venous back pressure leads to oedema of the feet, extravasation of blood in the skin leading to itchy pigmentation and ultimately a dermatitis and later ulcer. To prevent these complications, varicose veins should be treated. Initial management may be conservative with pressure dressing (crepe bandage) and limb elevation. Prolonged standing or even sitting with limbs hanging down must be avoided. Surgical treatment consists of subfascial ligation of perforators that have been demonstrated to be incompetent.



Fig. 2.18: Varicose veins - before and after surgery

2.5 ORAL, GENITAL ULCERS AND BED SORES

An ulcer is a breach in the epithelial lining of a tissue which may be on the skin or mucosa. The site, size, base and margins of an ulcer often give useful clues to their cause and origin.

2.5.1 Oral and Genital Ulcer

Oral/Genital ulcers, sinuses and chronic pus discharge, non-healing ulcers and chronic wounds and contractures including bed sores.

Sexually transmitted diseases often manifest with ulcers in the genital region. The common herpetic ulcer (due to Herpes simplex virus infection) is painful, superficial with serpiginous margin and dirty white base. Initially there may be vesicles which rupture and coalesce to form the ulcer. Similar vesicles may be seen around the oral cavity.

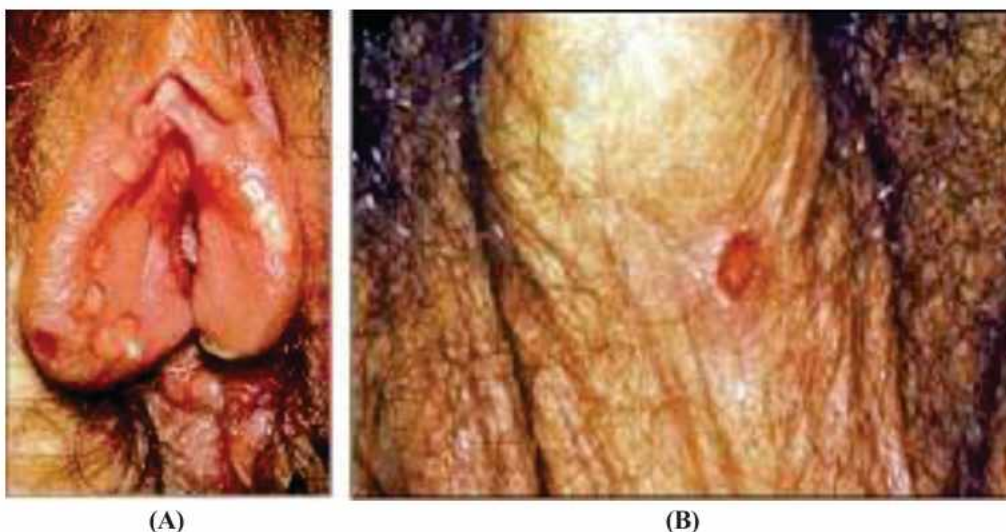


Fig. 2.19: Herpetic ulcers, seen over male and female genitalia

Syphilis (primary) causes genital ulcers called chancre that are painless, well circumscribed and have a clean reddish base and indurated border.

Ulcers due to Donovanosis (Granuloma inguinale) are typically hypertrophic, painless and beefy red.

Gonococcal disease manifests with pus discharge and ulcers on the genitalia with raised margins.



Fig. 2.20: Hypertrophic, beefy red ulcer due to Donovanosis



Fig. 2.21: Gonococcal infection causing ulcer and pus discharge per urethra

All of these genital ulcers are sexually transmitted and therefore these patients should be advised to abstain from sexual intercourse. They must get themselves

examined at the District hospital where HIV testing may also be done. Oral Paracetamol and cold compresses for pain relief may be offered.



Fig. 2.22: Proliferative lesion on the glans and prepuce due to cancer

Proliferative lesions on the genitalia may be malignant and require biopsy confirmation before proceeding with treatment.

2.5.2 Pressure Sores



Fig. 2.23: Pressure sore in the sacral region due to patient being bed-ridden



Fig. 2.24: Neuropathic ulcer in the heel of a patient with leprosy and sensory loss in his feet

Sores and then ulcers may develop at points/areas which have poor vascularity and tend to bear a significant weight of the body. Their progression is accelerated by the area remaining moist and soggy, as well as areas which have poor autonomic function (causing poor capillary circulation). Patients who are unconscious and cannot turn on their own, or patients who are paraplegic or quadriplegic, are prone to develop pressure sores. Also certain illnesses such as Diabetes and Leprosy which cause sensory neuropathy, are likely to result in formation of ulcers at points which bear weight over prolonged periods and get traumatised.

It is important to prevent these pressure sores/ulcers by frequently changing the position of the weight bearing area. Also pressure from such susceptible areas can be shifted. Use of ripple air mattresses has helped to reduce the incidence of pressure sores in prolonged bedridden patients, in hospitals and homes.

2.5.3 Buerger's Disease and other Ulcers due to Vascular Insufficiency

Vascular insufficiency can be acute or insidious and chronic. When acute, such as after an embolic episode, the affected part turns blue or black, becomes cold and appears shiny. These limbs usually require early amputation, and the source

of the embolus must be identified and treated. In chronic ischemia, as happens in patients with atherosclerosis, and in Buerger's disease, the affected limb is painful when the patient walks or exercises the limb. This is ischemic claudication. The muscles tend to atrophy, there is loss of hair over the limb, and ultimately it turns cool and may develop patchy gangrene. Any ulcers that develop in these limbs due to trauma or infection, fail to heal.

These patients require early referral to a higher centre where Doppler studies, occasionally angiography and surgical treatment can be offered.



Fig. 2.25: Buerger's disease with absent pulsations in the dorsalis pedis artery causing gangrene of two toes



Fig. 2.26: Non-healing ulcer on foot following a serious infection (necrotising fascitis) in a diabetic patient.

Long standing ulcers following infections may heal with contractures around joints and require release of contractures and skin grafting.

2.6 PROBLEMS/ SYMPTOMS AND SIGN OF EAR, NOSE AND THROAT

In this section we focus on Thyroid swelling, discharging ear, blocked nose (chronic), hoarseness, and dysphagia.

2.6.1 Thyroid Swelling

Sometimes the thyroid gland can be enlarged giving rise to a swelling in the midline of the neck anteriorly. The swelling can be recognised as it moves with swallowing; such a swelling is called a goiter. Thyroid swelling can sometimes be associated with increased or decreased functioning of the thyroid gland. Symptoms associated with increased functioning of the thyroid gland are increase appetite, weightloss, heat intolerance and fast heart rate. Symptoms associated with decreased functioning are constipation, swelling over the body, weight gain, increased sleepiness and cold intolerance. Occasionally a thyroid swelling can be due to an underlying cancer in which case it will rapidly increase in size. Any thyroid swelling should be evaluated by a doctor and tests carried out to determine the underlying cause.

2.6.2 Discharging Ear

Chronic discharge from the ear can result from perforation of the ear drum. Any person who has pus discharge from the ear for a long time should be seen by an ENT doctor. The ear should be kept dry by wicking. Antibiotic ear drops can be put in the ear. Water should not enter the ear while bathing. Sometimes the discharge from the ear can be foul smelling or blood stained. This indicates that the perforation is an unsafe one i.e. it has greater chances of spreading to the



Fig. 2.27: Large perforation of the eardrum (tympanic membrane)

brain and causing a brain abscess. Such a patient should be urgently referred to an ENT surgeon. Sometimes chronic discharge from the ear can lead to infection of the bone behind the ear called mastoiditis. It will need to be treated by an ENT surgeon with antibiotics and surgical drainage. A perforated drum can be repaired using a microscope and following successful repair hearing often improves and ear discharge vanishes. Also restrictions on patients activities such as swimming can be taken off.

2.6.3 Blocked Nose

Blocked nose can commonly occur when a person has a cold. It occurs due to swelling and inflammation of the mucous membranes of the nose. It can be relieved with the help of normal saline nose drops or spray of Oxymetazoline 0.05%.



Fig. 2.28: Nasal polyp causing blocked nose on one side

Sometimes the nose may be blocked on one side only. This may occur due to presence of a growth in the nasal cavity such as a polyp or due to a deviation of the nasal septum to one side. Sometimes the nose block may be due to a growth or tumour in the nose which may be associated with a foul smelling or blood stained discharge. Such patients should be referred to an ENT surgeon at the earliest.

2.6.4 Hoarseness

Hoarseness is an abnormal change in the pitch or volume of the voice. There are many causes of hoarseness. Common cold or upper respiratory viral Infection can lead to hoarseness. If hoarseness persists for more than two weeks the cause can be due to a benign tumour or polyp of the vocal cords or

due to cancer of the larynx. Hence such a person should be evaluated early by a surgeon.



Fig. 2.29: Post-cricoid cancer close to larynx

2.6.5 Dysphagia

Dysphagia means difficulty in swallowing. Dysphagia can occur due to neurological dysfunction such as that caused by stroke. It can also arise as a result of cancer of the throat or food pipe. Dysphagia is often a symptom of serious underlying disease and should be investigated with the help of barium swallow or endoscopy which can be done at a larger hospital. Less common causes of dysphagia include esophageal strictures and motility disorders of the oesophagus.



Fig. 2.30: Barium swallow study showing irregular narrowing and shouldering of the oesophagus due to cancer

2.7 JOINT PAINS, BACKACHE, FROZEN SHOULDER

Let us now go through about joint pains, backache and frozen shoulder as given below:

2.7.1 Joint Pain

Joint pain can involve a single joint or multiple joints. Joint pains can occur due to infection of the joint which can be bacterial or tubercular. This usually results in involvement of one joint.

Joint pains associated with swelling and deformity of the joints can be due to inflammatory diseases like rheumatoid arthritis. Such joint involvement is usually

symmetric, involves several joints including the small joints of the hand and feet, and is usually associated with morning stiffness. As the disease progresses, joint deformities may result.

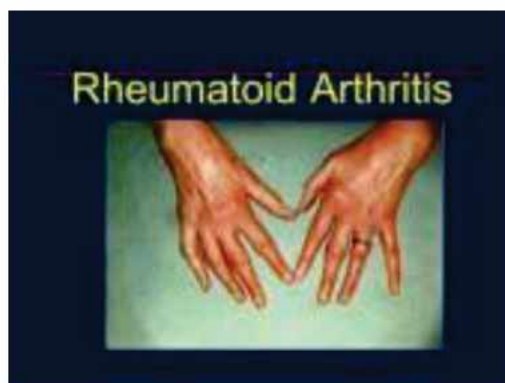


Fig. 2.31: Rheumatoid Arthritis

Osteoarthritis is a degenerative disease of the weight bearing joints which occurs in older individuals usually involving the knees and hip joints, though shoulder may also be involved.

In children joint pains can occur acutely due to diseases like acute rheumatic fever, leukemia or sickle cell anaemia.

