



ANTERIOR ABDOMINAL WALL

ANTERIOR ABDOMINAL WALL IS A MUSCULOAPONEUROTIC STRUCTURE CONFINED TO ANTERIOR AND LATERAL ASPECT OF ABDOMEN

BOUNDARIES - ABOVE - XIPHOID PROCESS

BELOW - ANTERIOR PART OF ILIAC CREST

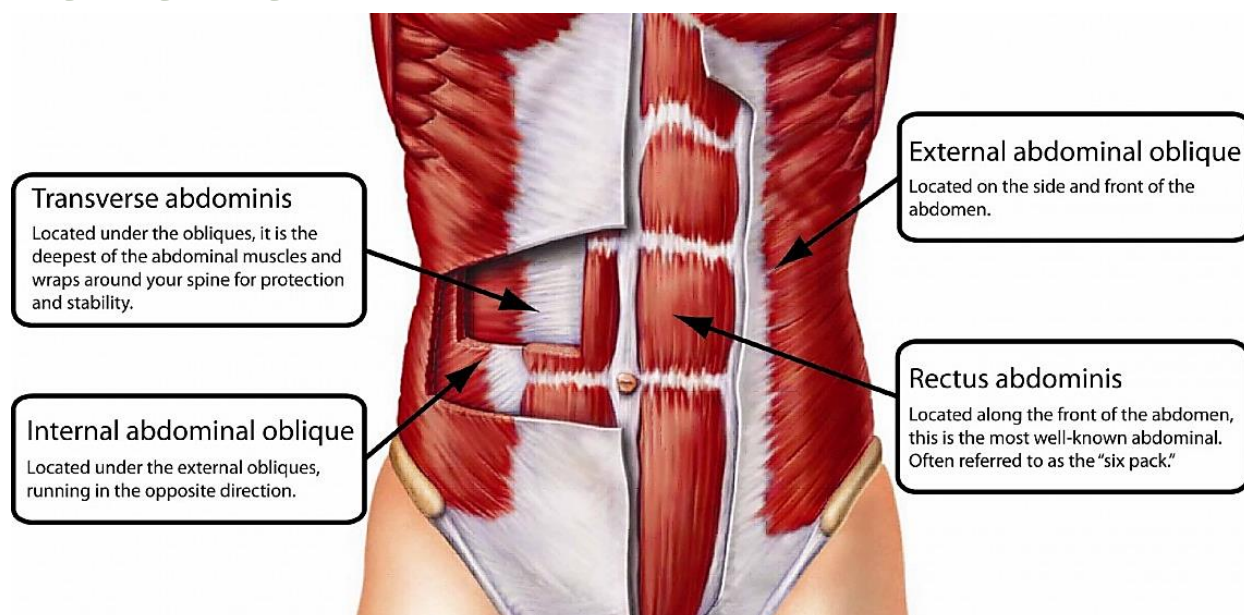
- FOLD OF GROIN

- PUBIC TUBERCLE & PUBIC CREST & PUBIC SYMPHYSIS

ON EACH SIDE - SEPARATED FROM POSTERIOR ABDOMINAL WALL BY MIDAXILLARY LINE

LAYER OF ANTERIOR ABDOMINAL WALL

1. SKIN
2. SUBCUTANEOUS FAT (CAMPER'S FASCIA)
3. SUPERFICIAL (SCARPA'S) FASCIA
4. EXTERNAL OBLIQUE MUSCLE
5. INTERNAL OBLIQUE MUSCLE
6. TRANSVERSUS ABDOMINIS MUSCLE
7. FASCIA TRANSVERSALIS
8. EXTRAPERITONEAL (PREPERITONEAL) FAT
9. PARIETAL PERITONEUM

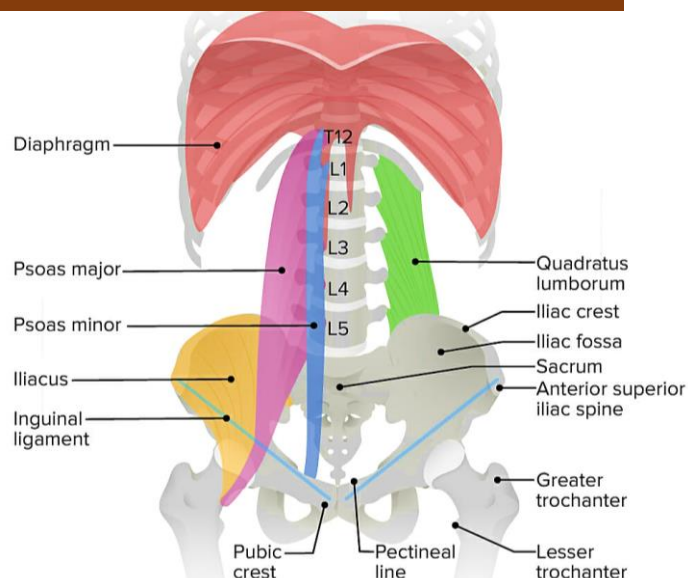


POSTERIOR ABDOMINAL WALL

THE POSTERIOR ABDOMINAL WALL PRIMARILY SERVES AS PROTECTION FOR THE RETROPERITONEAL ORGANS.

LAYER OF POSTERIOR ABDOMINAL WALL

1. PSOAS MAJOR
2. ILIACUS MUSCLE
3. QUADRATUS LUMBORUM MUSCLE
4. PSOAS MAJOR





RECTUS SHEATH



1. IT IS AN APONEUROTIC SHEATH COVERING THE RECTUS ABDOMINIS.
2. IT HAS TWO PARTS - ANTERIOR & POSTERIOR

FEATURES

- ANT WALL** - IT IS COMPLETE COVERING THE MS FROM END TO END.
- ITS COMPOSITION IS VARIABLE AS DESCRIBED BELOW.
 - IT IS FIRMLY ADHERENT TO THE TENDINOUS INTERSECTIONS OF THE RECTUS MS.
- POST WALL** - IT IS INCOMPLETE, BEING DEFICIENT ABOVE THE COSTAL MARGIN BELOW THE ARCULATE LINE.
- ITS COMPOSITION IS VARIABLE AS DESCRIBE BELOW.

FORMATION -

1. ABOVE THE COSTAL MARGIN -

- ANT WALL** - EXT OBLIQUE APONEUROSIS.
- POST. WALL** - IT IS DEFICIENT, THE RECTUS MS RESTS DIRECTLY ON 5TH 6TH & 7TH COSTAL CARTILAGE.

2 BETWEEN THE COSTAL MARGIN & THE ARCULATE LINE -

- ANT WALL** - EXT. OBLIQUE APONEUROSIS & ANT APONEUROSIS OF THE INT OBLIQUE.
- POST WALL** - POST LAMINA OF THE APONEUROSIS OF THE INTERNAL OBLIQUE & APONEUROSIS OF THE TRANSVERSUS MS.

3. BELOW THE ARCULATE LINE -

- ANT WALL** - APONEUROSES OF ALL THE THREE FLAT MS OF THE ABDOMEN. APONEUROSES OF THE TRANSVERSUS & INTERNAL OBLIQUE ARE FUSED BUT THE EXTERNAL OBLIQUE APONEUROSIS REMAIN SEPARATE.
- POST WALL** - IT IS DEFICIENT. → RECTUS MS - FASCIA TRANSVERSALIS

CONTENT -

1. MUSCLE → RECTUS ABDOMINIS & PYRAMIDALIS
2. ARTERY → SUP. EPIGASTRIC ARTERY. → ENTER SHEATH BY PASSING BETWEEN COSTAL & XIPHOID
→ INF. EPIGASTRIC ARTERY → ENTER SHEATH BY INFRONT OF ARCUTE LINE
3. VEIN → SUP. EPIGASTRIC VEIN & INF. EPIGASTRIC VEIN
4. NERVES → TERMINAL PART OF THE LOWER SIX THORACIC NERVES.

- FUNCTION** - CHECK BOWING OF RECTUS MS. → DURING CONTRACTION.
- MAINTAIN STRENGTH OF ANT. ABDOMINAL WALL.

