

In the name of Allah
The most gracious, The most merciful

PRE-EXAM PREPARATORY MANUAL ON SURGERY VIVA

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Dedicated to-
Abu al-Qasim al-Zahrawi al-Ansari



Abu al-Qasim al-Zahrawi al-Ansari (936-1013 CE)

Father of modern surgery

Al-Zahrawi's principal work is the Kitab al-Tasrif a thirty-volume encyclopedia of medical practices.

Al-Zahrawi's pioneered the use of catgut for internal stitches, and his surgical instruments are still used today to treat people.

He was the first physician to identify the hereditary nature of hemophilia and describe an abdominal pregnancy, a subtype of ectopic pregnancy.

He also developed surgical devices for Caesarean sections and cataract surgeries.

Al-Zahrawi also pioneered neurosurgery and neurological diagnosis.

PREFACE TO FIRST EDITION

By the grace of almighty Allah and blessings of our well-wishers, we have been able to bring out the 1st edition of 'Pre-exam Preparatory Manual on Surgery Viva'. We try to give a book that is fulfill your need at surgery viva. Box question from different medical college are coordinated and arrange according to specific content. Moreover, we try to give some extra content under the heading of Nice to Know, it will help for earning a sustain and clear conception about content.

This book is based on textbooks and different famous websites. But it doesn't replace the textbook. We always encourage for go through text book. This book will provide a quick, portable and reliable reference for improving basic knowledge regarding viva in surgery and pass your examinations smoothly.

Reader of Hearts Medical Book Series a great support for us. We are try to bring academic platform that help everyone for build up a sound knowledge. Thanks for continued support.

We apologize for inadvertent mistakes have been overlooked. We will be happy to receive any comment, criticism and suggestion for improvement of this book in future.

Dr. Mehedi Hasan Lemon
Dr Momen Ali Khan

How to Use this Book

অধিকাংশ মেডিকেল কলেজের undergraduate level এ ভাইভার জন্য মূলত box question ব্যবহার করা হয়। প্রতিটি বক্সে অনেকগুলো কার্ড থাকে। সাধারণত কয়েকটা সিস্টেম মিলে একটি বক্স হয়। মনে করি একটি বক্সে Basic principle of surgery, Neurosurgery Paediatric surgery এবং Trauma নিয়ে তৈরি। এই বক্সে যে কার্ডগুলো থাকবে, সে কার্ডগুলোতে, দুই থেকে চারটি প্রশ্ন থাকে যা উপরের সিস্টেম থেকে করা থাকবে। ধরা যাক একটি কার্ডে এই তিনটি প্রশ্ন Ulcer classification, CT Scan indication in Head injury, what is Hypospadias আছে। কার্ড দিয়ে পড়াশোনা শুরু করতে গেলে তিনটা সিস্টেম থেকে বিভিন্ন জায়গা থেকে পড়াশোনা করতে যথেষ্ট সময় লাগে। আর ভাইভা পরিক্ষা শুধুমাত্র কার্ডে যে প্রশ্ন আছে ওই প্রশ্নটাই করা হয় না বরং এর আশেপাশের relevant question অবশ্যই করা হয়। একটি system এই বই থেকে পড়বেন তারপরে ওই সিস্টেম এর প্রশ্ন, বক্স প্রশ্ন থেকে মিলাবেন। দেখবেন অধিকাংশ পড়া হয়ে গেছে। এই বইটিতে প্রত্যেক টপিকের গুরুত্বপূর্ণ ভাইভা প্রশ্ন সমূহ দেয়া আছে যা সিস্টেম ভিত্তিক এবং Textbook based. এতে আপনাদের ভাইভা প্রস্তুতি অত্যন্ত সহজ হবে বলে আমরা আশাবাদী। Nice to Know হেডিং দিয়ে আরও অতিরিক্ত তথ্য দেয়ার চেষ্টা করা হয়েছে। কোন গাইড বই কখনো মূল বইয়ের বিকল্প হতে পারে না। আমরা চেষ্টা করেছি মোটামুটি সকল প্রশ্নের মূল বইয়ের পৃষ্ঠা নম্বর দেওয়ার জন্য যাতে আপনারা সহজেই প্রয়োজন হলে মূল বই থেকে দেখে নিতে পারেন।

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Basic Principle Of Surgery

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SHOCK AND BLOOD TRANSFUSION

What is shock?