2.7.2 Backache

Low backache can occur because of muscle strain or lumbar disc herniation which can occur following lifting of heavy weights. In older adults backache may occur because of degenerative changes or form a compression fracture. Tuberculosis of the spine can also lead to backache. This is also associated with gibbous or deformity of the spine.

Backache, if it occurs acutely, should be treated with bed rest, pain killers and avoidance of lifting heavy weights.

If backache persists for more than 2 weeks, or is associated with neurological weakness or is associated with fever, it should be evaluated in a larger hospital, where X-rays, MRI and other investigations may be done if required.

2.7.3 Frozen Shoulder

Frozen shoulder is characterised by pain, stiffness and limitation of movement in the shoulder joint. It may occur after an injury or overuse or disease like diabetes or stroke. It is treated by painkillers such as ibuprofen, application of heat and gentle physical exercises to increase the range of movements. Some patients who do not improve with conservative measures may require injection of steroids into the affected joint.

2.8 LOWER URINARY TRACT SYMPTOMS (LUTS)

Let us now discuss lower urinary tract infections as given below:

2.8.1 Lower Urinary Tract Symptoms (LUTS)

LUTS or lower urinary tract symptoms is a term used to describe a range of symptoms due to problems of the bladder, prostate and urethra. These symptoms include:

- 1) Voiding or obstructive symptoms –
 - Hesitancy – longer than usual wait for the stream of urine to begin.

- Weak and poor directed stream of urine.
- Straining to urinate.
- Dribbling after urination has finished or an irregular stream.
- Chronic urinary retention – not all the urine is passed from the bladder causing a need to urinate more often.
- Overflow Incontinence – Urine overflows from a full bladder uncontrollably even though normal urination can be difficult to start.

2) Storage or irritative symptoms –

- Urgency – urgent feeling of need to urinate.
- Frequency – a short time between needing to urinate.
- Nocturia – a need to pass urine two or more times during the night.
- Urge incontinence – a sudden, intense urge to urinate followed by an uncontrolled loss of urine.

The voiding symptoms are commonly caused by conditions such as an enlarged prostate gland and urethral stricture. An enlarged prostate gland can lead to both storage and voiding symptoms.

LUTS can also be caused acutely by urinary tract infection, prostatitis (inflammation of the prostate) or bladder stones. A patient with LUTS should be referred to a surgical facility for evaluation where he may require a digital rectal examination, an ultrasound and urine examination along with blood tests.

2.8.2 Phimosis and Paraphimosis

Phimosis means an inability to retract the foreskin over the glans penis after it was previously retractile or after puberty. It usually occurs secondary to distal scarring of the foreskin phimosis occurs naturally in male newborns where it is called physiologic phimosis (or Prepuce adhesions) and does not need any treatment. If there is ballooning of prepuce or the urine stream is pin point, it may require intervention.



Fig. 2.32: Phimosis-painful and difficult retraction of prepuce

Phimosis

Paraphimosis

If phimosis occurs after the foreskin was previously retractable and is severe, it can cause problems in passage of urine. In such a case it will require surgical correction.

Paraphimosis:

Paraphimosis is the entrapment of a retracted foreskin (prepuce) behind the coronal sulcus, often when a partially stenosed prepuce opening is forcefully retracted back. A paraphimosis is a urologic emergency as it is very painful and it may lead to urinary retention. It needs to be attended to immediately and so these patients

need referral. Early in its course, it may be possible to reduce the paraphimosis manually, though circumcision must follow electively.

2.8.3 Atrophic Vaginitis

Atrophic vaginitis is a condition which can occur in post-menopausal women due to deficiency of estrogen hormone which occurs after menopause. Symptoms include thinning and drying of vaginal walls leading to soreness, itching, dyspareunia and post-menopausal bleeding. It can also cause pain on micturition and lead to urinary tract infection or urethral narrowing leading to obstructed micturition. A patient with these symptoms needs to be assessed by a gynaecologist and treated after ruling out other conditions such as malignancy. Hormone replacement therapy, often topical is sufficient to ameliorate symptoms.

Check Your Progress 2

- 1) Chronic constipation can lead to
 - a) Piles
 - b) Fissure in ano
 - c) Rectal prolapsed
 - d) All of the above
- 2) The commonest hernia seen among females is.....
- 3) Which of the following swellings is NOT Transilluminant?
 - a) Hydrocele
 - b) Varicocele
 - c) Cystic hygroma
 - d) Branchial cyst
- 4) A recent onset superficial, painful, genital ulcer is likely to be due to.....
- 5) Chronic foul smelling discharge from an ear could point towards.....
- 6) A 65 year old previously healthy man has slowing of urine stream and dysuria. He is likely to be suffering from

2.9 IMPORTANT POINTS TO REMEMBER

- 1) Any lymph nodes in the neck, axilla or groin that are more than a centimeter in diameter, or have a firm or hard consistency, require investigations to rule out a malignancy or tuberculosis, etc.
- 2) All women between the ages of 25 to 60 years must do a self examination of their breasts and report to a doctor if there is any lump, abnormal nipple discharge or altered shape of the breast or nipple-areola complex.
- 3) Hernias must be treated surgically. Left untreated they can become obstructed, and may even lead to bowel obstruction or gangrene.
- 4) Hydrocele surgery is a simple day care procedure.

- 5) Dysphagia and hoarseness of recent onset are sinister symptoms and merit detailed investigations, especially to rule out a malignancy.
- 6) Chronic ear discharge, especially when foul smelling or blood stained, points to possible 'unsafe' ear disease. These patients must be referred early.
- 7) Nasal obstruction due to polyps can be treated easily, surgically.
- 8) Backache associated with any sensory or motor deficit must be investigated fully and needs referral.
- 9) Lower Urinary Tract Symptoms among men may be secondary to problems of bladder storage, contractility, outflow obstruction or sphincter disturbances.
- 10) Phimosis and Paraphimosis require circumcision.
- 11) Genital ulcers are often sexually transmitted.
- 12) Atrophic vaginitis in post-menopausal women predisposes them to UTI and can cause obstructed micturition.

2.10 LET US SUM UP

In this unit we have discussed common surgical conditions such as lumps and bumps, piles, fistulas, fissures, bleeding per rectum, hernias, varicose veins. Oral and genital ulcers, pressure sores, signs and symptoms of ear, nose and throat conditions. We have also focused on problems in joints, lower urinary tract symptoms.

2.11 MODEL ANSWERS

Check Your Progress 1

- 1) Sebaceous cyst.
- 2) Fibroadenoma.
- 3) Haemangioma
- 4) False. It must be operated because of risk of infection.
- 5) True
- 6) False. They are commonly seen in children and adolescents.

Check Your Progress 2

- 1) (d).
- 2) Inguinal Hernia (even though Femoral hernias are more common among females as compared to males).
- 3) (b).
- 4) Herpes Simplex virus infection.
- 5) Unsafe ear disease.
- 6) Benign Prostatic Hypertrophy. (Though less frequent, Prostatic malignancy and urethral stricture need to be ruled out).

UNIT 3 CONGENITAL MALFORMATIONS

Structure

- 3.0 Introduction
- 3.1 Objectives
- 3.2 General Care for Newborns with Birth Defects
- 3.3 Cleft Lip and Cleft Palate :
- 3.4 Anorectal Malformations/Imperforate Anus
- 3.5 Neonatal Intestinal Obstruction
- 3.6 Esophageal Atresia Tracheo-Esophageal Fistula (TEF)
- 3.7 Meningocele and Meningomyelocele
- 3.8 Hydrocephalus
- 3.9 Exomphalos Major and Minor, Gastroschisis
- 3.10 Talipes Equinus/Club Foot
- 3.11 Obstructive Micturition in Newborn Period/Infancy
- 3.12 Blue Baby (Cyanotic Congenital Heart Disease)
- 3.13 Important Points to Remember
- 3.14 Let Us Sum Up
- 3.15 Model Answers

3.0 INTRODUCTION

We have all seen a baby with cleft lip or palate, or a baby with club feet. These are birth defects that are obvious to anyone. Many may manifest in the newborn period, such as oesophageal atresia, imperforate anus, meningomyelocele or exomphalos major. Others may not manifest early, and present later as failure to thrive, recurrent chest infections or poor feeding as in congenital heart disease, or poor urinary stream and repeated urinary infections in a male child with posterior urethral valves.

Birth defects or anomalies can occur among 6–7 of every 100 live births. They could occur because of Genetic factors, Environmental factors or a mix of both (this is more common). Some of them may be minor, but many cause significant problems, including causing premature deaths and significant disability. We shall learn about the common and important congenital malfunctions in this unit.

3.1 OBJECTIVES

After completing this unit, you should be able to:

- Recognise some of the common and serious birth defects in the newborn period and early childhood;
- provide immediate care where feasible and prior to referral in order to prevent further damage;
- know briefly about their broad management to facilitate early referral to appropriate facility; and
- follow up care required after the definitive procedure has been done which should be ensured for the child.

3.2 GENERAL CARE FOR NEWBORNS WITH BIRTH DEFECTS

The newborn with birth defects who needs referral, must be transported while ensuring that the baby is kept warm. This is because they do not shiver to bring up body temperature. Also preterm babies are at additional risk of hypothermia. Also the babies who lose heat due to exposed internal viscera such as exomphalos, Birth defect of abdominal wall, meningomyelocele, and exstrophy bladder, require additional care to prevent hypothermia.

3.3 CLEFT LIP AND CLEFT PALATE

This anomaly may be one sided (more common) or involve both sides. The palate may or may not be cleft with cleft in the lip. Palatal clefts can also be isolated. They may involve both the anterior and posterior parts of the palate (complete cleft palate) or may be incomplete, usually involving only the posterior or secondary palate.



**Fig. 3.2: Cleft lip and Palate,
Unilateral**



**Fig. 3.3: Cleft lip and Palate,
Bilateral**

Besides the obvious visible defect, the baby may have difficulty in feeding due to poor sucking, nasal regurgitation of milk, often leading to poor weight gain and undernutrition. The mother should be instructed to provide expressed breast milk using a katori-spoon. Often a pallada spoon is useful to deposit the milk into the posterior half of the oral cavity.

Another common presentation is with recurrent ear discharge and poor/unclear speech. This is due to nasal escape of air while attempting to speak, as also eustachian tube blockage.

Definitive treatment requires surgical intervention, preferably by a special surgeon (plastic or paediatric surgeon). The lip should be operated upon early at 3 months while repair of the palate must wait until the baby is at least 18 months and adequately nourished (10 kg).

Following palate repair, speech therapy must be started three to four weeks later and the parents should be encouraged to follow up with the treating team.

