
UNIT 1 COMMON SURGICAL CONDITIONS - 1

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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
- provide 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.

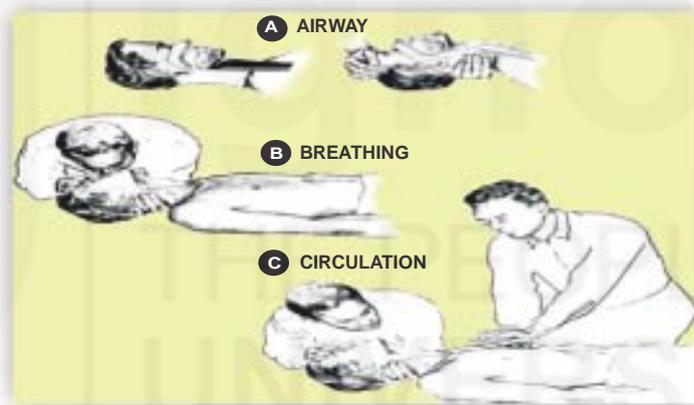


Fig. 1.1: ABC of First Aid

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)

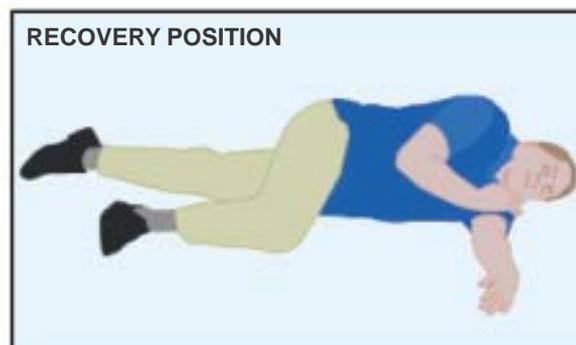


Fig. 1.2: Recovery position

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:

The person 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.

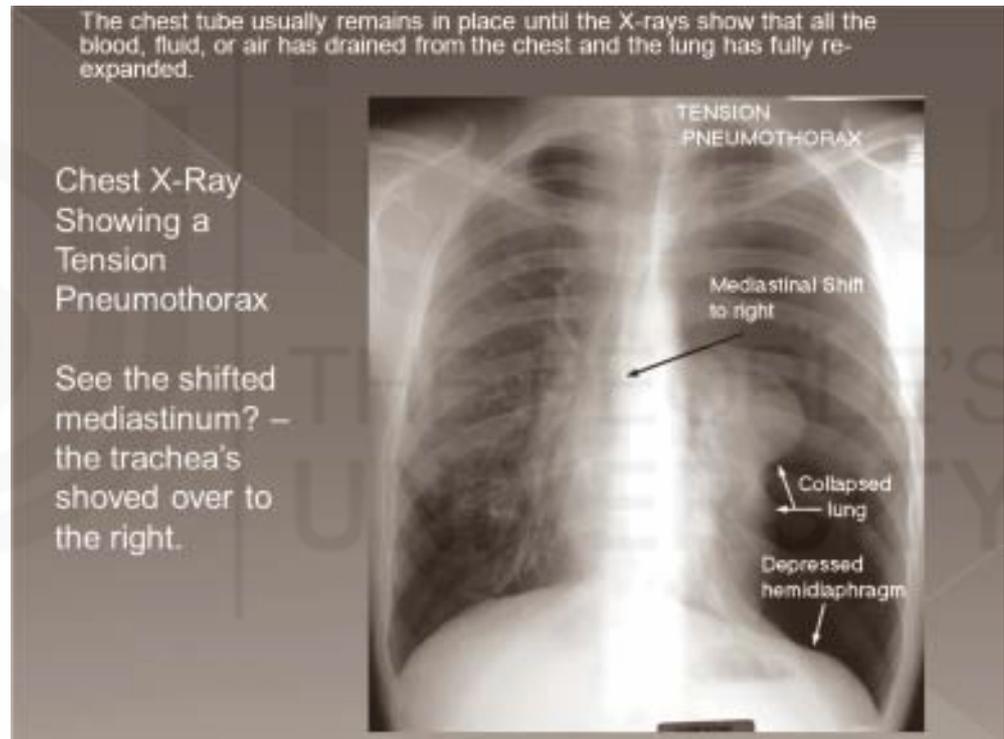


Fig. 1.3: Pneumothorax

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.