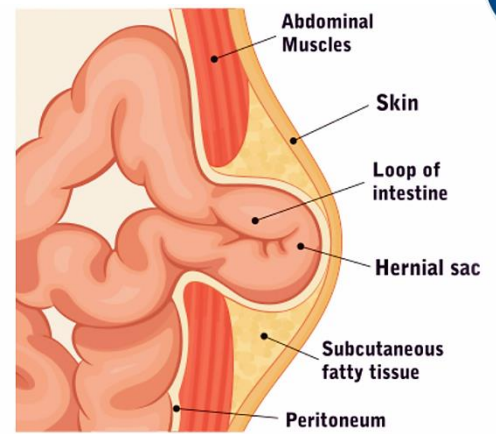
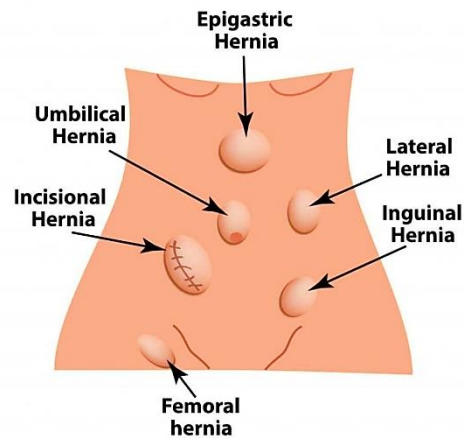
CLINICAL ANATOMY

EPIGASTRIC HERNIA -

WHEN INTRA-ABDOMINAL PRESSURE IS EXCESSIVELY RAISED, A SMALL AMOUNT OF EXTRAPERITONEAL FAT MAY PROTRUDE THROUGH THER UPPER PART OF LINEA ALBA AND EVENTUALLY MAY DRAG BEHIND IT A SMALL PERITONEAL SAC WHICH MAY CONTAIN A PORTION OF GREATER OMENTUM FORMING EPIGASTRIC HERNIA



Common Types of Hernia in Females





INGUINAL CANAL

**OBLIQUE INTERMUSCULAR PASSAGE IN THE LOWER PART OF THE ANTERIOR ABDOMINAL WALL
SITUATED → JUST ABOVE MEDIAL HALF OF INGUINAL LIGAMENT
DIRECTED DOWNWARD, FORWARD, MEDIAL.**



EXTEND - FROM DEEP INGUINAL RING TO SUPERFICIAL INGUINAL RING.

DEEP INGUINAL RING

- OVAL OPENING IN FASCIA TRANSVERSALIS
- SITUATED 1.2CM ABOVE THE MIDINGUINAL POINT.
- IMMEDIATELY → LATERAL TO STEM OF INFERIOR EPIGASTRIC ARTERY

SUPERIOR INGUINAL RING

- TRIANGULAR OPENING - IN EXTERNAL OBLIQUE APONEUROSIS
- IT IS LIKE AN OBTUSE ANGLE TRIANGLE BASE → FORM BY PUBIC CREST
- TWO MARGIN OF TRIANGULAR → LATERAL & MEDIAL REFERRED AS CRURA
- BEYOND THE APEX OF TRIANGLE → 2 CRURA → UNITED BY INTERCRURAL FIBERS

BOUNDARIS -

ANTERIOR WALL - WHOLE EXTEND - SKIN & SUPERFICIAL FASCIA
- EXTERNAL OBLIQUE APONEUROSIS

- LATERAL 1/3RD - INTERNAL OBLIQUE MUSCLE

POSTERIOR WALL - WHOLE EXTEND - FASCIA TRANSVERSALIS

- EXTRAPERITONEAL TISSUE

- PARIETAL PERITONEUM

- MEDIAL 2/3RD - CONJOINT TENDON

- MEDIAL END BY THE REFLECTED PART OF
INGUINAL LIGAMENT

ROOF - ARCHED FIBER - INTERNAL OBLIQUE

- TRANSVERSUS ABDOMINIS MUSCLE

FLOOR - GROOVED UPPER SURFACE OF INGUINAL LIGAMENT

- MEDIAL END BY LACUNAR LIGAMENT

SEX DIFFERENCE - INGUINAL CANAL IS LARGE IN MALE & SMALLER IN FEMALE

STRUCTURES PASSING THROUGH THE CANAL

1. SPERMATIC CORD IN MALES, ROUND LIGAMENT OF THE UTERUS IN FEMALE.

2. ILIOINGUINAL NERVE ENTERS THE CANAL THROUGH THE INTERVAL BETWEEN THE EXTERNAL & INTERNAL OBLIQUE MUSCLE & PASSES OUT THROUGH THE SUPERFICIAL INGUINAL RING.

SPERMATIC CORD



**SPERMATIC CORD IS A COLLECTION OF STRUCTURE THAT PASS TO AND FROM
TESTIS THROUGH THE INGUINAL CANAL**

EXTEND -> FROM DEEP INGUINAL RING TO POSTERIOR BORDER OF TESTIS AND COVERED BY
FASCIAL LAYER

CONSTITUENT OF SPERMATIC CORD -

1. DUCTUS DEFERENS



2. **TESTICULAR AND CREMASTERIC ARTERIES & DUCTUS DEFERENS ARTERY**
3. **PAMPINIFORM PLEXUS OF VEINS**
4. **LYMPH VESSEL**
5. **GENITAL BRANCH--→OF GENITOFORMAL NERVE**
 - a. **-PLEXUS OF SYMPATHETIC NERVES**
6. **REMAINS OF PROCESSUS VAGINALIS**

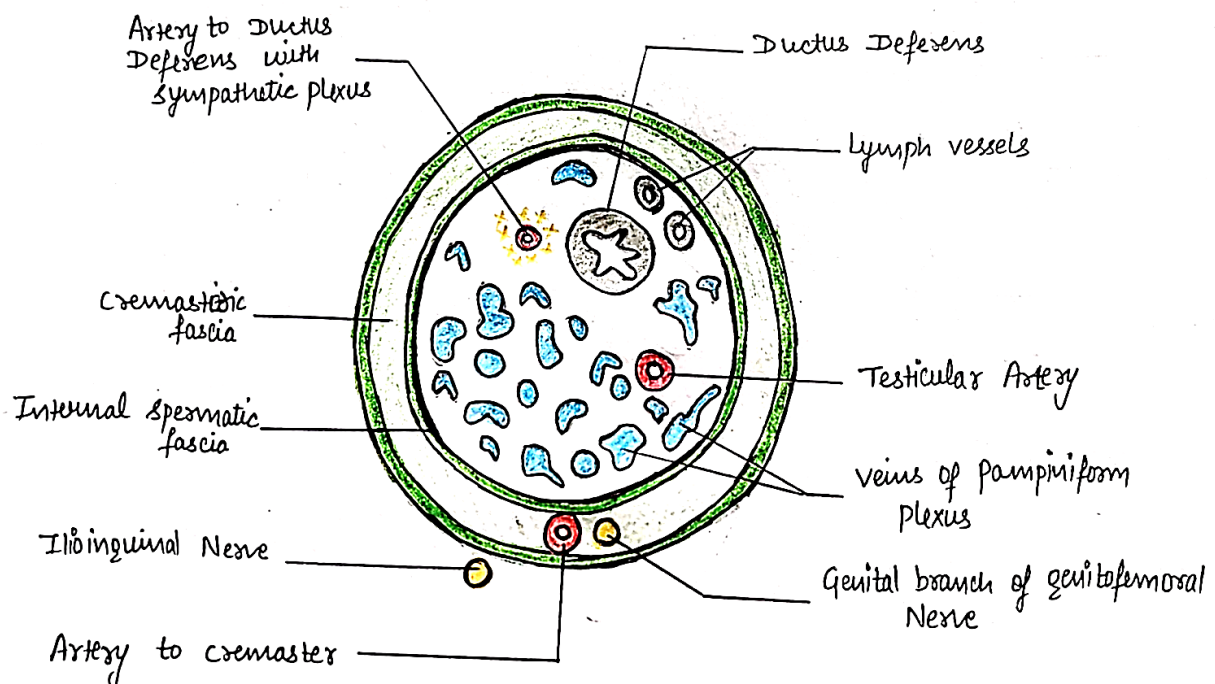
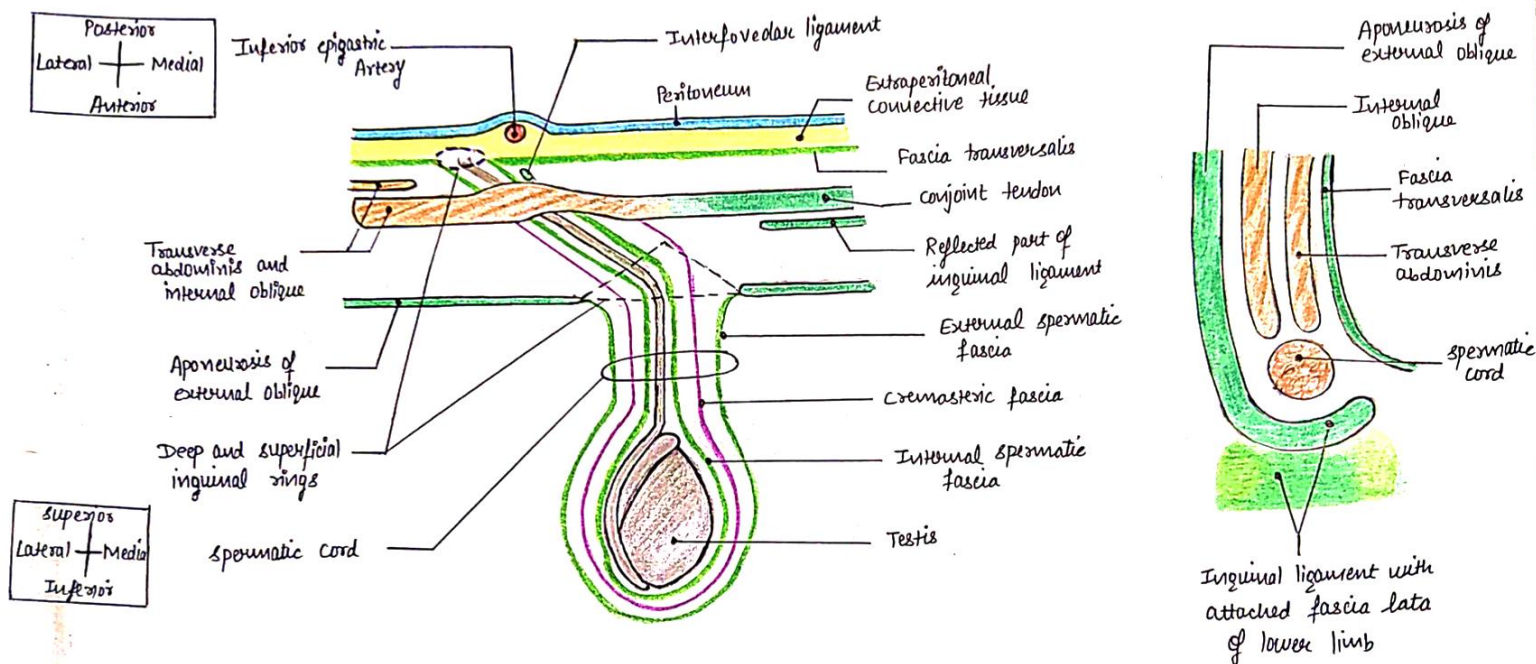
COVERING OF SPERMATIC CORD - FROM WITHIN OUTWARD FOLLOWS -