Shock is a systemic state of low tissue perfusion that is inadequate for normal cellular respiration.

[Bailey & Love's-27th-13]

What are clinical features of shock?

A. Symptoms:

1. Cold clammy skin
2. Palpitation
3. Restlessness
4. Confusion
5. Coma

B. Signs:

1. Tachycardia
2. Hypotension
3. Decrease urinary output
4. Tachypnoea

Classify shock.

1. Hypovolemic shock
2. Cardiogenic shock
3. Obstructive shock
4. Distributive shock
5. Endocrine shock

[Bailey & Love's-27th-13]

Tell me the clinical features of hemorrhagic shock.

1. **Rapid thready pulse**
2. **Hypotension**
3. **Oliguria**
4. Cold clammy skin: Due to vasoconstriction.
5. Pallor, thirsty, cyanosis.
6. Tachycardia, tachypnoea; Air hunger.
7. Dry face, dry mouth and goose skin appearance (due to contraction of arrector pilorum).
8. Features related to specific causes

[SRB's Manual of Surgery-6th-114]

What is endotoxic shock?

Gram-negative septic shock is called as endotoxic shock. Common bacteria are *E. coli*, *Klebsiella*, *Pseudomonas*

Name some clinical conditions when these conditions occur?

1. Strangulated intestines
2. Peritonitis
3. Gastrointestinal fistulas
4. Biliary and urinary infections
5. Pancreatitis
6. Major surgical wounds
7. Diabetic wounds
8. Crush injuries.

[SRB's Manual of Surgery-6th-107]

What preliminary measure you can take for this patient?

1. Broad spectrum antibiotic
2. Care of wound
3. Aseptic operating theatre techniques
4. Early intervention in acute abdominal condition
5. Delayed primary, or secondary closure: In heavily contaminated wounds
6. Controlling diabetes: If present

[Bailey & Love's-27th -43]

Define transfusion and infusion.

Transfusion:

Therapeutic administration of biological substance e.g. whole blood, plasma, coagulation factor transfusion

Infusion:

Therapeutic administration of non- biological substance e.g. isotonic saline, hypertonic saline, medications (e.g. Paracetamol IV).

What are the tests to be done before blood transfusion?

- A. **Blood grouping and Rh test:** Both donor and recipient
- B. **Screening done for donor:**
1. Hepatitis B
 2. Hepatitis C
 3. HIV-1, HIV-2
 4. Syphilis
 5. Malaria

C. **Cross matching**

[Hoffbrand's Essential Haematology-7th -335+Lecture of MMC]

GANGRENE

Name some common specific infections in surgery.

Common Specific infection in Surgery	Organism
Tuberculosis (Intestinal TB, Tuberculous cervical Lymphadenopathy)	Mycobacterium tuberculosis
Gas gangrene	Clostridium perfringes
Tetanus	Clostridium tetani
Typhoid ulcer Perforation	Salmonella typhi
Hydatid disease	Ecchinococcus granulosus
Amoebic liver abscess, Amoeboma	Entamoeba histolytica
Small intestinal obstruction, Obstructive jaundice by-	Ascaris lumbricoides
Leprosy	Mycobacterium leprae
Filariasis	Wuchereria bancrofti

Following crush injury in the leg, patient develops severe pain in the limb. Limb swells up and wound exudes thin brown and sweet-smelling discharge and skin progresses to bluish-black color with bulla.

Name the condition of this patient? Tell the other conditions where this can happen?

Gas gangrene.