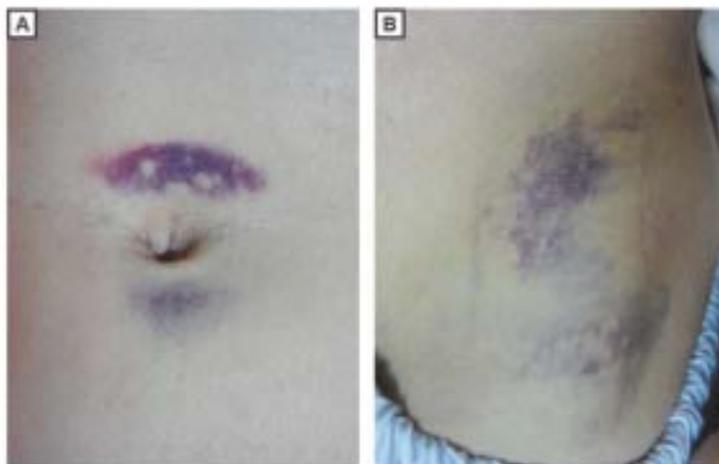


Fig. 1.4: Abdominal injuries (A,B)

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 (Fig. 1.5) 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 Fracture of Long bone

Overview of Common Surgical Conditions- Referral and Follow-up Care

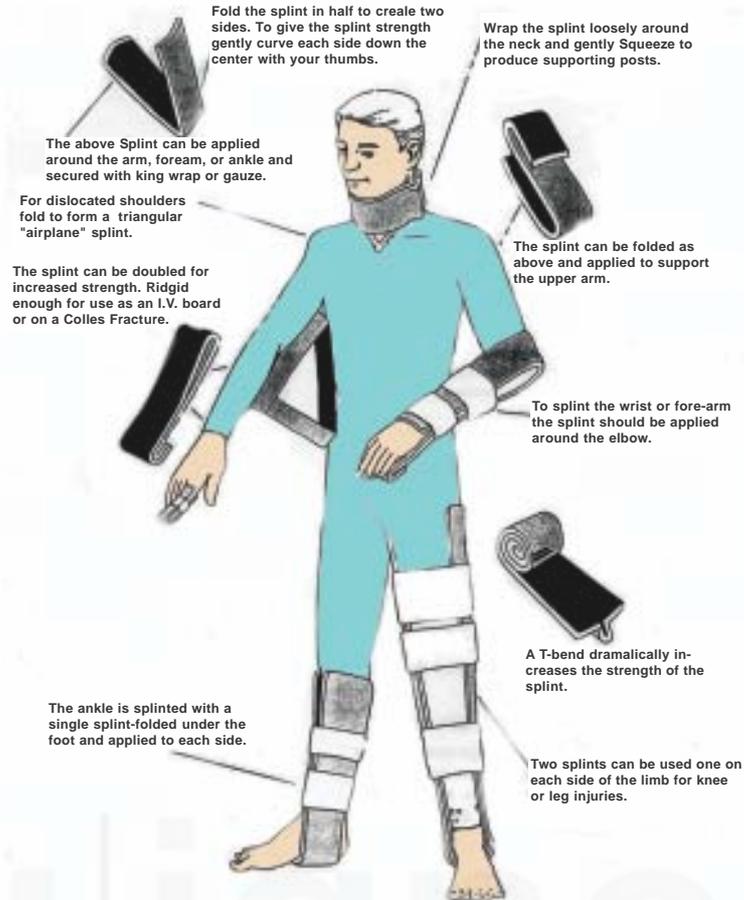


Fig. 1.6: Splint fractured sites

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.

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.

The WHO Categories of contact severity and recommended. Post exposure prophylaxis is given in the following table 1.1.