1.INTERNAL SPERMATIC FASCIA - DERIVED FROM-FASCIA TRANSVERSALIS

2.CREMASTRIC FASCIA - DERIVED FROM - INTERNAL OBLIQUE TRANSVERSUS ABDOMINIS MUSCLES

- MADE UP OF - MUSCLE LOOPS → CONSTITUTING CREMASTER MUSCLE

3.EXTERNAL SPERMATIC FASCIA - DERIVED FROM - EXTERNAL OBLIQUE APONEUROSIS





MECHANISM OF INGUINAL CANAL

PRESENCE OF INGUINAL CANAL IS CAUSE OF WEAKNESS IN LOWER PART OF ANTERIOR ABDOMINAL WALL. +WEAKNESS IS COMPENSATED BY FOLLOWING FACTORS.

1. OBLIQUITY OF INGUINAL CANAL

- 2 INGUINAL RING DO NOT LIE OPPOSITE TO EACH OTHER
- THEREFORE, WHEN INTRA-ABDOMINAL PRESSURE RISES, THE ANT. & POST. WALL ARE APPROXIMATED.
- THIS IS KNOWN AS FLAP VALVE MECHANISM

2. SUPERFICIAL RING GUARDED

- FROM BEHIND - CONJOINT TENDON AND BY REFLECTED PART OF INGUINAL LIGAMENT

3. DEEP INGUINAL RING GUARDED

FROM FRONT BY FLESHY FIBERS OF INTERNAL OBLIQUE

4. SHUTTER MECHANISM OF INTERNAL OBLIQUE MUSCLE

- MUSCLE HAS TRIPLE RELATION TO INGUINAL CANAL.
- IT FORM ANTERIOR, POSTERIOR WALL & ROOF OF CANAL
- WHEN IT CONTRACTS THE ROOF IS APPROXIMATED TO FLOOR LIKE SHUTTER

5. CONTRACTION OF CREMASTER/BALL VALVE MECHANISM

- HELP SPERMATIC CORD TO PLUG SUPERFICIAL INGUINAL RING.

6. SPLIT VALVE MECHANISM - CONTRACTION OF EXTERNAL OBLIQUE

CLINICAL ANATOMY

HERNIA

- HERNIA IS A PROTRUSION OF ANY ABDOMINAL CONTENT THROUGH ANY OF ITS WALL - THIS IS CALLED EXTERNAL HERNIA.
- INTESTINE PROTRUDES INTO THE NO ENTRY ZONE WITHIN ABDOMINAL CAVITY ITSELF - THIS CONDITION IS CALLED INTERNAL HERNIA.
- HERNIA CONSIST OF → SAC, CONTENT, COVERING.

TYPE OF HERNIA - INTERNAL HERNIA & EXTERNAL HERNIA.

INGUINAL HERNIA - PROTRUSION OF LOOP OF INTESTINE THROUGH INTESTINAL WALL IS CALLED INGUINAL HERNIA.

INDIRECT INGUINAL HERNIA - WHEN THE PROTRUSION OCCUR THROUGH THE DEEP INGUINAL RING, INGUINAL CANAL, SUPERFICIAL INGUINAL RING INTO SCROTUM, IT IS CALLED INDIRECT HERNIA.

COVERING - EXTRAPERITONEAL TISSUE

- INTERNAL SPERMATIC FASCIA
- CREMASTERIC FASCIA
- EXTERNAL SPERMATIC FASCIA
- SKIN

DIRECT HERNIA - WHEN THE PROTRUSION OCCUR THROUGH WEAK POSTERIOR WALL OF INGUINAL CANAL OR TRIANGLE OF HESSELBACH THIS IS CALLED DIRECT HERNIA.



- HESSELBACH - BOUNDED BY INFERIOR EPIGASTRIC ARTERY, LATERAL BORDER OF RECTUS ABDOMINIS & INGUINAL LIGAMENT.
- THIS AREA IS DIVIDED INTO MEDIAL AND LATERAL PART BY PASSAGE OF OBLITERATED UMBILICAL ARTERY.

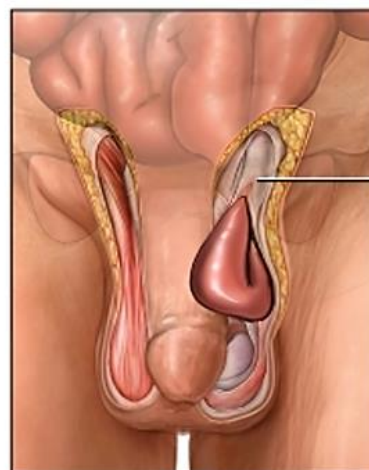
COVERING -

COVERINGS OF LATERAL DIRECT INGUINAL HERNIA.

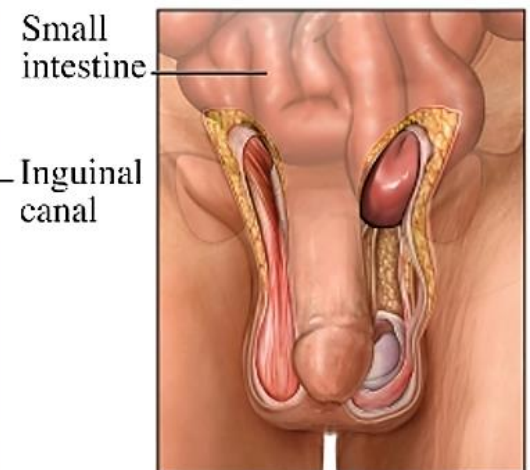
- 1.EXTRAPERITONEAL TISSUE
- 2.FASCIA TRANSVERSALIS
- 3.CREMASTERIC FASCIA
- 4.EXTERNAL SPERMATIC FASCIA
- 5.SKIN