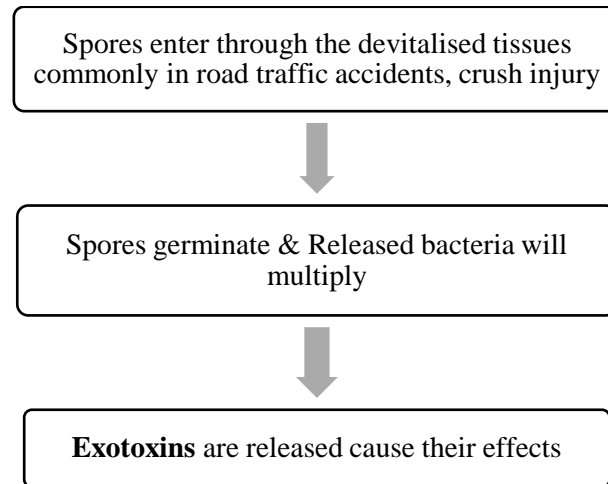
Other conditions:

1. Road traffic Accident
2. After amputations
3. Ischemic limb,
4. Gunshot wounds, war wounds.

Mention the organisms responsible and the pathophysiology of this condition?

1. *Clostridium perfringens (welchii)*: Most common-60%.
2. **Others:** *Clostridium oedematiens*, *Clostridium septicum*, *Clostridium histolyticum*

Pathophysiology:



Nice to know:

Exotoxins:

- ✓ **Lecithinase** is important toxin which is haemolytic, membranolytic and necrotic causing **extensive myositis**. It splits lecithin into phosphocholine.
- ✓ **Haemolysin** causes extensive haemolysis.
- ✓ **Hyaluronidase** helps in rapid spread of gas gangrene.
- ✓ **Proteinase** causes breaking down of proteins in an infected tissue.

What is the management of gas gangrene?

1. I/V fluid
2. Fresh blood transfusion
3. **Injectable antibiotics:** Benzyl penicillin + Metronidazole + Aminoglycosides (if blood urea is normal) or 3rd generation cephalosporins
4. Polyvalent antiserum
5. Aggressive debridement
6. Hyperbaric oxygen: If available
7. Maintenance of fluid & electrolyte balance, check urine output
8. Amputation in severe cases, ventilator support may be required

[SRB's Manual of Surgery 6th-50-52]

OSTEOMYELITIS

A 10 years old boy presented with chronic discharging sinus from his right leg for months. What are the possibilities? What investigations will you suggest with expected

Chronic osteomyelitis

Investigations:

1. X ray of right leg B\V
 - a. Soft-tissue swelling
 - b. Subperiosteal reaction
 - c. Bone destruction and sequestra
2. CBC with ESR
3. MRI of the part

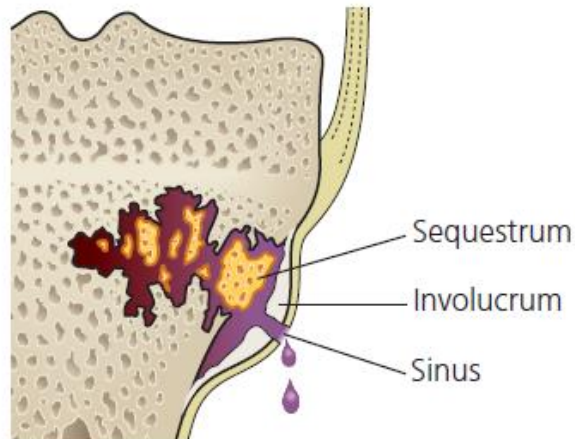
[Bailey & Love's-27th-557]

Nice to know:

What is sequestrum and Involucrum?

Sequestrum: Pieces of dead bone are surrounded by vascular tissue

Involucrum: Chronic reactive new bone formation – which may take the form of a distinct bony sheath around sequestrum.



[Apley's System of Orthopaedics and Fractures-9th 31]

What is Brodie's abscess:

Chronic infections may present with radiographic features of a sclerotic walled cyst.

[Bailey & Love's-27th-589]

A 10 years old boy presented with painful swelling above right knee joint with fever. There is mild restriction of range of knee movement.

What are the possible causes?

Acute osteomyelitis

How will you investigate him?

1. X-ray of the part
2. CBC with ESR & CRP
3. Aspiration of fluid & C/S
4. Blood culture

Define osteomyelitis?

It is the infection of bone & bone marrow

Classify osteomyelitis.

1. Acute osteomyelitis.
2. Chronic osteomyelitis.

[Bailey & Love's-27th-556]

What are the common organisms of osteomyelitis?