3.4 ANORECTAL MALFORMATIONS/ IMPERFORATE ANUS

Anorectal malformations or Imperforate anus is usually obvious especially among male newborns. However females have defects with a fistula commonly opening into the vestibule, or vagina from which they decompress stools and flatus and thus do not become obstructed. The defect may only be brought to the notice of the mother on closer examination later.



Fig. 3.4: Male with imperforate anus



Fig. 3.5: Female with Vestibular opening

Male defects with obstruction require immediate referral for surgery, where a colostomy is usually performed to decompress the bowel. Female defects should be seen by a paediatric surgeon early so that their treatment plan can be made by the end of the first month. Definitive surgery can usually be performed after 3 months. After the new anal opening has been formed, it needs to be calibrated daily for the initial 3–6 months to prevent stenosis. The treating doctor usually would provide a dilator that must be used every day after lubricating it with xylocaine jelly. The colostomy is generally closed 3 months after the anorectoplasty.

3.5 NEONATAL INTESTINAL OBSTRUCTION

Any newborn or infant who has bilious (yellow-green) vomiting is likely to have intestinal obstruction. The vomiting is after feeds as well as between feeds. The baby is often dehydrated, with the anterior fontanelle sunken. The abdomen may be minimally distended in cases with proximal obstruction, but could be massively distended when the obstruction is in the distal bowel.

The baby should be started on IV fluids (N/5 or N/4 normal saline with dextrose at a rate of 4 ml/kg/hour) and a nasogastric tube inserted (6F for a newborn). The baby should be placed under a radiant warmer while this is being done, and then wrapped well before referral to a hospital where pediatric surgical care is possible.

Delayed presentation or failure to recognise the condition may lead to sepsis and even perforation of the bowel proximal to the obstruction as seen in the picture below. It will be very difficult to save such a delayed presenting baby.



Fig. 3.6: Free air under diaphragm after perforation Late presentation with perforation and sepsis

Check Your Progress 1

- 1) What is the ideal age to operate on babies with Cleft lip and Cleft palate?
.....
.....
- 2) If a male baby with absent anal opening has a bead of meconium at his urethral meatus, what does it indicate?
.....
.....
- 3) What would you do if you see a newborn at day 2 of life with bilious vomiting, and mild upper abdominal distension?
.....
.....

3.6 ESOPHAGEAL ATRESIA TRACHEO ESOPHAGEAL FISTULA (TEF)

A newborn who has excessive salivation and frothing from the mouth is likely to have esophageal atresia. Attempts at feeding are likely to result in choking. When

presenting late, there may be features of pneumonia due to aspiration of gastric contents from the distal fistula. The diagnosis is confirmed by attempting to pass a No. 8 infant feeding tube through his oral cavity down his throat. The tube encounters resistance 7 cm from his lips and then coils back into the mouth. Suck out secretions/saliva from the oral cavity as frequently as required. Keep the baby in a 30 degree head up position to prevent aspiration of refluxed gastric contents through the distal esophageal fistula. Keep the baby under a radiant warmer and start an I/V line and I/V fluids (10% dextrose @ 3 ml/kg/hr). Check the oxygen saturation if the baby is tachypneic or cyanosed and start oxygen therapy. The baby must never be fed. Refer the baby to a hospital with paediatric surgery facilities.

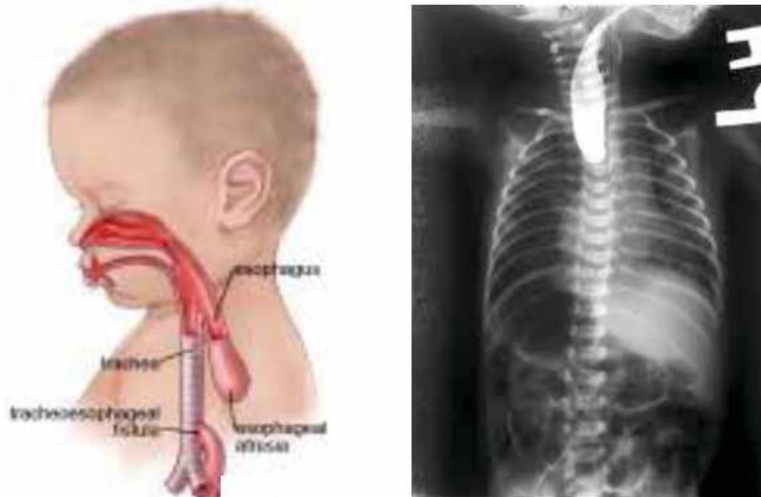


**Fig. 3.7: Contrast study shows the blind ending esophagus
Typical Defect of Esophageal Atresia with Distal TEF**

3.7 MENINGOCELE AND MENINGOMYELOCELE

Broadly known as spina bifida, these birth defects occur because of a failure of the posterior spinal elements to fuse, thereby exposing variable amounts of meninges and neural elements (cord and nerve roots) at the back. This can happen anywhere from cervical to sacral spine. The defect is usually caused by a nutritional deficiency of Folic acid in the mother. Hence for future pregnancies, the mother should be advised to take Folic acid before the next baby is conceived, and to be continued into the end of first trimester.

As the neural elements may be exposed and dysplastic, there may be associated weakness (partial or complete) of the muscles of the lower limbs. Also, the anal canal opening may be patulous or loose with meconium or stools frequently released. Similarly there may be urinary incontinence. The defect is also associated with a malformation leading to hydrocephalus and thus a large head with a prominent anterior fontanelle.



Fig. 3.8(a): Thin sac of Meningomyelocele

Fig. 3.8(b): Skin covered defect

3.8 HYDROCEPHALUS

This anomaly is caused by an obstruction to the flow of cerebrospinal fluid within and around the brain of a baby. Among the common causes are aqueductal stenosis, Arnold Chiari Malformation and posterior fossa cysts. This obstruction leads to fluid accumulation and enlargement of the ventricular size in the brain, causing thinning of the surrounding developing brain parenchyma, as well as increase in size of the head. A normal term newborn has a head circumference of 35 cm at birth which increases to 40 cm by 3 months and 45 cm at 1 year. Thus serial head circumference is important to assess the rate of increase in the head size. When the intracranial pressure is high, it is reflected as

- 1) Widely open anterior fontanelle which is full or bulging
- 2) Separation of sutures, especially the squamoparietal suture above the ears
- 3) Sunset like appearance of the eyes
- 4) Prominent veins on the scalp
- 5) Increased tone and jerks of the lower limbs

Persistently raised pressure leads to optic atrophy and loss of vision along with thinning of the developing brain parenchyma causing developmental retardation.

The anomaly should be picked up early as surgical intervention may improve outcome. This may include placing ventriculo-peritoneal shunts or doing third ventriculostomy.



Fig. 3.9: Huge Head size with prominent veins and 'sunset' eyes

3.9 EXOMPHALOS MAJOR AND MINOR, GASTROSCHISIS

This is a defect in the formation of the anterior abdominal wall so that internal viscera protrude out of the abdominal cavity. The herniated contents are covered by a sac consisting of peritoneum and a jelly like substance that gradually dries up to form an eschar. The cord hangs from the summit of the sac. The important thing to remember when such a baby is delivered is not to cut the cord too close to the sac. The contents of the sac may include the liver, spleen, small and large bowel, as well as the stomach. Sometimes there may be no sac and the bowel is

lying exposed on the skin. The defect is usually to one side of the umbilicus and tight, so that the bowel and its vascularity may gradually be compromised. The baby's exposed bowel or the sac must be cleaned with sterile normal saline and then wrapped in paraffin gauze to prevent drying or exposure. The baby should not be fed and a nasogastric tube (No. 6 F) should be placed and aspirated. I/V fluids must be started - 10% dextrose @ 3 ml/kg/hr on day 1 or N/5 dextrose saline @ 4 ml/kg/hr on day 2 or later. The baby must be referred at the earliest to a paediatric surgery facility. Any Gastroschisis cancer exposes bowel due to lack of anterior abdominal wall.



Fig. 3.10: Exomphalos major



Fig. 3.11: Gastroschisis with dusky bowel

3.10 TALIPES EQUINUS/CLUB FOOT

A child may sometimes be born with shortening of the soft tissues of the flexor aspect of the leg and medial side of the foot, so that the foot is pointing downward (equinus), and inwards (varus), while his forefoot is adducted at the tarso-metatarsal joints. This may happen in one or both feet. Such feet are called club feet. Most of them can be managed by early diagnosis and early proper manipulation.



Fig. 3.12: Older child, abnormal gait

By the time they are 6 weeks, they require Ponsetti's technique of manipulation and repeated casts by a person trained to do this. Such casts need to be revised every one to two weeks and subsequent advice after the final cast has been completed depends on the chances of the foot springing back to the original position. If these are significant the treating doctor advises braces to be worn as special shoes. Special footwear is also provided which should be worn by the baby when she starts walking. Regular follow up visits to the treating doctor and physiotherapist must be encouraged, and use of braces or strapping as advised by them must be ensured.



Fig. 3.13: Serial Ponsetti's casts



Fig. 3.14: Special shoes with splints worn after complete correction

Some children may require surgical correction which usually is done after one year age.

3.11 OBSTRUCTIVE MICTURITION IN NEWBORN PERIOD/INFANCY

The baby passes urine in a poor stream, often straining to pass few drops. There may be episodes of repeated urinary tract infection with fever, foul smelling and visibly turbid urine. The child may be thriving poorly and the abdomen may appear distended due to a partially full, thick walled bladder and often ballooned kidneys. The cause of obstruction in male babies is usually a birth defect where valves are present in the posterior urethra that obstructs the antegrade flow of urine. The baby must be referred early to a paediatric surgical facility as the kidneys get increasingly damaged with each episode of UTI.

Diagnosis is established by doing radiologic studies (Ultrasound examination and Micturating cystourethrogram) and urethroscopy. Treatment involves valve ablation using fulguration. Some babies may require temporary urinary diversion and then valve ablation. All of this requires a dedicated set up to handle these problems.

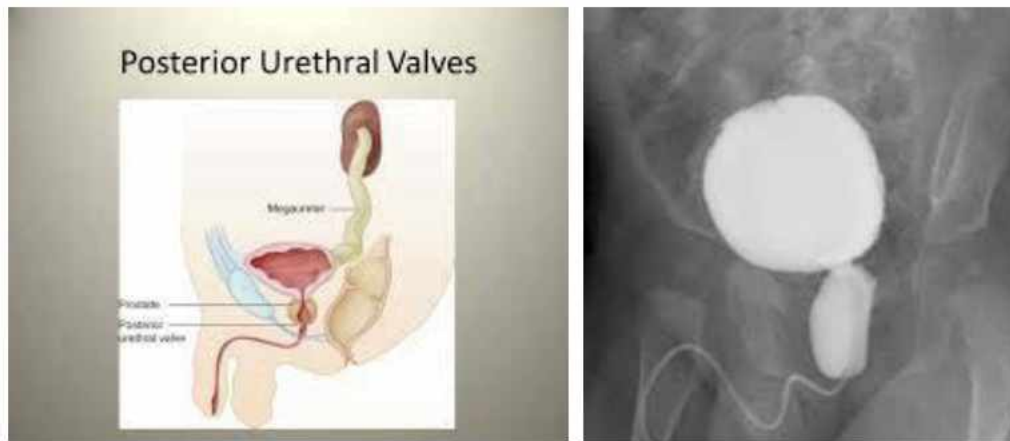


Fig. 3.15:

Hypospadias, Epispadias, Exstrophy bladder:

The position of the urethra may be abnormal due to developmental defects. When located on the ventral aspect, it is called Hypospadias. Whereas, abnormal opening on the dorsal surface of the phallus is called epispadias. In its extreme form, the entire urethra and anterior bladder wall may be incompletely closed and display on the surface of the lower abdomen. Such a defect is called an Exstrophy-epispadias complex. The ureters open on the posterior open bladder wall and keep leaking urine.