COVERINGS OF MEDIAL DIRECT INGUINAL HERNIA -

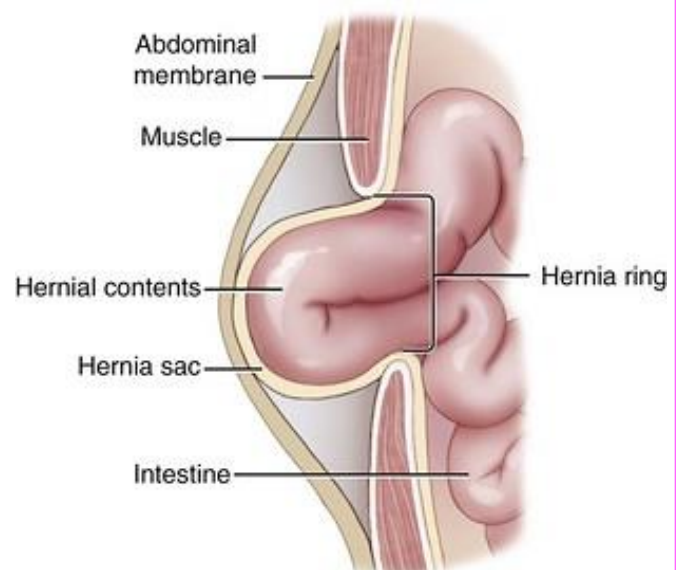
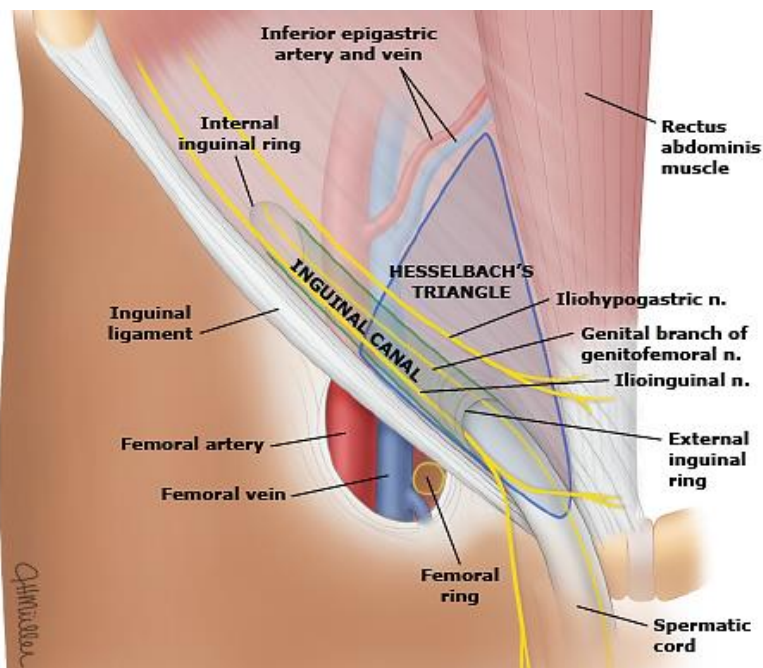
- 1.EXTRAPERITONEAL TISSUE
- 2.FASCIA TRANSVERSALIS
- 3.CONJOINT TENDON
- 4.EXTERNAL SPERMATIC FASCIA
- 5.SKIN



Indirect inguinal hernia



Direct inguinal hernia





INGUINAL CANAL

- FORMED BY THE LOWER BORDER OF THE EXTERNAL OBLIQUE APONEUROSIS THICKENED AND FOLDED BACKWARDS ON ITSELF.
- EXTENDS: FROM ANTERIOR SUPERIOR ILIAC SPINE TO THE PUBIC TUBERCLE
- LYING: BENEATH THE FOLD OF THE GROIN.

ATTACHMENTS:

THE FASCIA LATA- ATTACHED TO THE LOWER BORDER.

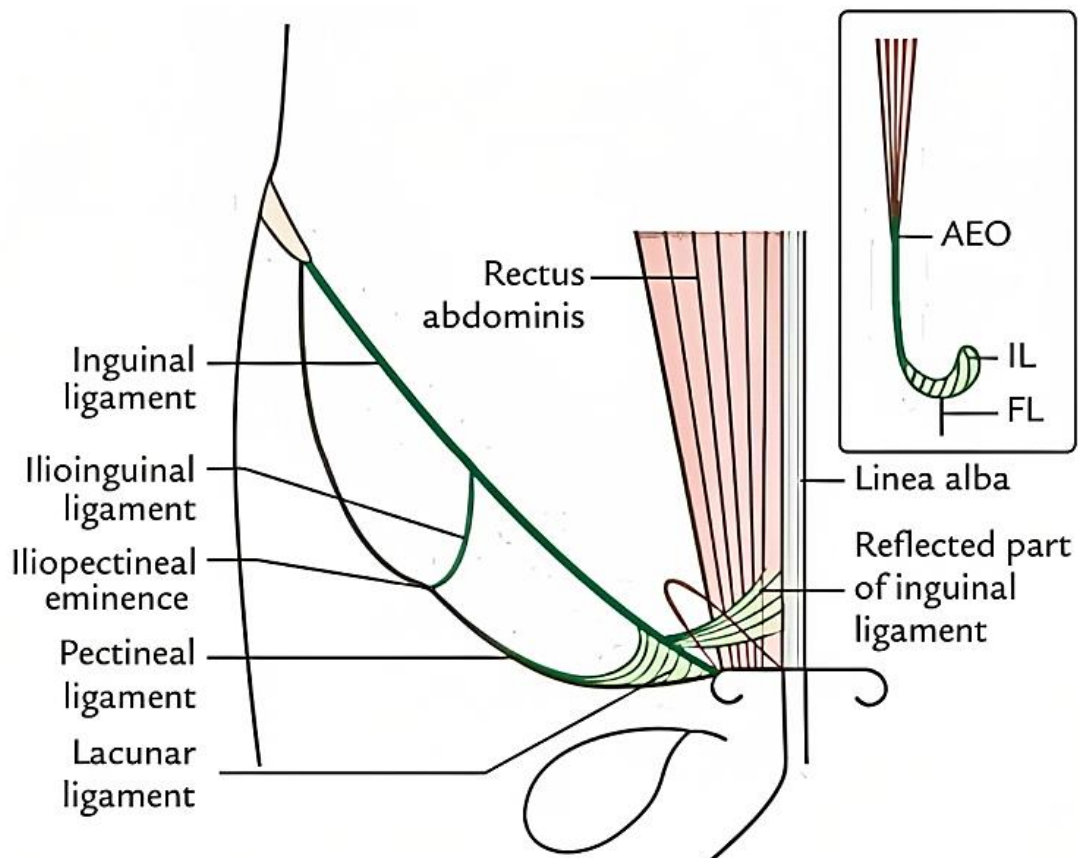
- THE UPPER SURFACE: GIVES ORIGIN TO
 - i. INTERNAL OBLIQUE
 - ii. TRANSVERSUS ABDOMINIS
 - iii. CREMASTER MUSCLE

RELATIONS:

1. THE UPPER SURFACE- MEDIAL HALF- FORMS THE FLOOR OF INGUINAL CANAL
2. LODGING SPERMATIC CORD OR ROUND LIGAMENT OF THE UTERUS

EXTENSIONS:

- 1) THE PECTINEAL PART OF THE LIGAMENT IS TRIANGULAR.
 - a. ANTERIORLY- ATTACHED TO THE MEDIAL END OF THE INGUINAL LIGAMENT.
 - b. POSTERIORLY- ATTACHED TO THE PECTEN PUBIS.
- 2) THE PECTINEAL LIGAMENT OR LIGAMENT OF COOPER- EXTENSION FROM THE POSTERIOR PART OF THE BASE OF THE LACUNAR LIGAMENT. IT IS ATTACHED TO THE PECTEN PUBIS.
- 3) THE REFLECTED PART- CONSISTS OF FIBRES PASSING UPWARDS AND MEDIALLY FROM THE LATERAL CRUS OF THE SUPERFICIAL INGUINAL RING.
- 4) INTERCRURAL FIBRES ARISE FROM MIDDLE OF INGUINAL LIGAMENT, ARCH OVER THE SUPERFICIAL INGUINAL RING TO KEEP ITS CRURA TOGETHER





TESTIS



MALE GONAD - SUSPENDED IN THE SCROTUM BY SPERMATIC CORD.

LIES OBLIQUELY, SO THAT UPPER POLE - FORWARD - Laterally.

LEFT TESTIS IS SLIGHTLY LOWER THAN RIGHT

FUNCTION OF TESTIS INCLUDE PRODUCTION OF SPERMATOZOA AND SECRETION OF TESTOSTERONE, MALE HORMONE, RESPONSIBLE FOR DEVELOPMENT AND MAINTENANCE OF SECONDARY SEX CHARACTERISTIC OF MALENESS

SHAPE & SIZE -

1. OVAL IN SHAPE - 3.75CM LONG, 2.CM BROAD, 1.8CM THICK FROM SIDE TO SIDE

2. WEIGHT ABOUT - 10 TO 15g

EXTERNAL FEATURE -

1. TWO POLE - UPPER POLE & LOWER POLE ARE CONVEX & SMOOTH

2. TWO BORDER - ANTERIOR BORDER - CONVEX & SMOOTH

- FULLY COVERED - BY TUNICA VAGINALIS

- POSTERIOR BORDER - STRAIGHT

- PARTIALLY COVERED BY TUNICA VAGINALIS

- EPIDIDYMIS LIE - ALONG LATERAL PART OF POSTERIOR BORDER

3. TWO SURFACE - MEDIAL SURFACE & LATERAL SURFACE - CONVEX & SMOOTH

""MEDIAL SURFACE OF EPIDIDYMIS IS SEPARATED FROM TESTIS BY AN EXTENSION OF CAVITY OF TUNICA VAGINALIS - THIS CALLED - SINUS OF EPIDIDYMIS""

COVERINGS OF TESTIS -

TESTIS IS COVERED BY LAYER OF SCROTUM

IN ADDITION, ALSO COVERED BY 3 COATS - TUNICA VAGINALIS - PARIETAL

- VISCERAL

- TUNICA ALBUGINEA

- TUNICA VASCULOSA

1. TUNICA VAGINALIS

- REPRESENT LOWER PERSISTENT PORTION OF PROCESSUS VAGINALIS.