1. *Staphylococcus aureus* (Most common)
2. *Streptococcus pyogenes*
3. *Pneumococcus*
4. *Haemophilus influenza*
5. *Escherichia coli*

[Apley's System of Orthopaedics and Fractures-9th-30]

Nice to know:

Other organisms:

1. *Pseudomonas aeruginosa*
2. *Proteus mirabilis*
3. *Bacteroides fragilis*
4. Patients with sickle-cell disease: By *Salmonella typhi*.
5. Anaerobic organisms (particularly *Peptococcus magnus*)
6. *Pseudomonas aeruginosa*: In IV drug abusers

[Apley's System of Orthopaedics and Fractures-9th-30-31]

How will you diagnose and treat a case of acute osteomyelitis?

Clinical features of osteomyelitis:

1. Severe pain at site
2. Malaise and fever
3. Refuses to use one limb or to allow it to be handled or even touched.
4. There may be a recent history of infection: a septic toe, a boil, a sore throat or a discharge from the ear
5. Local redness, swelling, warmth and oedema

[Apley's System of Orthopaedics and Fractures-9th-32]

Investigations:

1. X-ray of the part:
2. USG
3. MRI
4. CBC with ESR & CRP
5. Aspiration of fluid & C/S
6. Blood culture

Treatment:

1. Supportive treatment for pain and dehydration.
2. Splintage of the affected part.
3. Appropriate antimicrobial therapy: Flucloxacillin & Third generation cephalosporin
4. Surgical drainage.

[Apley's System of Orthopaedics and Fractures-9th-34]

Nice to know:

Surgical drainage

1. If antibiotics are given early (within the first 48 hours after the onset of symptoms) drainage is often unnecessary. Surgical drainage need if the clinical features do not improve within 36 hours of starting treatment
2. Even earlier if there are signs of deep pus (swelling, oedema, fluctuation), and most certainly if pus is aspirated
3. The abscess should be drained by open operation under general anaesthesia

[Apley's System of Orthopaedics and Fractures-9th-35]

What is the cardinal Features of Acute Osteomyelitis in Children?

1. Pain
2. Fever
3. Refusal to bear weight
4. Elevated white cell count
5. Elevated ESR
6. Elevated CRP

What are the differential diagnoses of acute osteomyelitis?

1. Cellulitis
2. Acute suppurative arthritis
3. Streptococcal necrotizing myositis
4. Acute rheumatism
5. Sickle-cell crisis

[Apley's System of Orthopaedics and Fractures-9th-34]

What are the complications of acute osteomyelitis?

1. Epiphyseal damage and altered bone growth
2. Suppurative arthritis
3. Metastatic infection
4. Pathological fracture

5. Chronic osteomyelitis

[Apley's System of Orthopaedics and Fractures-9th-36]

PEPTIC ULCER DISEASE (PUD)

A patient of 40 years came to you with history of ingestion of NSAID, followed by Epigastric pain & vomiting. Now answer the following question.

What are the probable causes?

NSAID induced peptic ulcer disease

How will you manage the case?

A. If severe symptoms admit the patient: IV fluid, IV PPI, IV antiemetic etc.

B. In mild to moderate symptoms:

1. PPI for 10-14 days
2. Antiemetic for 5 to 7 days
3. Liquid preparation- Antacid, alginate preparation for short duration

What in helicobacter pylori?

Gram-negative rods

Disease caused by *Helicobacter*:

1. Gastritis
2. Gastric atrophy
3. Intestinal metaplasia
4. Ca stomach

[Bailey and Love's-27th -1113]

GASTRIC OUTLET OBSTRUCTION (GOO)

A patient with gastric outlet obstruction gives history of vomiting for 2 months, weakness, and constipation with scanty high color micturition.

What are the common causes of GOO?