All these defects require surgical correction, often complex, and multistage. Appropriate referral is necessary.

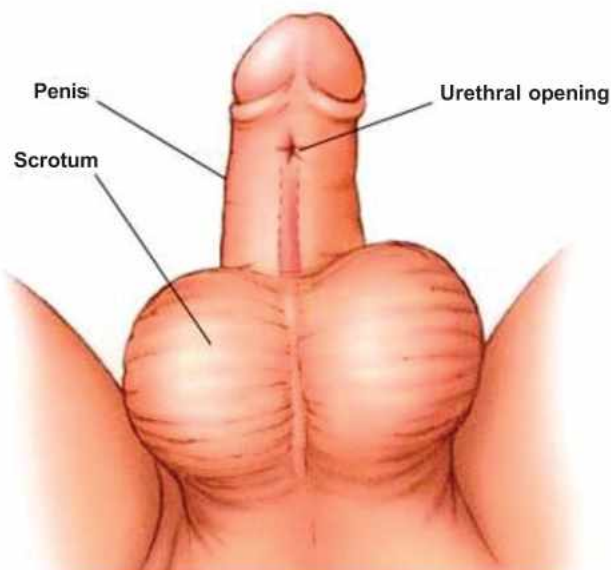


Fig. 3.16:

3.12 BLUE BABY (CYANOTIC CONGENITAL HEART DISEASE)

Congenital heart disease (CHD) refers to a defect in the structure of the heart which is present since birth. It is the most common type of birth defect. CHD can be of different types depending upon the type of defect and the symptoms vary with the type of disease. The cause of CHD is often unknown. It is often associated with maternal infections during pregnancy and genetic defects such as Down's syndrome. It is also associated with other malformations, which is called the VACTERL association.

V- Vertebral anomalies

A- Anal malformation

C- Cardiac abnormalities

T- Tracheo-esophageal fistula

E- Esophageal atresia

R- Renal anomalies

L- Limb anomalies

Symptoms of congenital heart disease may vary from none to severe, depending upon the type of birth defect. Common symptoms include:

- a) Rapid breathing
- b) Tiredness on feeding
- c) Cyanosis or bluish discolouration of the lips and nails
- d) Poor weight gain
- e) Cyanotic spells where the baby becomes deeply blue and unconscious after crying

Congenital heart defects are broadly divided into-

Acyanotic- which are not associated with cyanosis, e.g. ASD, VSD & PDA

Cyanotic- which are associated with cyanosis, e.g. TOF

The most common heart defects include:

- 1) VSD or ventricular septal defect which is a hole in the wall between the right and left ventricle.
- 2) ASD or atrial septal defect which is a hole in the wall between the two atria.
- 3) TOF or tetralogy of Fallot in which the baby appears cyanosed and may have cyanotic spells on crying.

Other heart defects include complex conditions like TGA, pulmonary atresia, tricuspid atresia etc.

Some of the heart defects are life threatening if not diagnosed and treated soon after birth whereas some may be picked when the child is much older.

A health worker should suspect presence of a heart defect if any of the above symptoms are present. On examination one may find a rapid heart rate and presence of a murmur on auscultation of the heart. Pulse oximetry

should be done. Presence of cyanosis which does not improve with oxygen suggests cyanotic heart disease. Such a child should be referred to a paediatrician for further evaluation and treatment. Newborns and infants may present with failure to thrive, poor feeding, recurrent lower respiratory tract infections and cyanosis. Auscultation over the precordium will often elicit a murmur.

Conclusive diagnosis requires a chest xray, ECG, Echocardiography and sometimes more sophisticated tests. These are available at large centres.



Fig. 3.17:

Check Your Progress 2

- 1) How would you position a one day old baby with frothing at the mouth?
.....
.....
- 2) Deficiency of which vitamin can cause spina bifida?
.....
.....
- 3) What is the head circumference of a term baby at birth, at 3 months and 12 months?
.....
.....
- 4) How would you manage a newborn delivered at your sub-centre who has her bowel loops exposed and coming out of a defect in the abdominal wall?
.....
.....
- 5) The common symptoms of congenital heart disease are____?
.....
.....

3.13 IMPORTANT POINTS TO REMEMBER

- 1) Many congenital malformations (birth defects) are obvious and can be picked up by careful observation at birth or newborn period.
- 2) Babies with Cleft palate require special care with feeding as they may require a long spoon (Pallada's) to feed them.
- 3) Imperforate anus is apparent at birth; male defects require urgent attention. Female defects most often decompress well through a fistula in the perineum or vagina.
- 4) Bilious vomiting in a newborn is often indicative of some bowel pathology. They require further investigations to rule out bowel obstruction.
- 5) A newborn who is frothing saliva from the mouth is likely to have esophageal atresia. Failure to pass a stiff red rubber catheter 7–8 cm beyond the lips from the mouth almost confirms the diagnosis.
- 6) Meningo-myelocoele is a serious birth defect caused by nutritional deficiency of folic acid.
- 7) Hydrocephalus manifests as large head in newborn and infancy. Head circumference must be measured when suspected.
- 8) Exomphalos major babies are likely to lose heat rapidly and become hypothermic due to the large exposed viscera.
- 9) CTEV or Club foot is easily correctible by early manipulation and later casts (Ponsetti's technique).
- 10) Poor urine stream, straining at micturition and frequent episodes of turbid urine with fever in a male baby, point towards obstructed urethra often due to Posterior Urethral Valves.
- 11) Early surgery for Bladder Exstrophy newborns makes the procedure simpler and helps improve outcomes.
- 12) Congenital heart disease may manifest with cyanosis in newborns or later as failure to thrive, recurrent lower respiratory tract infections.

3.14 LET US SUM UP

In this unit we have focused congenital malformations such as cleft lip, cleft palate, anorectal malformations or imperforate anus, congenital intestinal obstruction, esophageal atresia tracheo-esophageal fistula, meningocele and meningomyelocoele, hydrocephalus, exomphalos major and minor, gastroschisis, talipes equinus or club foot, obstructive micturition in newborn period or infancy and blue baby.

3.15 MODEL ANSWERS

Check Your Progress 1

- 1) Cleft lip at 3 months and palate at 18 months.
- 2) It indicates a Recto-urethral fistula.
- 3) Consider Neonatal Intestinal Obstruction. Start IV fluids (Kidrolyte @ 4ml/kg/hr), pass a nasogastric tube and aspirate, keep the baby warm and transfer securely to a higher facility with possibility of surgical intervention.

- 1) Suspect Esophageal atresia. Position 30 degrees head up in supine position.
- 2) Folic acid.
- 3) It is 35 cm, 40 cm and 45 cm respectively.
- 4) How would you manage a newborn delivered at your sub-centre who has her bowel loops exposed and coming out of a defect in the abdominal wall?

A. Suspect Gastroschisis. Clean the loops gently with sterile saline, apply paraffin gauze and wrap the bowel in sterile dressing material. Keep the baby warm, start IV 10% Dextrose @ 3 ml/kg/hr and transfer to a higher facility.

- 5)
 - a) Rapid breathing
 - b) Tiredness on feeding
 - c) Cyanosis or bluish discolouration of the lips and nails
 - d) Poor weight gain
 - e) Cyanotic spells where the baby becomes deeply blue and unconscious after crying

UNIT 4 SCREENING FOR COMMON CANCERS

Structure

- 4.0 Introduction
- 4.1 Objectives
- 4.2 Global and National Scenario
- 4.3 Diagnosis and Treatment
 - 4.3.1 Diagnostic Methods
 - 4.3.2 Staging of Cancer
 - 4.3.3 Principles of Treatment
- 4.4 Common Cancers
 - 4.4.1 Cancer of the Oral Cavity
 - 4.4.2 Cancer of the Uterine Cervix
 - 4.4.3 Cancer of the Breast
- 4.5 Prevention of Cancer
 - 4.5.1 Primary Prevention
 - 4.5.2 Vaccination
 - 4.5.3 Approaches in Cancer Control
- 4.6 Issues that Need to be Kept in Mind for all Cancers
 - 4.6.1 Key Messages
 - 4.6.2 Role of Health Professionals in Cancer Prevention and Control
- 4.7 Let Us Sum Up
- 4.8 Model Answers
- 4.9 References

4.0 INTRODUCTION

In the previous unit, you learnt about congenital malformations.

Cancer is a group of diseases characterised by uncontrolled cell multiplication which can occur in any living tissue in any site in the human body. Cancer develops in several phases depending on the type of tissue affected.

Incidence of cancer is the most reliable indicator of occurrence of cancer and is generated from population based cancer registries (PBCRs). Prevalence (number of persons living with the disease at any given time) of cancer can be estimated using the information on cancer incidence and survival.

In this unit, we shall discuss global and Indian scenario of common cancers, warning signs, diagnosis and treatment, stages of cancers, approaches in cancer prevention and control in details.

4.1 OBJECTIVES

After going through this unit, you shall be able to:

- enhance knowledge about common cancers;
- recapitulate high risk factors for occurrence of cancers;

- participate in screening for common cancers;
- educate community regarding preventive measures;
- identify common risk factors using skills necessary for early detection of oral; cervical and breast cancer; and
- provide services possible for cancer detection and prevention.

4.2 GLOBAL AND NATIONAL SCENARIO

Global scenario: I

As of 2022, over 20 million new cancer cases were diagnosed worldwide, with approximately 9.7 million deaths. Nearly half of these new cases and a majority of the deaths occurred in Asia, highlighting the disproportionate burden on developing regions. The World Health Organization projects that by 2030, the global cancer burden will rise to 22 million new cases and 13 million deaths annually, with about 70% of these cases occurring in low- and middle-income countries, which often have limited access to healthcare resources

National scenario: In the year 2012-10.15 lakh new cases were reported from our country and approximately 6.8 lakh people died of cancer in the same year.