- COVER WHOLE TESTIS - EXCEPT FOR POSTERIOR BORDER

2. TUNICA ALBUGINEA

- DENSE WHITE FIBROUS COAT COVERING THE TESTIS ALL AROUND.

- COVERED BY VISCERAL LAYER OF T.V EXCEPT - POSTERIORLY WHERE TESTICULAR VESSEL & NERVE ENTER

- POSTERIOR BORDER OF TUNICA ALBUGINEA IS THICKENED → FORM INCOMPLETE VERTICAL SEPTUM - "MEDIASTINUM TESTIS"

- NUMEROUS SEPTA EXTEND FROM MEDIASTINUM

3. TUNICA VASCULOSA - INNER MOST - VASCULAR COAT

STRUCTURE OF TESTIS

- GLANDULAR PART - CONSIST OF 200 TO 300 LOBULES → CONTAIN **2-3 SEMINIFEROUS TUBULES.**

- SEMINIFEROUS TUBULES JOIN TOGETHER AT APICES OF LOBULES TO FORM 20-30 STRAIGHT TUBULES.

- THEY ANASTOMOSE WITH EACH OTHER - TO FORM RETE TESTIS.

- RETE TESTIS GIVE RISE 12-30 EFFERENT DUCTULES → ENTER EPIDIDYMIS CONTINUOUS → DUCTUS DEFERENS.



ARTERIAL SUPPLY -

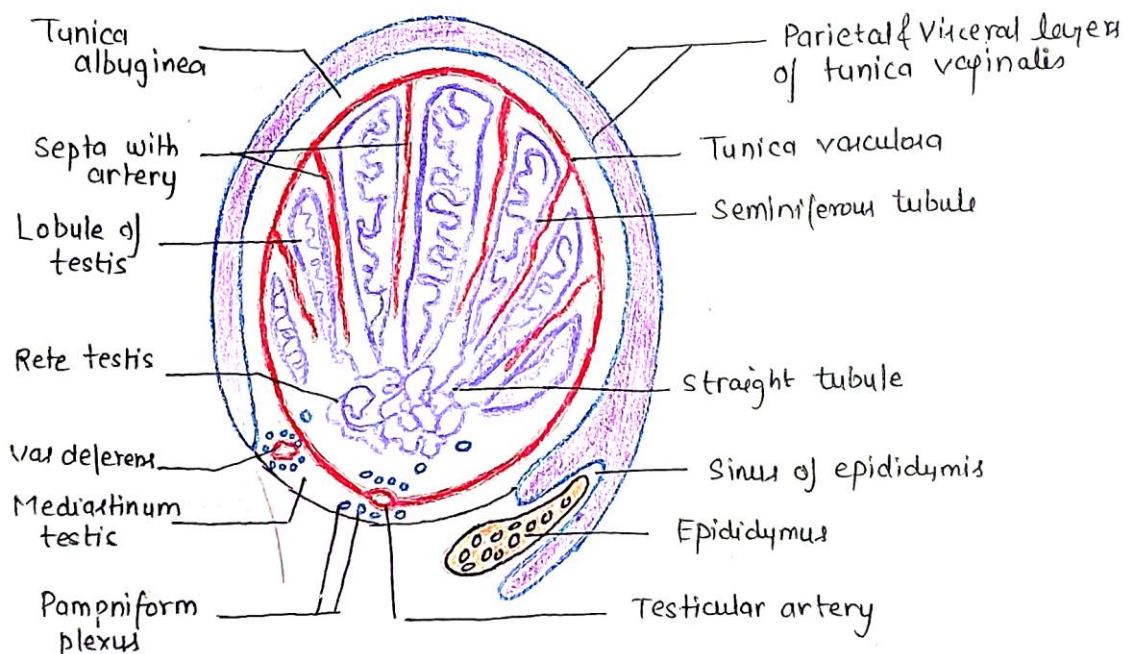
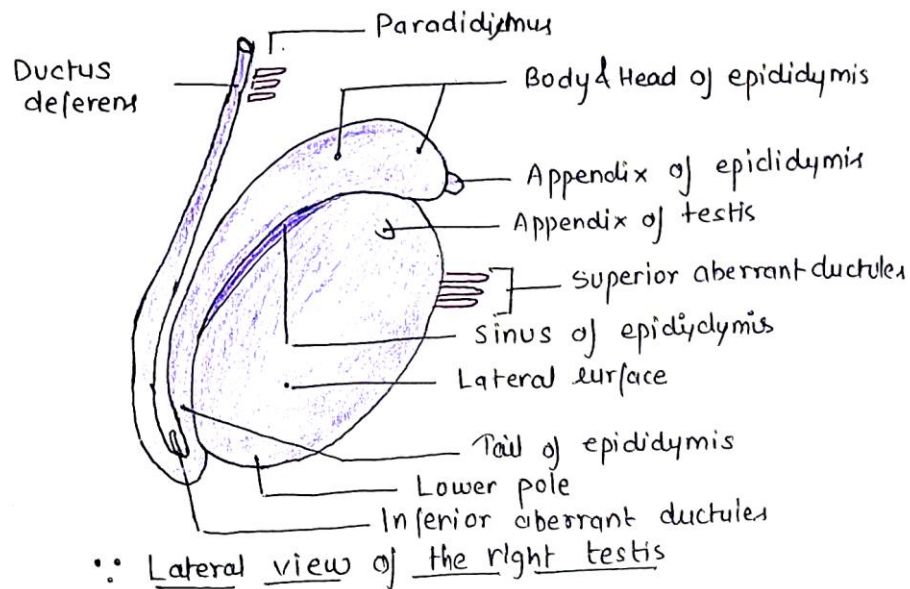
- TESTICULAR ARTERY → BRANCH OF ABDOMINAL AORTA → GIVEN OFF AT LEVEL OF L2.
→ DESCEND ON POSTERIOR ABDOMINAL WALL →
TO REACH WHERE DEEP INGUINAL RING → ENTER SPERMATIC CORD
- AT POSTERIOR BORDER OF TESTIS - IT DIVIDES INTO BRANCHES.
 - SOME SMALL BRANCHES → ENTER POSTERIOR BORDER
 - WHILE LARGE BRANCHES → MEDIAL & LATERAL → PIERCE TUNICA ALBUGINEA

VEIN SUPPLY

- VEIN - EMERGING FROM THE TESTIS FORM - PAMPINIFORM PLEXUS.
- ANTERIOR PART OF PLEXUS ARRANGED AROUND TESTICULAR ARTERY.
- MIDDLE PART OF PLEXUS ARRANGED TESTICULAR ARTERY-DUCTUS DEFERENS
- POSTERIOR PART IS - ISOLATED
- PLEXUS CONDENSES → INTO 4 VEIN → AT SUPERFICIAL INGUINAL RING
→ INTO 2 VEIN → DEEP INGUINAL RING.
- > ONE VEIN → DRAIN INTO INFERIOR VENA CAVA ON RIGHT SIDE
- > OTHER VEIN → DRAIN INTO LEFT RENAL VEIN ON LEFT SIDE

NERVE SUPPLY - SYM. -> T10 OF SPINAL CORD

- NERVE ARE BOTH AFFERENT FOR TESTICULAR SENSATION & EFFERENT TO BLOOD VESSEL (VASOMOTOR).



**HYDROCELE -**

- IT IS THE ACCUMULATION OF FLUID WITHIN TUNICA VAGINALIS
- THE FLUID FROM TUNICA VAGINALIS CAN BE REMOVED BY INSERTING A FINE TROCAR AND CANULA THROUGH THE SCROTAL SKIN

UNDESCENDED TESTIS OR CRYPTORCHIDISM -

THE ORGAN MAY LIE IN THE LUMBAR, ILIAC, INGUINAL, OR UPPER SCROTAL REGION. THE IMPORTANT FEATURES OF AN UNDESCENDED TESTIS ARE AS FOLLOWS.