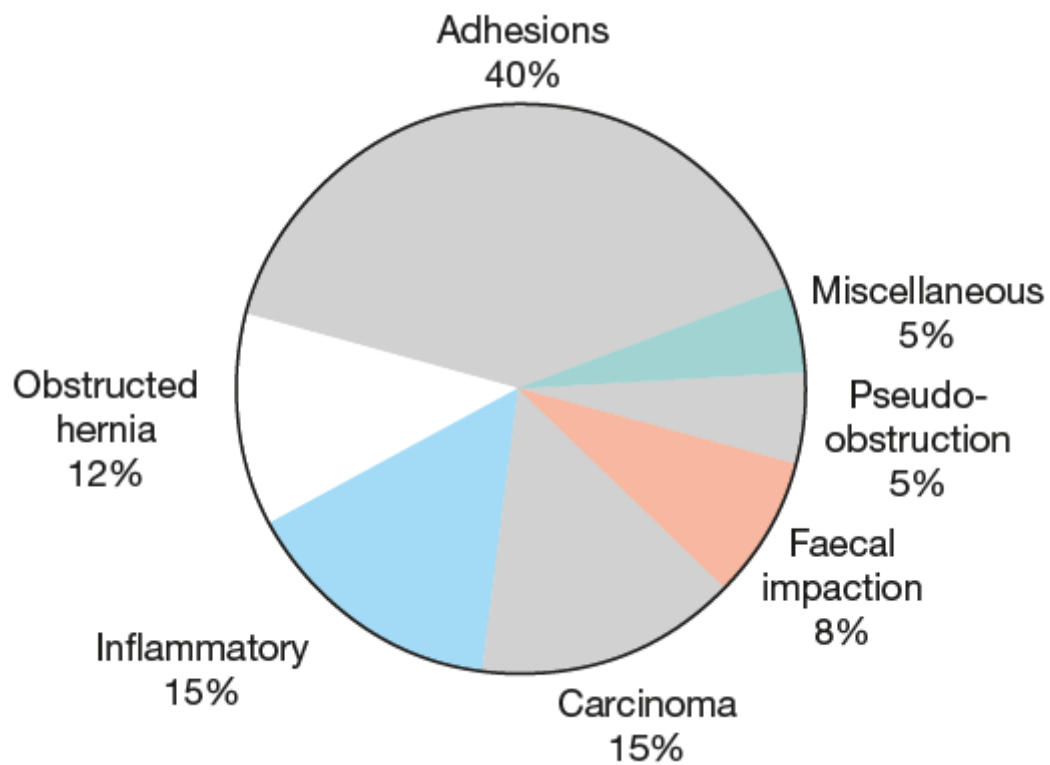
1. Ca stomach
2. Pyloric stenosis
3. Adult pyloric stenosis
4. Pyloric mucosal diaphragm

[Bailey and Love's-27th -1129]

What metabolic derangements present in this patient?

1. Metabolic alkalosis
2. Hyponatremia
3. Hypochloremia
4. Hypokalemia
5. Hypocalcaemia

Pie chart showing the common causes of intestinal obstruction and their relative frequencies

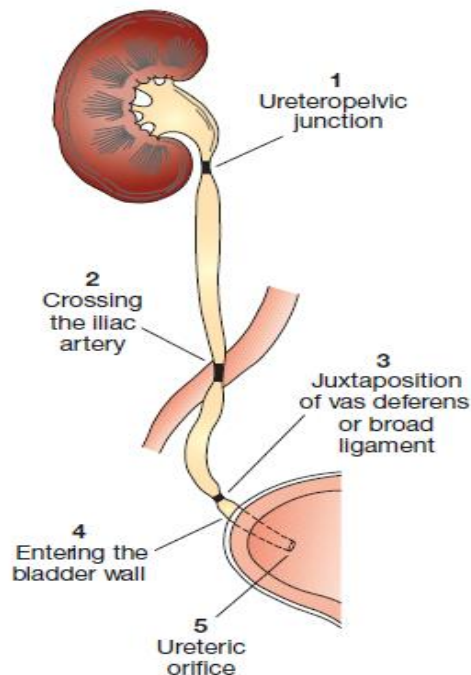


URETER

What are the normal anatomical sites of narrowing of ureter?

5 recognised narrowings which may present obstacles to a stone's passage through to the bladder

1. Ureteropelvic junction (PUJ)
2. Crossing the iliac artery
3. Juxtaposition of vas deferens or broad ligament
4. Entering the bladder wall
5. Ureteric orifice



[Bailey & Love's-27th-1407]

A stone in the ureter usually comes from the kidney. Most pass spontaneously.

URETERIC STONE

What are the clinical features of ureteric stone?