In India, cancer incidence has seen a significant increase over the past decade. According to the Indian Council of Medical Research (ICMR), the number of new cancer cases rose from approximately 1.01 million in 2012 to 1.38 million in 2022, marking a 36% increase. Similarly, cancer-related deaths increased by 30.3% during the same period, from 0.68 million to 0.89 million. Projections indicate that by 2025, the number of new cancer cases in India could reach 1.57 million annually.

4.3 DIAGNOSIS AND TREATMENT

Let us now learn about various methods of diagnosis different cancers in details as given below:

4.3.1 Diagnostic Methods

The diagnostic procedures in oncology are for diagnosis, determining the extent of the disease, deciding the treatment options available and evaluating the patient during follow-up. Clinical evaluation is the first and the most important step in the diagnosis of malignancy. It requires the health professional to be alert to the early warning signals. A thorough history and clinical examination of any suspicious symptom or sign is mandatory. Clinical suspicion of malignancy can be confirmed by various diagnostic methods described below:

i) **Radiological Evaluation:** Various imaging methods are:

- X ray
- Fluoroscopy
- Mammography
- Ultrasound
- C.T.Scan
- Magnetic Resonance Imaging (MRI)

- Positron Emission Tomography (PET)
- Radio nuclide scan and Radioactivity uptake studies e.g. Thyroid, Bone

ii) **Biochemical Evaluation**

This is generally done to know the organ functions, like liver function tests, and renal function tests.

iii) **Endoscopy**

- Detect the site of primary cancer
- Evaluate the extent of lesion
- Perform biopsy
- Perform certain therapies like end prosthesis for esophageal stenosis, laser therapy, etc.

iv) **Pathological Evaluation**

Pathological evaluation is an important method for confirmation of clinical diagnosis and includes:

- **Haematological Examination:** Examination of peripheral blood smear and bone marrow.
- **Cytological Examination:**
 - **Exfoliate cytology:** Examination of exfoliated cells; e.g. female genital tract,
 - oral cavity, urinary tract (urine examination), gastrointestinal lesions (gastric lavage) etc.
 - **Fine Needle Aspiration Cytology (FNAC):** To obtain material from organs that do not shed cells spontaneously. Example: Breast, Thyroid, etc.
 - **Aspiration of body fluids:** To rule out or confirm malignant effusions. Example: pleural fluid, peritoneal fluid.
- **Biopsy:** A small chunk of tissue is removed from the suspicious site and subjected to histopathological examination. It may be:
 - Excisional biopsy in small tumours
 - Incisional / Punch biopsy in skin and mucosal lesions Cone biopsy in uterine cervix
 - Needle biopsy in bone marrow, solid tumours of abdomen and pelvic organs.

v) **Immunological Evaluation**

Some cancers release biologic or biochemical substances, in the form of hormones, enzymes and antigens, into the circulation. The measurement of these substances in blood can be useful in the detection and diagnosis of some types of cancers. Such chemicals are called tumour markers.

4.3.2 Staging of Cancer

Staging is used to assess the extent of the spread of the disease in the body. It is an indication of prognosis, and is used as a guide to determine the type and extent of treatment required.

TNM classification- The TNM classification for tumours has been adopted by the International Union against Cancer, and has been extended for many sites of cancer. This is a detailed clinical staging which is arrived at by the clinician by ascertaining the extent of the primary tumour (**T**), lymph node involvement (**N**), and presence of metastases (**M**). The information so obtained is scored. The details of scoring are specific to each type of cancer. This may be denoted as:

- T: Tumor
- N: Node (Lymph)
- M: Metastasis

4.3.3 Principles of Treatment

The primary goals of cancer treatment are:

- cure ideally,
- prolongation of useful life if possible, and
- improvement in quality of life always.

The principal methods of treatment are surgery, radiotherapy, and chemotherapy (including hormonal manipulation). Each of these modalities has a well-established role, and can be used for cure or for palliation (Palliative Care). Appropriate combination and sequencing of these modalities can be adopted for specific cancers. Let us now go through these treatment modalities in details as given below:

i) Surgery

Surgery plays an important role in the diagnosis, staging and treatment of localised cancers.

Indications for Surgery are:

- Removal of tumour masses.
- In early stage solid tumours, surgery that encompasses a sufficient margin of normal tissue is curative. Such as early stage cancers of the breast, oral cavity, uterine cervix, colon, prostate and the skin.
- Post chemotherapy or radiotherapy to provide local cancer control and better chances for adjuvant therapy.
- In certain solid tumours, surgery is critical for reducing bulk (cytoreduction).
- Apart from treatment, surgery for reconstruction and rehabilitation can improve function.
- Cosmetic appearance.
- Enhance quality of life for patients.

Surgery requires the support of other specialties including anaesthesiology, blood transfusion services, pathology (especially oncopathology) and critical care nursing.

ii) **Radiotherapy**

Radiotherapy is one of the most important methods of curing local cancer. Radiotherapy is the method of treating diseases with “ionising radiation”. The ionising radiation causes damage to certain vital structures within the cells. The cells are either damaged or are rendered incapable of further multiplication. These damaging effects on normal cells are less and reversible whereas the damage in the abnormal cell is irreversible. It is also often administered before or after surgery.

Palliative radiotherapy is of value in cases of pain secondary to bone metastasis and tumours causing bleeding or compressive syndromes.

Radiotherapy can cause various side effects. Patients may notice loss of appetite, nausea, and occasionally vomiting persisting for a week. The symptoms are mild in nature and seen in about 10% of patients, and are easily controlled by medicines. Other side effects depend on the site irradiated and can include mucositis and bone marrow depression.

iii) **Chemotherapy**

Chemotherapy is the use of cytotoxic drugs against cancer. Cancer cells are damaged to the extent that they cannot survive. Normal cells are also damaged but to a lesser degree. Chemotherapy is curative in certain cancers e.g. Hodgkin disease, high-grade non-Hodgkin lymphomas; palliative in many cancers, and used as adjuvant therapy for some cancers including breast cancer, ovarian cancer and colorectal cancer.

The goal of adjuvant therapy is to avoid metastases, prolong life and improve quality of life.

Acute side effects of chemotherapy are usually self-limited and reversible. Fall in blood count, hair loss, nausea; vomiting, constipation, diarrhoea, anaemia, and depression of the immune system are some of the side-effects. There may be drug specific side effects like cardiotoxicity, nephrotoxicity, neurotoxicity.

iv) **Palliative care**

Palliative care is an approach that improves the quality of life of patients and their families facing a life-threatening illness. This is done through prevention and relief of suffering by means of early identification, accurate assessment and treatment of pain and physical, psychosocial and spiritual problems. Palliative care involves a multidisciplinary team approach.

Check Your Progress 1

1) Explain TNM classification for tumors.

.....

.....

.....

2) List the indications for surgery of cancer.

.....

.....

.....

3) Discuss palliative care of treatment.

.....

.....

.....

4.4 COMMON CANCERS

After going through various diagnostic methods, let us now learn about common cancers, risk factors early detection and management.

4.4.1 Cancer of the Oral Cavity

Oral cancer is one of the ten most common cancers in the world. In India, oral cancer, including cancers of the lip, tongue, gum and floor of mouth, is one the most common cancers. Oral cancer is both preventable and curable. There is usually a long natural history and most cases of oral cancer arise from pre-cancerous lesions. Therefore there is ample opportunity for intervention before actual malignancy develops. Also oral cancer responds well to surgery and radiation if detected early.

Risk factors: Risk factors for oral cancers are as given below:

- Tobacco chewing is the single most important risk factor,
- Alcohol use,
- Betel nut chewing,
- Chronic trauma to oral mucosa by sharp tooth or ill-fitting dentures,
- Chronic exposure to these risk factors causes changes in the oral mucosa are visible as pre-cancerous lesions. Over time, malignancy may develop in these lesions.

Pre-cancerous lesions

Pre-cancerous lesions or conditions are local or generalised disturbances that predispose to malignancy in a particular site. Leucoplakia, erythroplakia, palatal changes associated with reverse smoking or beedi smoking and sub mucous fibrosis are local pre-cancerous lesions.



Fig. 4.1: Leucoplakia

Leucoplakia is a white patch Fig. 4.1 shows leucoplakia involving dorsum and right lateral border of tongue in the oral cavity. Diagnosis is confirmed by biopsy.

Erythroplakia is a bright, velvety area sometimes surrounded by faint plaques. About 90% of these lesions show cellular dysplasia or malignancy. The risk of malignancy in erythroplakia is higher than in leucoplakia. (Fig. 4.2).



Fig. 4.2: Erythroplakia

The most common cancer seen in the oral cavity is **squamous cell carcinoma**. It presents as a painless ulcer, mass or fissure. As the disease advances, patient may have excessive salivation, trismus, and difficulty in chewing, swallowing or cervical lymphadenopathy. Distant metastases are uncommon in oral cancers.

Early detection for oral cancers: This is important for detecting oral lesions at an early stage.

Examination of oral cavity: Fig. 4.3 illustrates the various steps for examination of Oral Cavity.

You as health care provider should utilise every opportunity to examine the oral cavities of tobacco users. All parts of the oral cavity should be examined; oral cavity includes lip, anterior 2/3 of tongue, floor of mouth, buccal mucosa, gingival mucosa, hard palate and retro molar trigone as shown in Fig. 4.3 .



Fig. 4.3: Examination of oral cavity

Management of Oral Cancer: Management may be through surgery, radiotherapy, chemotherapy, or a combination of modalities.

Fig. 4.4 presents a flow chart of management of any person with a suspicious oral lesion.



Fig. 4.4: Flow chart for management of patient with an oral lesion

4.4.2 Cancer of the Uterine Cervix

Cervical cancer is the third most common cancer among women in the world and the leading cause of death from cancer among women in developing countries. In India more than 100,000 new cases of cervical cancer occur each year and nearly 75,000 women die annually from this disease.

Human Papilloma Virus (HPV) infection, which is a sexually transmitted infection, is the primary cause of this cancer. HPV prevalence increases with multiple sexual partners for both spouse, and poor genital hygiene of both partners.

Symptoms of cancer of the uterine cervix:

In the early stages, there will be no symptoms. By the time symptoms appear, disease may have already spread. Common symptoms are:

- Post-menopausal bleeding
- Post-coital bleeding
- Intermenstrual bleeding
- Blood stained discharge per vaginum
- Excessive seropurulent discharge
- Backache
- Lower abdominal pain

Screening for Cervical Cancer:

Screening for cervical cancer can be considered in women aged 30 to 59 years, as the chances of detecting pre-cancerous lesions are maximum in this age group. Regular population based Screening using Pap Smear cytology is internationally accepted screening method for cervical cancer. In low resource setting, Visual Inspection with Acetic Acid is a useful alternative to categorise women as “high risk” and “low risk”.