- A. THE TESTIS MAY COMPLETE ITS DESCENT AFTER BIRTH.
- B. SPERMATOGENESIS MAY FAIL TO OCCUR IN IT.
- C. A MALIGNANT TUMOUR IS MORE PRONE TO DEVELOP IN IT.
- D. THE CONDITION CAN BE SURGICALLY CORRECTED.

EPTOPIC TESTIS:

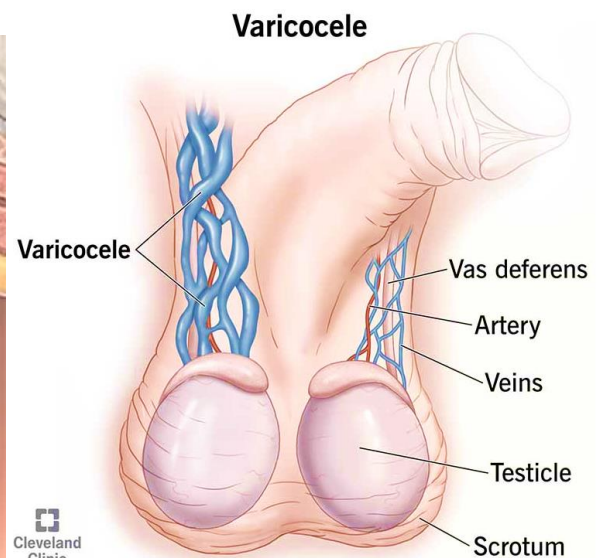
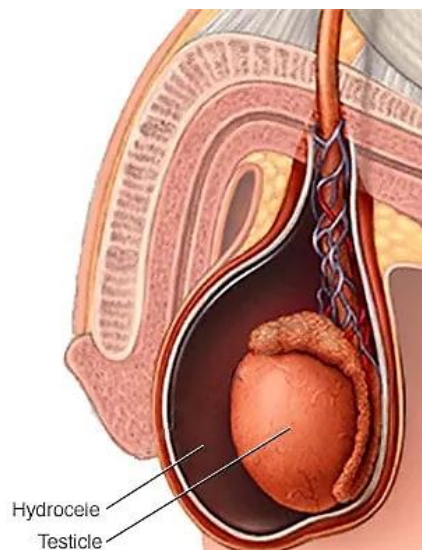
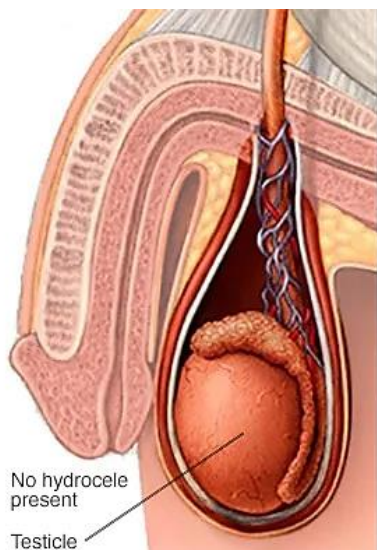
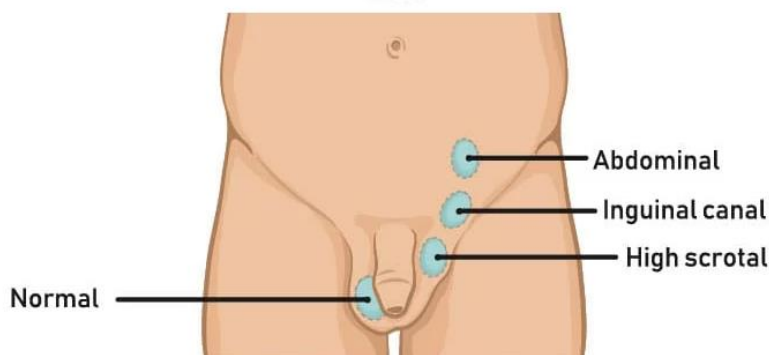
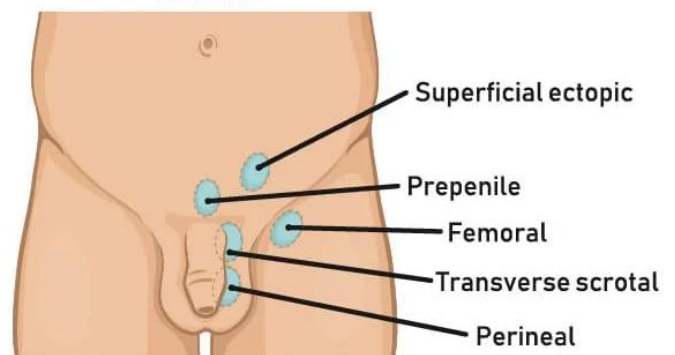
- 1. TESTIS MAY OCCUPY AN ABNORMAL POSITION DUE TO DEVIATION FROM THE NORMAL ROUTE OF DESCENT.
- 2. IT MAY BE UNDER THE SKIN OF THE LOWER PART OF THE ABDOMIN, UNDER THE SKIN OF THE FRONT OF THE THIGH, IN THE FEMORAL CANAL, UNDER THE SKIN OF THE PENIS & IN THE PERINEUM BEHIND THE SCROTUM.

VARICOCELE -

IT PRODUCED BY DILATATION OF PAMPINIFORM PLEXUS, IT IS USUALLY LEFT SIDE.

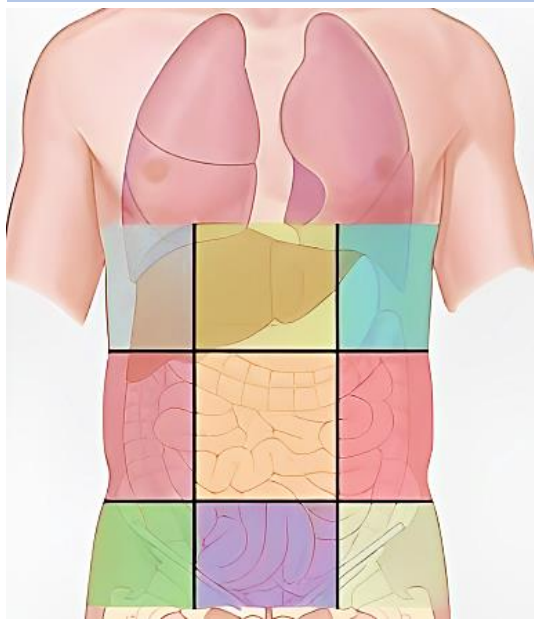
HERMAPHRODITISM -

TRUE HERMAPHRODITISM - BOTH TESTIS & OVARY ARE PRESENT.