Symptoms:

1. **Pain (Ureteric colic)***:**

Site: Loin

Character: Intermittent, agonising

Radiation:

- ✓ Typically referred to the groin, external genitalia and the anterior surface of the thigh
- ✓ As the stone enters the bladder, the pain can be referred to the tip of the penis

2. **Impaction:** There are five sites of narrowing where the stone may be arrested.

- ✓ More consistent dull pain, often in the iliac fossa and increased by exercise and lessened by rest.
- ✓ Distension of the renal pelvis due to obstruction may cause loin pain.
- ✓ Severe renal pain subsiding after a day or so suggests complete ureteric obstruction.

3. Haematuria (Very common)

Signs:

Abdominal examination:

- ✓ Tenderness and some rigidity over some part of the course of the ureter.
- ✓ Kidney may be palpable: In case of hydronephrosis and pyonephrosis

[Bailey and Love-27th-1407-10+Lecture of MMC]

RETENTION OF URINE

Tell the causes of acute retention of urine?

A. Male:

1. Bladder outlet obstruction (the most common cause)
2. Urethral stricture
3. Acute urethritis or prostatitis
4. Phimosis

B. Female:

1. Retroverted gravid uterus
2. Bladder neck obstruction (rare)

C. Both:

1. Blood clot
2. Urethral calculus
3. Rupture of the urethra
4. Neurogenic (injury or disease of the spinal cord)
5. Smooth muscle cell dysfunction associated with ageing
6. Faecal impaction
7. Anal pain (haemorrhoidectomy)
8. Intensive postoperative analgesic treatment
9. Some drugs
10. Spinal anaesthesia

[Bailey & Love's-27th-1426]

What are the clinical features of acute retention?

1. No urine is passed for several hours.
2. Pain
3. Bladder is visible, palpable, tender and dull to percussion.

[Bailey & Love's-27th-1426]

How will you manage such patient?

1. Catheterization and arrange urological management.

2. Warm bath: In postoperative retention

[Bailey & Love's-27th-1426]

How can you differentiate acute from chronic retention of urine?

In chronic retention, there is no pain.

How will you manage a case of acute retention after rupture urethra?

1. Discourage to passing urine.
2. Percutaneous suprapubic puncture
3. **Delayed anastomotic urethroplasty:**

(With excision of the traumatised section and spatulated end-to-end reanastomosis of the urethra. After the swelling and bruising have settled down (typically 8–12 weeks later)

[Bailey & Love's-27th-1480]

HYPOSPADIAS & EPISPADIAS

What is hypospadias?

Congenital malformation of urethra where in external urethral meatus is situated proximal than normal, over the ventral (under) aspect of the penis.

Most common congenital malformation of urethra

What is Epispadias

When the urethral opening is on the dorsum of the penis.

[SRB Manual of Surgery 6th page: 1044]

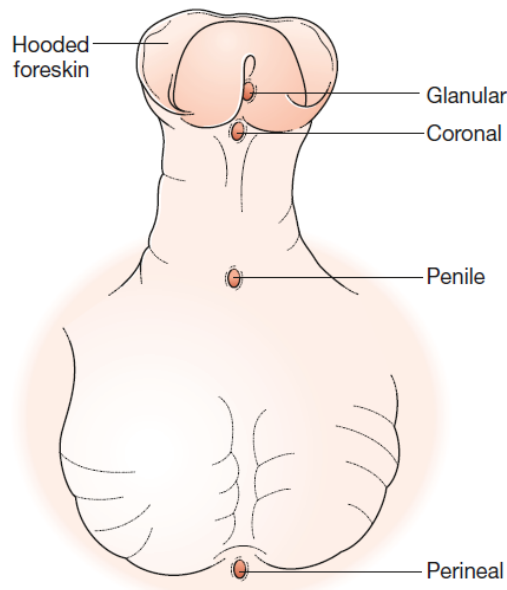
What are the characteristic features of hypospadias?

3 characteristic features.

1. **External meatus opens on the underside of the penis:** Anywhere from just short of the normal site as far back as the perineum
2. **'Hooded prepuce':** Ventral aspect of the prepuce is poorly developed
3. **Chordee:** Ventral deformity of the erect penis

[Bailey & Love's-27th-1478]

Hypospadias classification:



What are the types of hypospadias?