1) Pap smear

The ectocervix and the endocervix are scraped to collect cells that are spread on a glass slide, stained in the laboratory and examined under microscope. Depending on the features of the cells seen under microscope the cytopathologist (or a trained technologist) can report the smear as ‘negative’ (normal) or ‘positive’ (abnormalities suspicious of low grade or high grade CIN) . Most abnormal Pap tests are caused by viral infections, such as human papilloma virus (HPV) infection, or other types of infection, such as those caused by bacteria, fungi (yeast), or protozoa (*Trichomonas*). Natural cervical cell changes (atrophic vaginitis) related to menopause can also cause an abnormal Pap test. In some cases, untreated cervical cell changes that cause abnormal Pap tests may progress to precancerous or cancerous changes (Fig. 4.5).

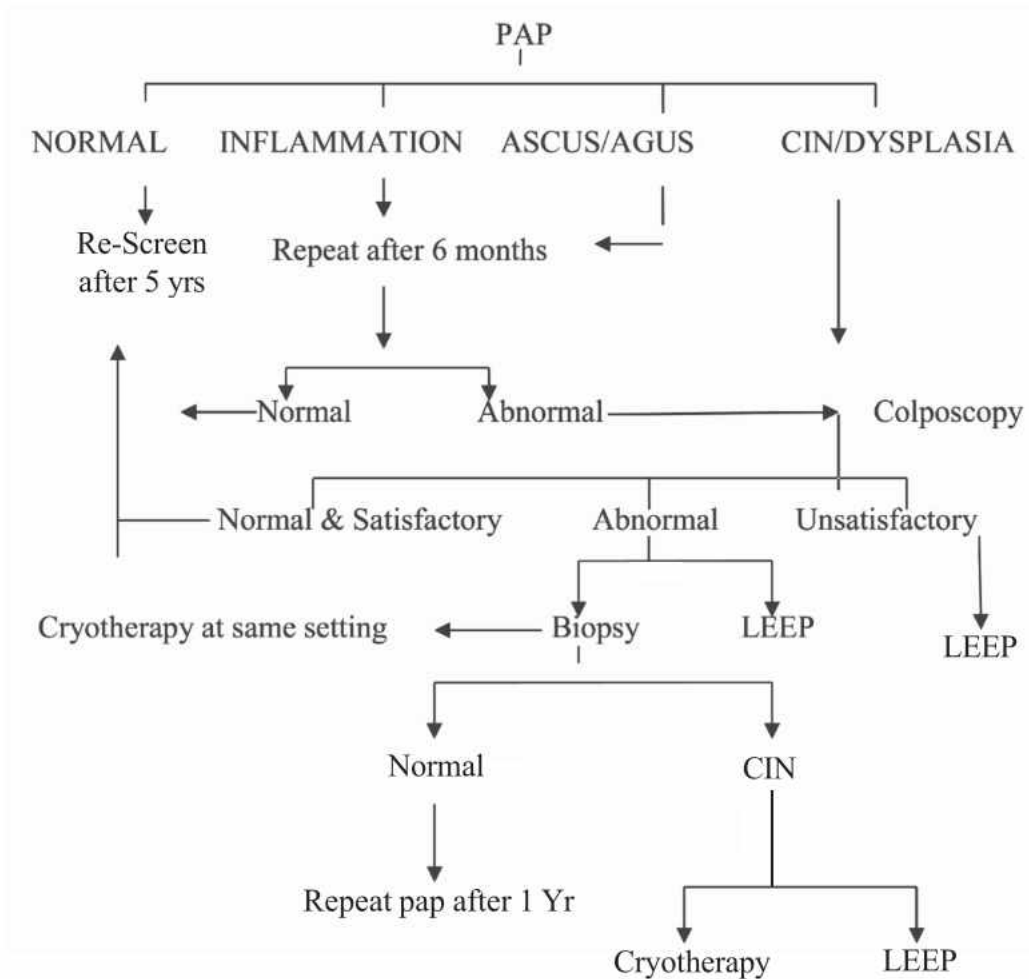


Fig. 4.5: Pap smear screening and follow-up

CIN: Cervical Intraepithelial neoplasia

LEEP: Loop Electrosurgical Excisional Procedure

2) Visual Inspection using 4% Acetic acid (VIA)

Acetic acid causes dehydration of the cells and some surface coagulation of proteins thereby reducing the transparency of the epithelium. These changes are more prominent in abnormal epithelium and can be easily distinguished on naked eye inspection as aceto whitening.

Table 4.1 gives the detailed criteria for categorising VIA test results as negative or positive or invasive cancer.

Article Required for the procedure:

- Examination gloves
- Speculum (Cusco's self-retaining type preferred)
- Cotton tipped swabs
- Freshly prepared 5% acetic acid (to be produced atleast once a week by diluting 5 ml of glacial acetic acid with 95 ml of distilled water)
- Focusing light (with halogen bulb preferred)

Procedure: Let us now learn the procedure

- Explain the procedure to the woman.
- Tell woman to lie down on her back with legs folded (lithotomy position not required).

- Insert the speculum gently and expose the cervix.
- Note any abnormal discharge, bleeding or growth in the cervix.
- Apply adequate amount of acetic acid to the cervix using the cotton swabs.
- Wait for 1 minute to note the changes.
- Identify the squamo-columnar junction (SCJ) as the line joining the pink smooth squamous epithelium with the red velvet like columnar epithelium

Results

- Look for white patches. Fig. 4.6 showing normal cervix and 4.7 white lesions.
- If there are no white patches in the ectocervix the test is **negative**
- All the aceto-white patches are not considered **positive**
- If there is a white patch, its density, margin and the relationship to the SCJ should be noted.



Fig. 4.6: Normal cervix



Fig. 4.7: Aceto white lesion on VIA

Table 4.1: Visual inspection with criteria for categorising VIA test results as negative or positive or invasive cancer

VIA category	Description
Negative	- No aceto-white lesions - Transparent lesions or faint patchy lesions without definite margins - Nabothian cysts becoming aceto-white - Faint line like aceto-whitening at the junction of columnar and squamous epithelium - Aceto-white lesions far away from the transformation zone
Positive	- Distinct, opaque aceto-white area - Margin should be well defined, may or may not be raised - Abnormality close to the squamocolumnar junction in the transformation zone and not far away from the os
Invasive Cancer	Obvious growth or ulcer in the cervix. Acetowhite area may not be visible because of bleeding

Management of women with abnormal tests

- All cases of suspicious smears or visual inspections should be subjected to colposcopy for better visualisation.
- Biopsy, either by endocervical curettage or cervical cone biopsy should be done in all suspicious cases on colposcopy.
- For such investigations, women should be promptly referred to the nearest centre performing these investigations.

Fig. 4.8 depicts the sequential management of women with abnormal test results on Pap and VIA.

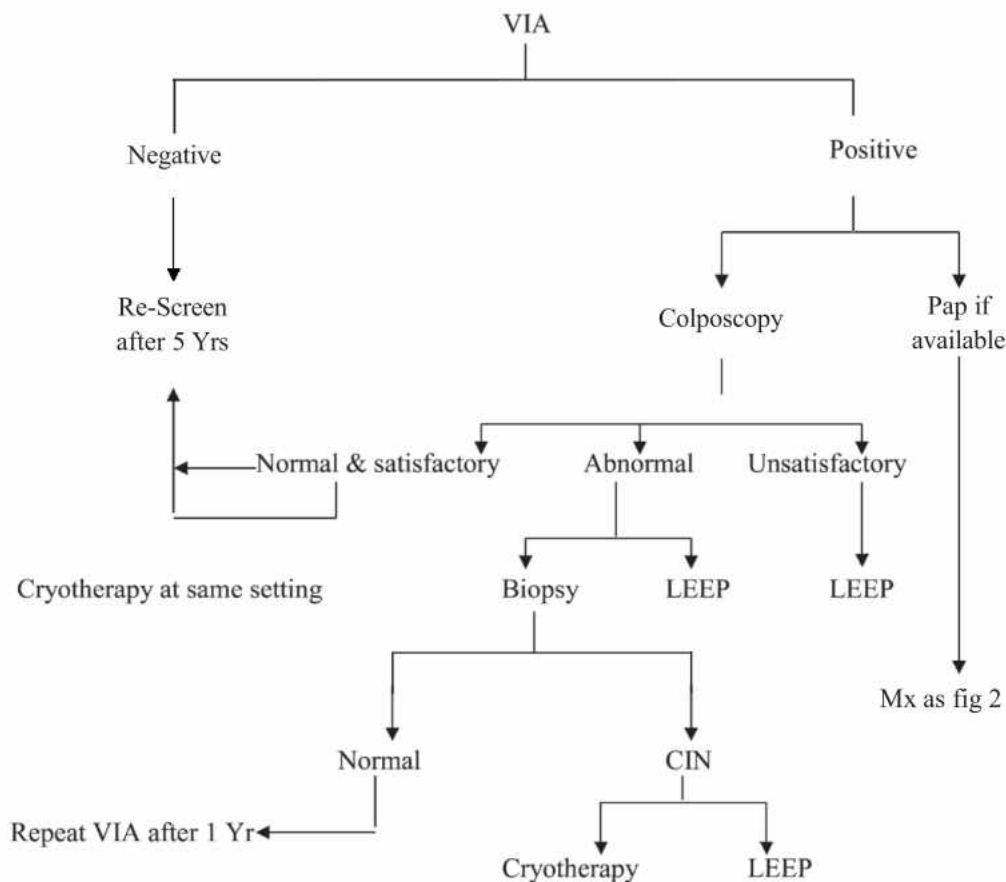


Fig. 4.8: Sequential management with abnormal test results on VIA

CIN: Cervical Intraepithelial neoplasia

LEEP: Loop Electrosurgical Excisional Procedure

4.4.3 Cancer of the Breast

Breast cancer is the commonest cancer among women all over the world. In India, it is the second most common cancer among women after cancer of the uterine cervix and is emerging as the commonest cancer in urban centres. Data from Hospital Based Cancer Registry (HBCR) show that only about 15% of patients present in localised stage. Regional Lymph nodes are involved in around 75% at the time of presentation and about 10% have distant metastases at the time of presentation.

Risk factors

Some of the risk factors for breast cancer are as follows :

Reproductive and hormonal factors: The older a woman is when she has her first child, the greater her chance of having breast cancer. Women who begin menstruation early (before age 12), have menopause late (after age 55) or never had children are also at greater risk.

Women who take menopausal hormone therapy (oestrogen and progesterone) for five years or more after menopause also appear to have an increased risk.

Family History: Risk of cancer increases in women with a first-degree relative with bilateral breast disease.

Other factors: Being obese after menopause.

Physical inactivity: Women who are physically inactive throughout life.

Alcohol intake: Some studies suggest that the risk of breast cancer increases with increased intake of alcoholic beverages.

Prompt diagnosis of breast cancer in the early stage is very important. This is possible by increasing the level of awareness among women and health care professionals. The following methods may be used for early detection.