**TRUE****ECTOPIC**



NINE REGIONS OF ABDOMINAL CAVITY

**Right Hypochondriac Region**

- Liver
- Gallbladder
- Right kidney

Epigastric Region

- Stomach
- Liver
- Pancreas
- Right and left kidneys

Left Hypochondriac Region

- Stomach
- Liver (tip)
- Left kidney
- Spleen

Right Lumbar Region

- Liver (tip)
- Small intestines
- Ascending colon
- Right kidney

Umbilical Region

- Stomach
- Pancreas
- Small intestines
- Transverse colon

Left Lumbar Region

- Small intestines
- Descending colon
- Left kidney

Right Iliac Region

- Small intestines
- Appendix
- Cecum and ascending colon

Hypogastric Region

- Small intestines
- Sigmoid colon
- Bladder

Left Iliac Region

- Small intestines
- Descending colon
- Sigmoid colon

PERITONEUM

PERITONEUM IS A LARGE THIN SEROUS MEMBRANE, WHICH LINES THE INTERIOR OF ABDOMINOPELVIC CAVITY

MADE OF -> OUTER LAYER - FIBRO-ELASTIC TISSUE

-> INNER LAYER - SIMPLE SQUAMOUS EPITHELIUM

LAYERS -

PARIETAL PERITONEUM -> SIMPLE LAYER LINING INTERNAL SURFACE OF ABDOMINOPELVIC WALL

VISCERAL PERITONEUM -> ARRANGEMENT OF VISCERAL LAYER IS COMPLEX

-> IT FORM FOLDS, WHICH SURROUNDS THE INTRICATELY FOLDED AND TIGHTLY PACKED GUT TUBE

FOLDS - FORM BY VISCERAL PERITONEUM

1) MANY ORGANS WITHIN ABDOMEN ARE SUSPENDED BY PERITONEAL FOLDS

2) ORGANS THAT LIE OUTSIDE THE PERITONEAL CAVITY ARE CALLED RETROPERITONEAL ORGANS

CLASSIFICATION OF PERITONEAL FOLD

1) MESENTERY - FOLD SUSPENDING THE SMALL INTESTINE

- FOLD SUSPENDING THE COLON IS CALLED MESOCOLON

2) OMENTUM - THESE ARE PERITONEAL FOLDS THAT CONNECT THE STOMACH WITH OTHER VISCERA

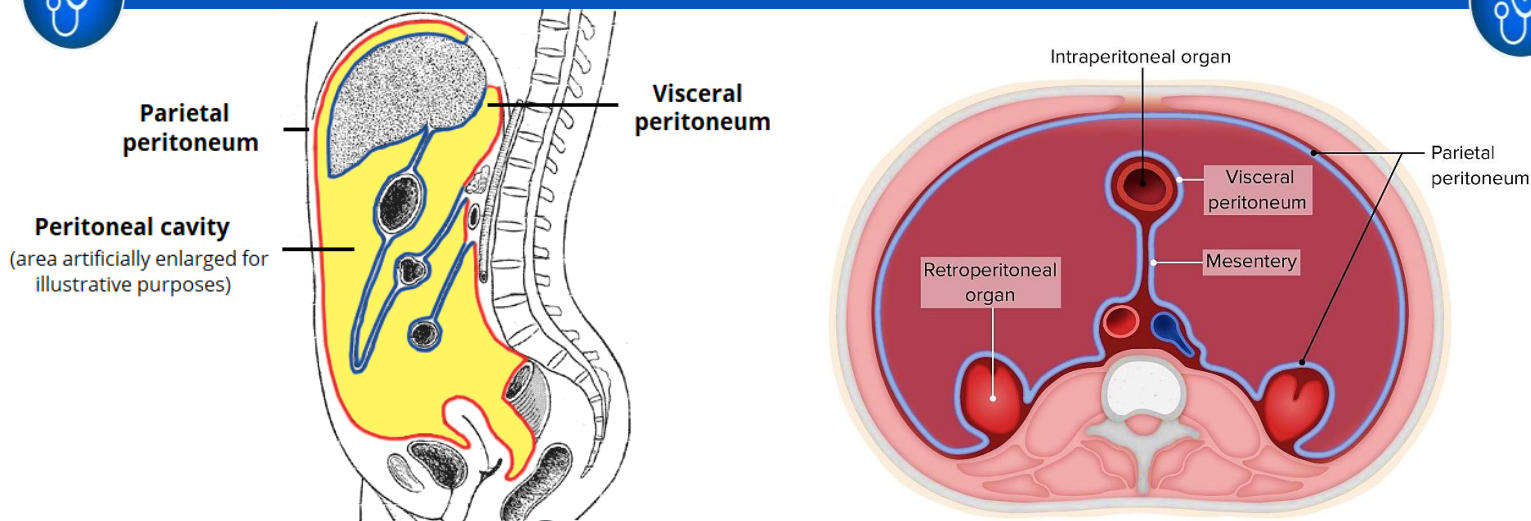
GREATER OMENTUM - FOLD CONNECTING STOMACH WITH TRANSVERSE COLON

LESSER OMENTUM - FOLD CONNECTING THE STOMACH WITH LIVER

3) LIGAMENTS - FOLDS THAT CONNECT ORGANS TO ABDOMINAL WALL

- EXAMPLES - GASTROSPLenic LIGAMENTS, LIENORENAL LIGAMENTUM & CORONARY LIGAMENT

THE PERITONEAL CAVITY IS A POTENTIAL SPACE BETWEEN THE PARIETAL AND VISCERAL PERITONEUM.



GREATER SAC

THE PERITONEAL CAVITY IS A POTENTIAL SPACE BETWEEN THE PARIETAL AND VISCERAL PERITONEUM.

IT NORMALLY CONTAINS ONLY A THIN FILM OF PERITONEAL FLUID, WHICH CONSISTS OF WATER, ELECTROLYTES, LEUKOCYTES AND ANTIBODIES.

THE PERITONEAL CAVITY CAN BE DIVIDED INTO THE GREATER AND LESSER PERITONEAL SACS.

THE GREATER SAC COMPRISES THE MAJORITY OF THE PERITONEAL CAVITY.

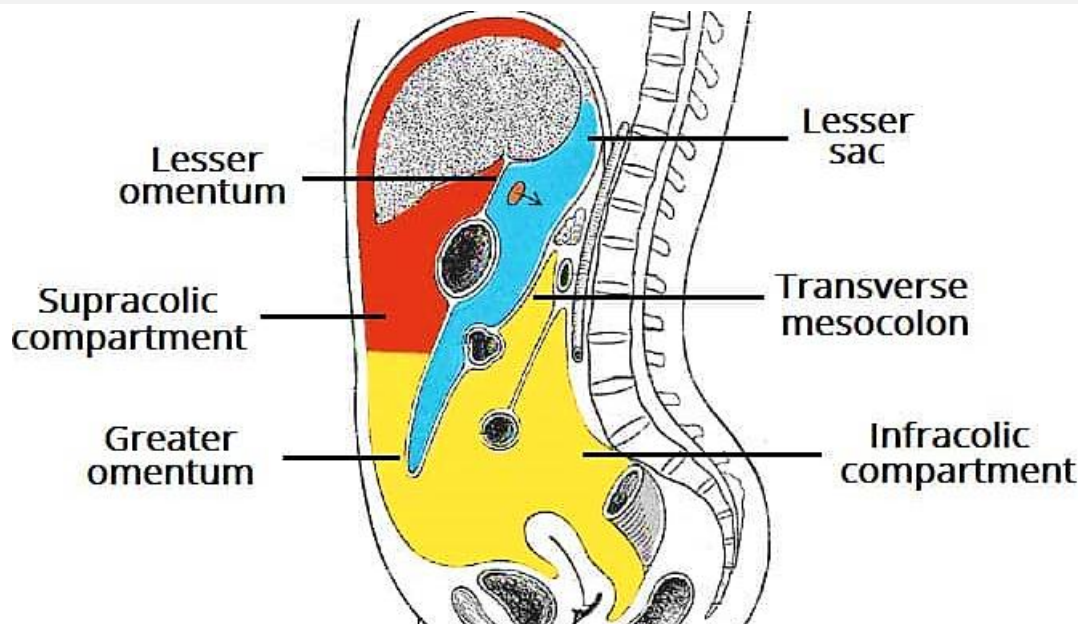
THE LESSER SAC IS SMALLER AND LIES POSTERIOR TO THE STOMACH AND LESSER OMENTUM.

GREATER SAC

THE GREATER SAC IS THE LARGER PORTION OF THE PERITONEAL CAVITY. IT IS FURTHER DIVIDED INTO TWO COMPARTMENTS BY THE MESENTERY OF THE TRANSVERSE COLON

- **SUPRACOLIC COMPARTMENT** - LIES ABOVE THE TRANSVERSE MESOCOLON AND CONTAINS THE STOMACH, LIVER AND SPLEEN.
- **INFRACOLIC COMPARTMENT** - LIES BELOW THE TRANSVERSE MESOCOLON AND CONTAINS THE SMALL INTESTINE, ASCENDING AND DESCENDING COLON.

THE SUPRACOLIC AND INFRACOLIC COMPARTMENTS ARE CONNECTED BY THE PARACOLIC GUTTERS WHICH LIE BETWEEN THE POSTEROLATERAL ABDOMINAL WALL AND THE LATERAL ASPECT OF THE ASCENDING OR DESCENDING COLON.





LESSER SAC

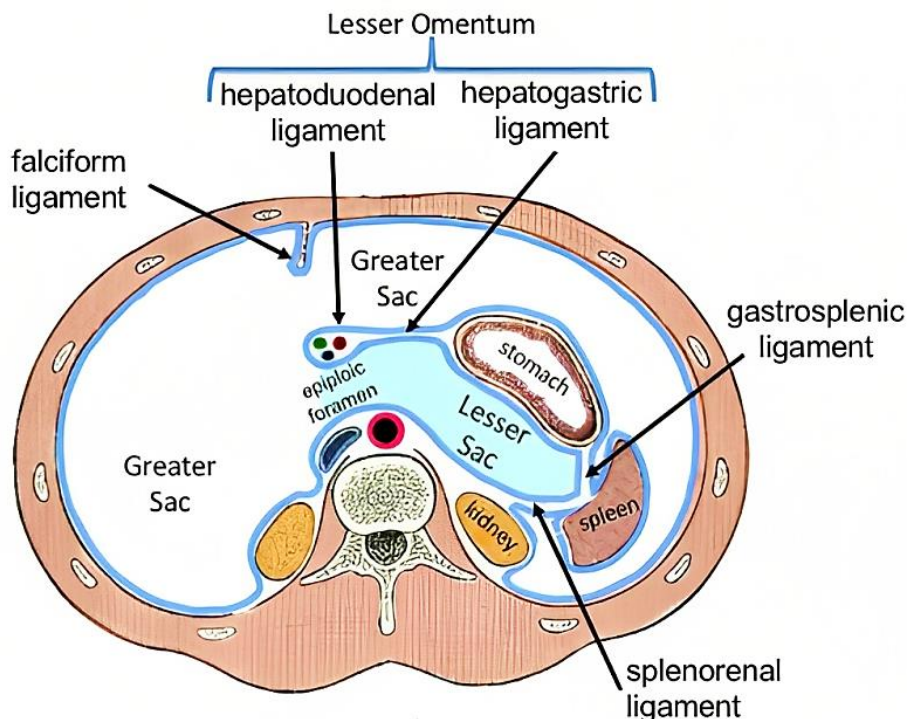
IT IS LARGE RECESS OF PERITONEAL CAVITY BEHIND THE STOMACH, THE OMENTUM AND CAUDATE LOBE OF LIVER