1. **Glandular hypospadias:** Ectopic meatus is placed on the glans penis, but proximal to the normal site of the external meatus
2. **Coronal hypospadias:** Ectopic meatus is placed on the glans penis, but proximal to the normal site of the external meatus
3. **Penile and Penoscrotal hypospadias:** Meatus is on the underside of the penile shaft.
4. **Perineal hypospadias:** Rarest and most severe. Scrotum is bifid and the urethra opens between its two halves.

[Bailey & Love's-27th-1478]

What are the indications for operation?

1. To improve sexual function
2. To correct problems with the urinary stream
3. For cosmetic reasons.

[Bailey & Love's-27th-1478]

What is the appropriate age of operation?

Best performed by a paediatric urologist and are typically undertaken before the age of 18 months.

[Bailey & Love's-27th-1478]

What are the complications of hypospadias surgery?

1. Bleeding and hematoma

2. Edema
3. Wound infection
4. Wound dehiscence
5. Skin necrosis
6. Flap necrosis
7. Penile torsion

[Lecture of MMC]

Nice to know:

Epispadias

1. Most common site is at the abdominopenile junction.
2. It is associated with a dorsal chordee, ectopia vesicae, urinary incontinence, separated pubic bones.
3. **Treatment:**
 - a. Correction of incontinence of urethra.
 - b. Urinary diversion

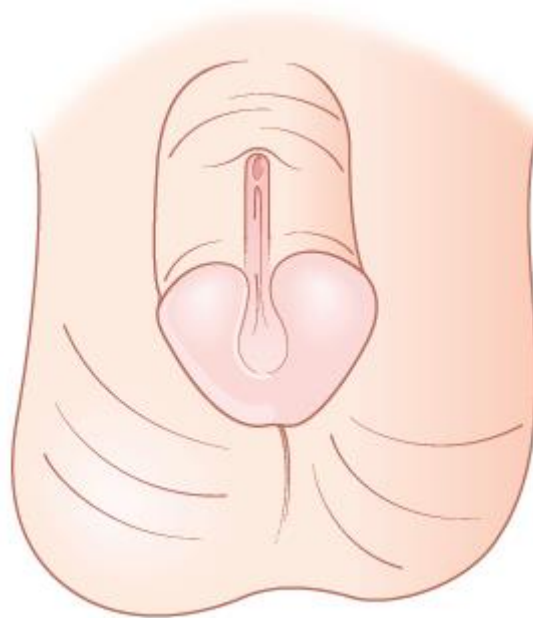


Figure: Epispadias

[SRB Manual of Surgery-6th-1045 + Bailey & Love's-27th-1479]

Cardiothoracic surgery

Define pneumothorax?

Pneumothorax is the presence of air outside the lung, within the pleural space.

Classify pneumothorax?

1. Open: If air can move freely in and out of pleural space during respiration
2. Closed: Air can enter the pleural space but cannot escape via the route of entry.
3. Tension pneumothorax: If air enters during inspiration but does not leave on expiration, intrapleural pressure increases leading to tension pneumothorax

What are the causes of pneumothorax?

1. Spontaneous pneumothorax:

- a. Primary spontaneous pneumothorax- usually in young adult with positive family history
 - b. Secondary spontaneous pneumothorax e.g. TB, COPD etc.
2. Traumatic
 3. Iatrogenic

How should a case of open pneumothorax be treated?

1. Promptly closing the defect with a sterile occlusive plastic dressing taped on three sides to act as a flutter-type valve.
2. A chest tube is inserted as soon as possible in a site remote from the injury site.

What do you mean by tension pneumothorax?

A tension pneumothorax develops when a 'one-way valve' air leak (in pleural space) occurs either from the lung or through the chest wall.

Mention its causes.

1. Penetrating chest trauma
2. Blunt chest trauma with a parenchymal lung injury
3. Iatrogenic lung injury (e.g. due to central venipuncture)
4. Mechanical positive pressure ventilation.

What are the clinical features of tension pneumothorax?

1. Sharp pleuritic chest pain
2. Tachypnea and tachycardia
3. Decreased/absent breath sounds
4. Resonant on percussion with severe mediastinal/tracheal shift
5. Cyanosis and hypotension
6. Distended neck veins