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

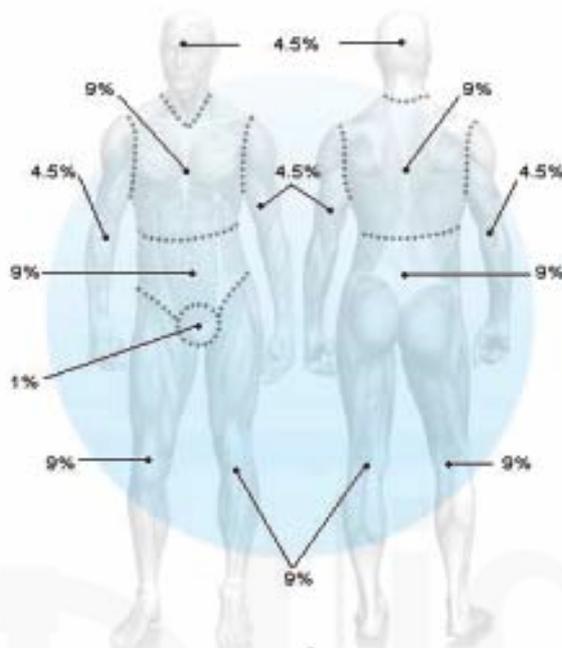


Fig. 1.8: Burn in Adults of Nine

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. 1.9.



Fig. 1.9: Contracture

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 (Fig. 1.11 A, B).



(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 signs 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 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 is 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)



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 (Fig 1.13), 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 (Fig. 1.14). 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.

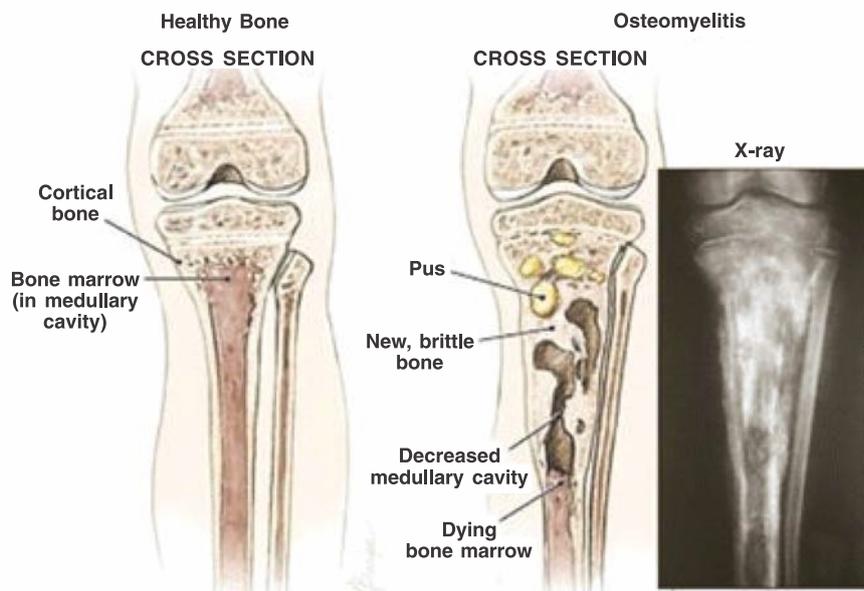


Fig. 1.14 Pus in Bones

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.

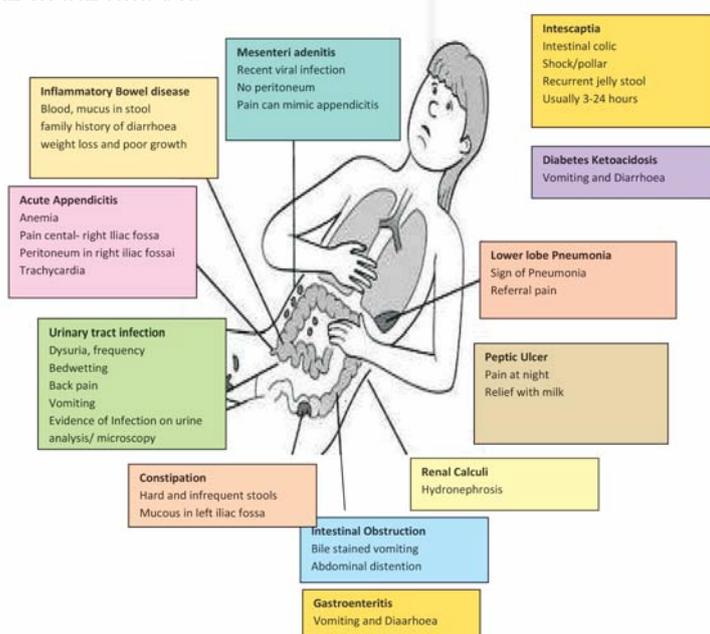


Fig. 1.15: Causes of Abdominal pain

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).