- i) **Breast awareness and breast self-examination (BSE):** The first person to detect any lump in the breast is the woman herself. For this, it is essential that every woman be aware of the size, shape and consistency of her breasts, and know when there is an abnormal change in any of these.

Every woman should be aware of the following signs as given below:

- A change in size
- A nipple that is pulled in or changed in position or shape
- A rash on or around the nipple
- Discharge from one or both nipples
- Puckering or dimpling of skin
- Lump or thickening in the breast
- Constant pain in the breast or armpit

In case a woman notices any such change, she should promptly visit the health centre or a health professional.

Breast Self-Exam (BSE) Best time to do:

- Once a month.

- 10 days after your menstrual period.
- If not menstruating, pick a certain day-such as the first day of each month.
- If taking hormones then do it 1–2 days after withdrawal bleeding.

Five Steps of Breast Self-Exam (BSE):

Step 1: Stand in front of the mirror with your shoulders straight and your arms on your hips and look at your breasts (Breast awareness) and look (Fig. 4.9):

- at their usual size, shape, and colour
- that they are evenly shaped without visible distortion or swelling



Fig. 4.9 : Standing in front of mirror

Consult doctor if there is :

- Dimpling, puckering, or bulging of the skin
- changed position or an inverted nipple (pushed inward instead of sticking out)
- redness, rash, or swelling of the breasts.

Step 2:

- Now, raise your arms and look for the same changes
- Look for any dimpling of Skin or in-drawing nipple.



Fig. 4.10 : Raising arms and looking for changes

Step 3:

- While you are at the mirror, gently squeeze each nipple between your finger and thumb
- Consult doctor if nipple discharge is milky or yellow fluid or blood.



Fig. 4.11: Squeezing nipple between finger and thumb

Step 4:

- Lie down and use your right hand to feel your left breast and then your left hand to feel your right breast.
- Use a firm, smooth touch with the first few fingers of your hand, keeping the fingers flat and together.
- Cover the entire breast from top to bottom, side to side—from your collarbone to the top of your abdomen, and from your armpit to your cleavage.
- Be sure to feel all the breast tissue.
- Follow a pattern (Fig.4.13) to be sure that you cover the whole breast. Begin at the nipple, moving in larger and larger circles until you reach the outer edge of the breast. Also move your fingers up and down vertically, in rows. Begin examining each area just beneath your skin with a very soft touch, and then increase pressure so that you can feel the deeper tissue, down to your ribcage using fingers only (Fig.4.14).



Fig. 4.12 : Feeling breast with hands

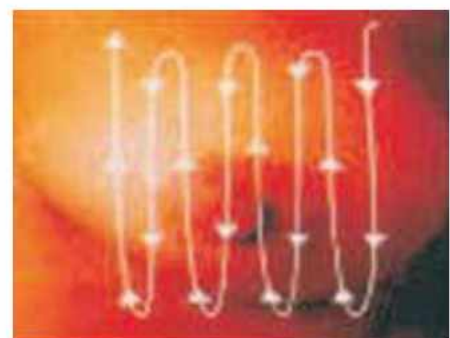


Fig. 4.13: Pattern for BSE



Fig. 4.14

Step 5:

- Feel your breasts while you are standing or sitting.
- It is easier to feel the breasts when their skin is wet and slippery (like while taking bath).
- Cover your entire breast, using the same hand movements described in Step 4.



Fig. 4.15 : Feeling breast while standing

- ii) **Clinical Breast Examination (CBE):** This is to be performed by a physician, trained nurse or a health worker. It is recommended that women may be examined for any lump in the breast when they have come for other reasons.
- iii) **Mammography:** This is an X-ray image of the breast taken with low dose radiation. Two films per breast are taken. This investigation is good for picking up micro calcifications. Mammography is advised once at the age of 40 years to establish the baseline and then every 3 years.
- iv) **Ultrasonography:** For women less than 40 years of age when indicated ultrasound of the breast is usually done as their breasts are dense and mammography is not advisable for them.

Management of breast cancer

Breast cancer is managed by surgery, radiotherapy, chemotherapy (including hormone therapy), or a combination of the three.

Check Your Progress 2

- 1) List the risk factors for Oral Cancers.

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- 2) Explain the early symptoms for early detection of Oral Cancers.

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3) Enumerate common symptoms for cervical cancer.

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4.5 PREVENTION OF CANCER

Being an extremely prevalent and lethal disease, it is essential to study the prevention, control and care of clients with Cancer. Hence, let us discuss the approaches and care of patients at Sub-centre with diagnosis of cancer.

4.5.1 Primary Prevention

Primary Prevention aims to reduce the incidence of disease by risk factor modification. A risk factor for a disease is an attribute or exposure that increases the probability of getting the disease. As exogenous risk factors including personal habits play a major role in the aetiology of cancer, modifying risk factor exposure may prevent many cancers. Among the activities for prevention, emphasis should be placed on:

- Identify acut
- Tobacco control
- Health education relating to sexual and reproductive factors associated with cancer
- Avoiding alcohol use
- Healthy diet
- Physical activity and avoidance of obesity

4.5.2 Vaccination

The health ministry wants to introduce human papilloma virus (HPV) vaccine in the universal immunisation programme at the earliest. The virus is believed to be responsible for most cervical cancer cases — more than 80 per cent, according to some estimates. The government wants to introduce the HPV vaccine, atleast on a pilot basis, as soon as possible. Three doses of the cervical cancer vaccine — two varieties are currently available in India — are essential for immunity to HPV. HPV vaccination programme has been launched in Delhi on 1st March 2016. The HPV vaccination programme will target girls between the age of 9 and 13 next year. In the current year Delhi government is focused on vaccinating girls Class VI girl students. India has a population of 436.76 million women aged 15 years and older who are at the risk of developing cervical cancer, as per HPV, India Report.

4.5.3 Approaches in Cancer Control

The various approaches in Cancer control include the following:

- Tobacco control/ cessation/ alcohol control

- Early detection Oral/Breast/Cervix –Propagation of awareness and self-examination
- Opportunistic examination
- Diagnostic support
- Diagnosis and treatment
- Proper Infrastructure
- Referral practices
- Palliative care– Oral morphine availability for advanced cancers
- Human resource development
- Community participation

Let us discuss these in detail.

a) **Tobacco control**

Tobacco is the single most important modifiable risk factor for cancer. Of all cancers in India, 34% are due to tobacco (48% of cancers in men and 20% of cancers in women). Tobacco smoke contains approximately 4000 chemicals of which atleast 438 can cause cancer. Tobacco smoking causes cancer of the lung, larynx and oesophagus. Smoking is also associated with cancers of the pancreas, bladder, and pelvis of the kidneys, ureter and squamous cell carcinoma of the uterine cervix. Tobacco chewing is the most important risk factor for cancer of the oral cavity. Inhalation of secondary smoke, known as “passive smoking” is a unique feature of smoking. It results in increased risk of cancers among non-smokers exposed to tobacco smoke.

b) **Alcohol**

Increasing alcohol consumption is associated with cancers of the mouth, pharynx (excluding nasopharynx), larynx, oesophagus and liver. The risk relationship between cancer and alcohol is nearly a linear relationship with the risk increasing with increasing amount of alcohol consumed. Co-existence of tobacco habits can have a multiplicative effect on development of cancer.

Control of alcohol requires actions similar to those for tobacco control. The actions should be targeted towards individual and community and include taxation, general public education, encouraging highly vulnerable groups like young people to avoid starting consumption etc.

c) **Sexual and Reproductive Factors**

Sexual and reproductive factors are associated with cancer of the uterine cervix and breast.

Sexual behaviour factors, like young age at first sexual activity, multiple sexual partners and poor sexual hygiene, are associated with cancer of the uterine cervix. Human Papilloma Virus (HPV) has now been identified as the etiological agent responsible for cervical cancer. HPV prevalence increases with high risk sexual behaviour and poor sexual hygiene.

Late age at marriage, null parity, and late menopause have been linked to breast cancer, but the underlying mechanism is probably uninterrupted exposure to oestrogen for prolonged periods in all these cases.

Education regarding sexual hygiene and safe sexual behaviour may be provided for prevention of cancer cervix. Safe sexual behaviour protects

women from the risk of cervical cancer by preventing infection with HPV. Breast cancer is not preventable to any large extent. Early detection of breast cancer is the main strategy for improving survival in breast cancer.

d) **Diet**

Diets rich in animal fats, especially red meats, increase the risk for cancer. Diets high in fresh vegetables and fruits, and fibre reduce risk for cancer.

Certain basic measures may help in reducing risk of cancer:

- Avoid being underweight or overweight
- Engage in regular physical activity
- Consumption of alcohol is not recommended
- Limit consumption of salted foods
- Choose predominantly plant based diets rich in fruits and vegetables

e) **Occupation**

Occupational cancers constitute 5–10% of all cancers. Increased risk of lung cancer has been seen in workers engaged in manufacture of rubber tyres in developing countries, textile workers, ship and dockyard workers and wood workers. Higher risk of bladder cancer was seen in workers of chemical and pharmaceutical plants. Limiting exposure to potentially carcinogenic substances through protective gear, frequent rotation of workers, mechanised handling of such chemicals and similar mechanisms may help reduce cancers from occupational exposures.

f) **Infection**

Infections with various agents are implicated in the aetiology of certain cancers. Control of cancers caused by or associated with infections depends upon success in combating the infection concerned. Measures include eliminating reservoirs and source of infection, preventing transmission, increasing host immunity through vaccination, and effective treatment of those infected.

g) **Early Detection**

Early detection of cancer is the detection of disease at a stage in its natural history where the chance of cure is high. Early detection is only part of a wider strategy that includes diagnosis, treatment and follow-up.

Many cancers that are potentially curable at early stages are detected only in advanced stages.

Diagnosis of such cancers at a stage where treatment is effective could have a major impact on the disease outcome. Certain symptoms and signs may be early indicators of some cancers called warning signals for Cancer as under:

- Change in bowel or bladder habits
- A wound that does not heal
- Unusual Bleeding or discharge
- Thickening or Lump in the breast or elsewhere
- Indigestion or difficulty in swallowing
- Obvious change in a wart or mole
- Naging cough or hoarseness of voice

All people should be aware of these warning signs. The presence of any of these features do not mean a definitive diagnosis of cancer. Such changes may occur in other benign conditions also. However, any such sign not responding to appropriate treatment warrants immediate medical attention and prompt management.

It is also important to train people to detect cancers in the early stage with self-examination of the oral cavity and breast.

h) **Screening**

Screening is the presumptive identification of unrecognised disease or defects by means of tests, examination or other procedures that can be applied rapidly. Screening is based on the concept that there is a detectable pre-clinical phase of the disease being screened, and detection at this stage markedly alters disease prognosis. The success of screening depends on having sufficient numbers of trained personnel to perform the screening tests with adequate coverage of target populations, and on the availability of facilities that can undertake subsequent diagnosis, treatment and follow-up.