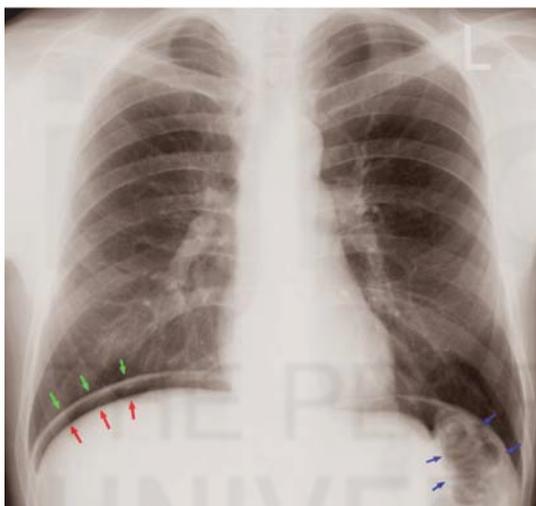


Fig. 1.16: Right hypochondrium and right lower ribs

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

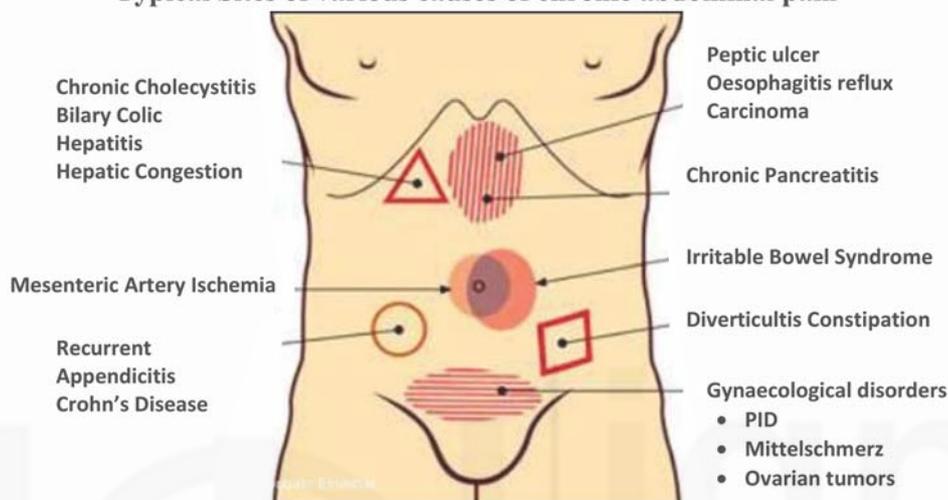


Fig. 1.17(A): Causes of acute abdominal pain

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.