Remember:

Screening is recommended for cancers of uterine cervix and breast, only if resources permit.

Cervical smear cytology is the standard screening test for cervical cancer. It is an easy and effective method revealing the presence of pre-cancerous lesions as well as in situ or very early invasive cancer. Screening should preferably begin at 35 years of age. The important requirement for cervical cytology is the availability of good laboratory services so that accurate diagnosis is possible. Cervical cancer can be effectively managed if detected on time as there is a gap between when early normal cells begin to show some changes and by the time it becomes cancer and spreads outside cervix.

4.6 ISSUES THAT NEED TO BE KEPT IN MIND FOR ALL CANCERS

- Prompt referral of patients with any suspicion of cancer for appropriate management
- Compliance of the patient with medical advice
- Provision of psychosocial services for the patient, and the family
- Rehabilitation: Physical, psychological and social rehabilitation so that the affected individual is able to take care of self, be emotionally stable, and be able to work and socialise, to the extent possible.

4.6.1 Key Messages

Primary prevention

- Avoid use of tobacco in any form
- Avoid alcohol
- Promote physical activity

- Eat plenty of fruits and vegetables
- Practise Safe sexual behaviour

Early detection of cancers

- Breast awareness
- Awareness in community regarding early warning signs of common cancers (Oral/Breast/Cervix)
- Opportunistic check-up for oral, breast and cervical cancer
- Prompt referral and appropriate management
- Prompt referral of any suspicious case is the most important step towards cure.

Diagnostic methods

- Clinical history and examination – first and most important
- Radiological examination
- Pathological examination
- Diagnostic procedures help us to know:
The type of cancer
The extent (staging) of cancer Treatment options and prognosis
Follow-up evaluation

4.6.2 Role of Health Professionals in Cancer Prevention and Control

Health professionals have the following roles to play for prevention and control of Cancer.

Prevention of cancers

- Create awareness about the ills of tobacco and advocate avoidance
- Encourage and assist habitual tobacco users to quit the habit
- Promote healthy dietary practices and physical activity

Early detection of cancers

- Create awareness about the early warning signs of cancer
- Encourage breast awareness
- Encourage oral self-examination
- Create awareness about symptoms of cervical cancer
- Examine, as a routine, the oral cavity of patients with history of tobacco use
- Offer clinical breast examination to any woman over 35 years presenting to the health centre
- If facilities exist, perform a Pap smear test for every woman at least once in her lifetime, between 35 and 40 years of age
- Promptly refer any person with a suspicious lesion for accurate diagnosis and appropriate treatment

Treatment of cancers

- Ensure that every patient complies with therapy advised
- If follow up care is required at the health centre level, make sure that detailed instructions are provided by the treating institution

Palliative care

- Ensure that the patient is free from pain as far as possible. refer to the appropriate centre for oral morphine
- Achieve control of unwanted symptoms to the extent possible
- Provide psychological support to the patient to accept the diagnosis and treatment
- Involve the family in diagnosis, treatment and care as far as possible

Check Your Progress 3

1) Enumerate strategies for primary prevention of Cancer?

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2) What are the common approaches in cancer control?

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3) What are the warning signs of Cancer? Warning signals for Cancer.

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4) What are the modalities for early detection of breast related issues?

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4.7 LET US SUM UP

In summary, primary prevention, early detection, prompt diagnosis and appropriate treatment, and palliative care are the main strategies for cancer control. Tobacco-related cancers like cancers of the lungs, pharynx, and oral cavity are highly amenable to primary prevention. Early detection and treatment is possible for cancers of the oral cavity, uterine cervix, and breast. Palliative care is a key intervention for all types of cancers. Cancers of the oral cavity, uterine cervix, and breast are discussed in detail subsequently in view of the opportunity they offer for early detection and treatment with curative intent.

4.8 MODEL ANSWERS

Check Your Progress 1

- 1) TNM classification- The TNM classification for tumours has been adopted by the International Union against Cancer, and has been extended for many sites of cancer. This is a detailed clinical staging which is arrived at by the clinician by ascertaining the extent of the primary tumour (**T**), lymph node involvement (**N**), and presence of metastases (**M**). The information so obtained is scored. The details of scoring are specific to each type of cancer. This may be denoted as:
 - T: Tumor
 - N: Node (Lymph)
 - M: Metastasis
- 2) Indications for Surgery are:
 - Removal of tumour masses.
 - In early stage solid tumours, surgery that encompasses a sufficient margin of normal tissue is curative. Such as early stage cancers of the breast, oral cavity, uterine cervix, colon, prostate and the skin.
 - Post chemotherapy or radiotherapy to provide local cancer control and better chances for adjuvant therapy.
 - In certain solid tumours, surgery is critical for reducing bulk (cytoreduction).
 - Apart from treatment, surgery for reconstruction and rehabilitation can improve function.
 - Cosmetic appearance.
 - Enhance quality of life for patients.

Surgery requires the support of other specialties including anaesthesiology, blood transfusion services, pathology (especially oncopathology) and critical care nursing...

- 3) Palliative care is an approach that improves the quality of life of patients and their families facing a life-threatening illness. This is done through prevention and relief of suffering by means of early identification, accurate assessment and treatment of pain and physical, psychosocial and spiritual problems. Palliative care involves a multidisciplinary team approach.

Check Your Progress 2

- 1) Risk factors: Risk factors for oral cancers are as given below:
 - Tobacco chewing is the single most important risk factor
 - Alcohol use
 - Betel nut chewing
 - Chronic trauma to oral mucosa by sharp tooth or ill-fitting dentures
 - Chronic exposure to these risk factors causes changes in the oral mucosa are visible as pre-cancerous lesions. Over time, malignancy may develop in these lesions.

- 2) Early detection for oral cancers: This is important for detecting oral lesions at an early stage

Examination of oral cavity – Fig. 4.6 illustrates the various steps for examination of Oral Cavity.

You as health care provider should utilise every opportunity to examine the oral cavities of tobacco users. All parts of the oral cavity should be examined; oral cavity includes lip, anterior 2/3 of tongue, floor of mouth, buccal mucosa, gingival mucosa, hard palate and retro molar trigone as shown in Fig. 4.16.



Fig. 4.16: Examination of oral cavity

- 3) Symptoms of cancer of the uterine cervix:

In the early stages, there will be no symptoms. By the time symptoms appear, disease may have already spread. Common symptoms are:

- Post-menopausal bleeding
- Post-coital bleeding
- Intermenstrual bleeding
- Blood stained discharge per vaginum
- Excessive seropurulent discharge
- Backache
- Lower abdominal pain

Check Your Progress 3

- 1) Strategies for primary prevention of Cancer

Tobacco control

- Health education relating to sexual and reproductive factors associated with cancer
- Avoiding alcohol use
- Healthy diet
- Physical activity and avoidance of obesity

- 2) Approaches in cancer control

Tobacco control/ cessation/ alcohol control

Early detection Oral/Breast/Cervix –Propagation of awareness and self-examination

Opportunistic examination

Diagnostic support

Diagnosis and treatment

Proper Infrastructure

Referral practices

3) Warning signs of Cancer are:

C hange in bowel or bladder habits

A wound that does not heal

U nusual Bleeding or discharge

T hickening or Lump in the breast or elsewhere

I ndigestion or difficulty in swallowing

O bvious change in a wart or mole

N aging cough or hoarseness of voice

4) Management of breast cancer

Breast cancer is managed by surgery, radiotherapy, chemotherapy (including hormone therapy), or a combination of the three.

4.9 REFERENCES

- 1) Manual for training in cancer control. Manual for facilitators, Directorate of Health Services, Ministry of Health and Family Welfare, Government of India, November, 2005.
- 2) Reading material for ASHA, BOOK NO8, Role in prevention and control of non communicable diseases, MOHFW, 2009.
- 3) Source- National Cancer Control Programmes – Policies and Managerial Guidelines. World Health Organization. 2nd Edition, 2002.
- 4) Human Papillomavirus and Related Diseases Report INDIA Version posted on www.hpvcentre.net in February 26th, 2016.
- 5) WHO guidelines for screening and treatment of pre-cancerous lesion for prevention of cervical cancer, ISBN 978 92 4 154869 4, WHO, 2013.
- 6) World Health Organization. Preventing chronic diseases: a vital investment. Geneva, 2005.
- 7) Reddy KS, Shah B, Varghese C, Ramadoss A. Responding to the threat of chronic diseases in India. The Lancet 2005; 366(3498):1744-1749.
- 8) Manual for Health Professional, National Control Programme, Dte.G.HS., Ministry of Health & Family Welfare, GOI, 2005.
- 9) WHO guidelines for screening and treatment of pre-cancerous lesion for prevention of cervical cancer, ISBN 978 92 4 154869 4, WHO, 2013.

NOTE

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Certificate in Community Health for Nurses (BPCCHN)

Theory Course

CHO - 0002 Primary Health Care in Common Conditions

Block-1 : Management of Common Conditions and Emergencies including First Aid

Unit 1 : Common Conditions – 1 Gastro Intestinal System
Unit 2 : Common Conditions – 2 Respiratory System
Unit 3 : Common Conditions – 3 Heart, Urinary System and Blood Disorders
Unit 4 : Common Conditions – 4 Eye, Ear, Nose and Throat
Unit 5 : First Aid in Common Emergency Conditions
Unit 6 : Disaster Management

Block – 2 : Maternal Health

Unit 1 : Introduction to RMNCAH+N Programme
Unit 2 : Antenatal Care
Unit 3 : Intranatal Care
Unit 4 : Early Identification, Management and Referral of Complications
Unit 5 : Postpartum Care

Block – 3 : Reproductive Health and Adolescent Health

Unit 1 : Gynecological Conditions
Unit 2 : Family Planning Methods, Spacing Techniques and Counseling
Unit 3 : Abortion Methods and MTP Act
Unit 4 : Counselling in Reproductive and Sexual Health Including Problems of Adolescents
Unit 5 : Management of Teenage Pregnancy

Block – 4 : Newborn and Child Health Care

Unit 1 : Essential Care of Newborn at Birth
Unit 2 : Management of Common Neonatal and Child Health Problems
Unit 3 : Integrated Management of Neonatal and Childhood Illness
Unit 4 : Introduction to Rashtriya Bal Swasthiya Karyakaram
Unit 5 : Universal Immunisation Programme (UIP)

Block-5 : Overview of Common Surgical Conditions

Unit 1 : Common Surgical Conditions -1
Unit 2 : Common Surgical Conditions -2
Unit 3 : Congenital Malformations
Unit-4 : Screening for Common Cancers

Block – 6 : Essential Drugs

Unit 1 : Essential Drugs – 1
Unit 2 : Essential Drugs – 2
Unit 3 : Essential Drugs – 3