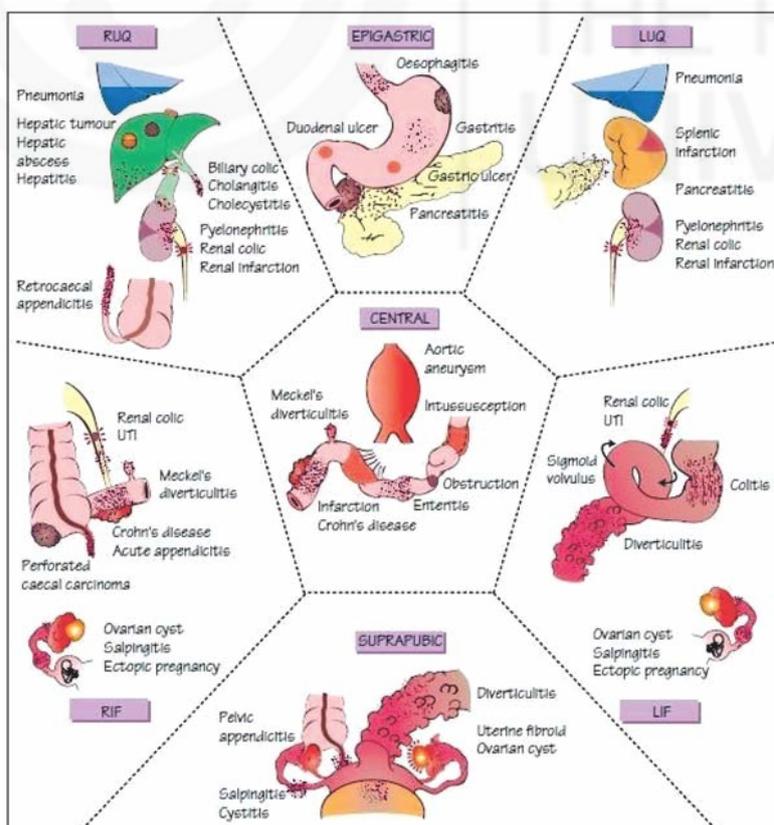


Fig. 1.17(B): Causes of acute abdominal pain

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.

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 (Fig. 1.18). 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 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 Fig. 1.19. 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 (Fig. 1.20 A and B).

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

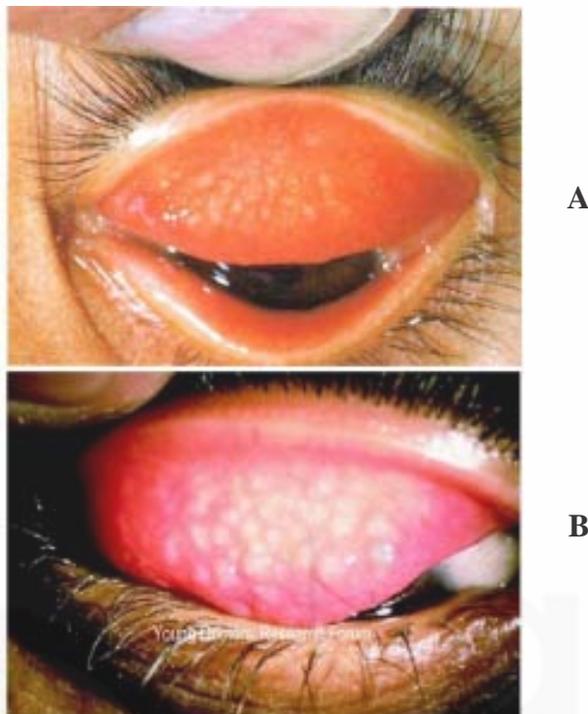


Fig. 1.20: Trachoma

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 (Fig. 1.21).

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

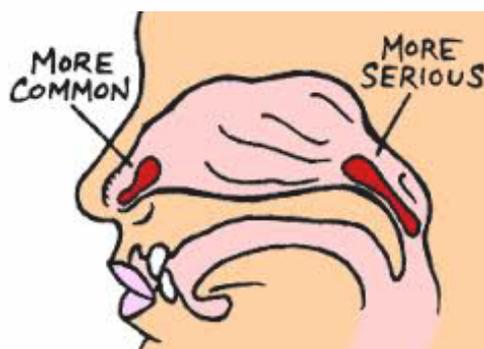


Fig. 1.21: Anterior and Posterior Bleeds

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.

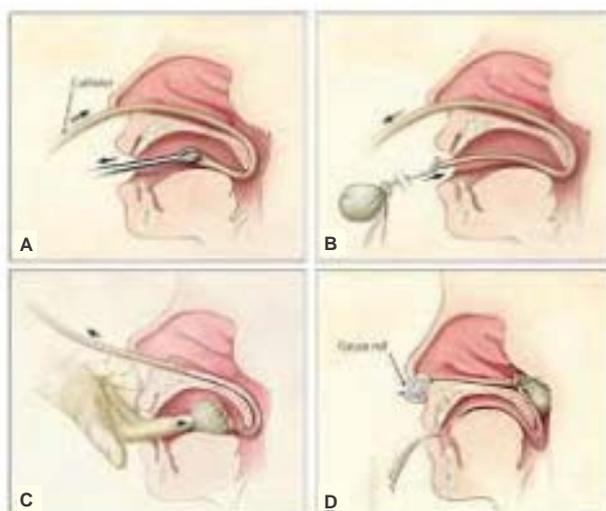


Fig. 1.22 Posterior Nasal Packing

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.

10) How will you relieve Retention of Urine?

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 manouever 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 care 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.