CLOSE ALL ROUND

EXCEPT IN THE UPPER PART OF ITS RIGHT BORDER → WHERE IT COMMUNICATE WITH GREATER SAC → THROUGH → EPIPLOIC FORAMEN

BOUNDARIES

- 1) ANTERIOR - PERITONEUM COVERING CAUDATE LOBE OF LIVER
 - POSTERIOR LAYER OF LESSER OMENTUM
 - POSTERIOR SURFACE OF STOMACH
 - 2ND LAYER OF GREATER OMENTUM
- 2) POSTERIOR - 3RD LAYER OF GREATER OMENTUM
 - TRANSVERSE MESODERM
 - UPPER LAYER OF TRANSVERSE MESOCOLON



GREATER OMENTUM

FOLD OF PERITONEUM - WHICH HANGS DOWN FROM GREATER CURVATURE OF STOMACH.

MADE UP OF FOUR LAYERS OF PERITONEUM- ALL WHICH ARE FUSED TOGETHER

AND FORM THIN FENESTRATED MEMBRANE CONTAINING VARIABLE - QUANTITIES OF FAT
- SMALL ARTERIES & VEIN

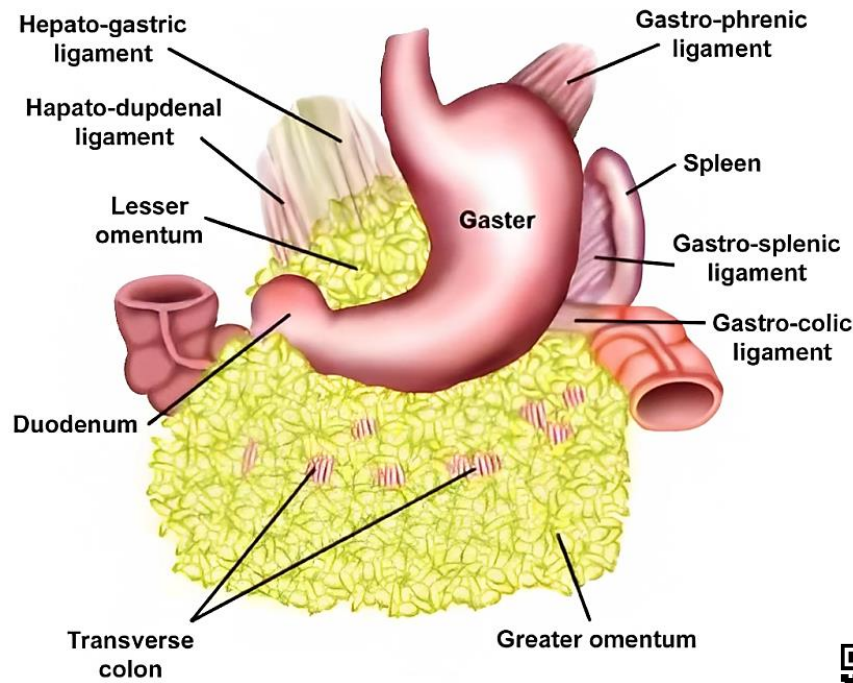
ATTACHMENT

- ANTERIOR 2x LAYER DESCEND FROM GREATER CURVATURE OF STOMACH TO A, VARIABLE EXTEND.
- AND FOLD THEMSELVES TO FORM POSTERIOR TWO LAYER
- FOLDING OF OMENTUM IS SUCH THAT FIRST LAYER BECOME- FOURTH LAYER & 2ND LAYER → 3RD LAYER
- IN UPPER PART, FOURTH LAYER IS PARTIALLY FUSED TO ANTERIOR SURFACE OF TRANSVERSE COLON & TRANSVERSE MESOCOLON.



**CONTENT - RIGHT & LEFT GASTROEPIPLOIC VESSELS AND FAT****FUNCTIONS**

- STORE HOUSE OF FAT
- PROTECT PERITONEAL CAVITY AGAINST INFECTION BECAUSE OF PRESENCE OF MACRO PHAGES.
- COLLECTION OF MACROPHAGES FROM SMALL, DENSE PATCH KNOWN - AS MILKY SPOT.
- IT ALSO LIMIT SPREAD OF INFECTION BY MOVING TO SITE OF INFECTION & SEALING IT OFF.
- GREATER OMENTUM IS ALSO KNOWN AS POLICEMEN OF ABDOMIN.

**LESSER OMENTUM**

FOLD OF PERITONEUM WHICH EXTEND-FROM- LESSER CURVATURE OF STOMACH TO FIRST 2CM OF DUODENUM TO THE LIVER

PORTION OF L.O B/W STOMACH AND LIVER- HEPATOGASTRIC LIGAMENT

PORTION OF L.O B/W DUODENUM AND LIVER- HEPATODUODENAL LIGAMENT

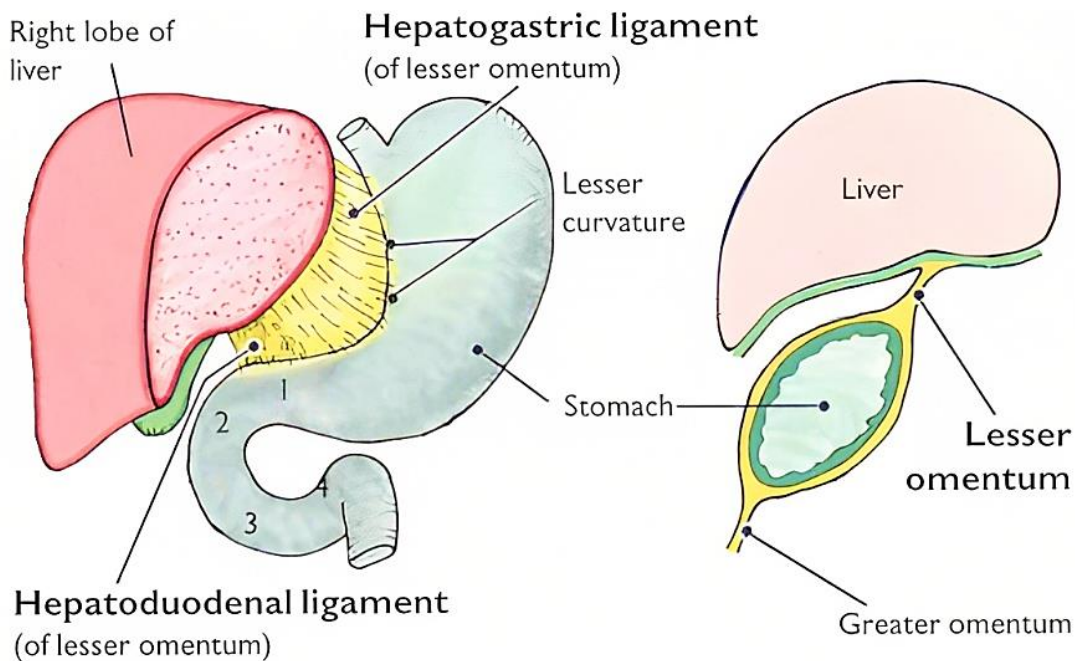
ATTACHMENTS-

- 1) INFERIORLY - LESSER CURVATURE OF STOMACH
- UPPER BORDER OF FIRST 2CM OF DUODENUM
- 2) SUPERIORLY - LIVER ATTACHMENT AS AN INVERTED 'L'
- VERTICAL LIMB OF L'- IS FISSURE FOR LIGAMENTUM VENOSUM
- HORIZONTAL LIMB - MARGIN OF PORTA HEPATIS.

CONTENTS - PROPER HEPATIC ARTERY

- PORTAL VEIN
- BILE DUCT
- LYMPH NODES
- HEPATIC PLEXUS OF NERVE

ALONG THE- LESSER CURVATURE OF STOMACH - CONTAIN - RIGHT & LEFT GASTRIC VESSELS.
- GASTRIC GROUP OF LYMPH NODE
- BRANCHES FROM GASTRIC NERVE



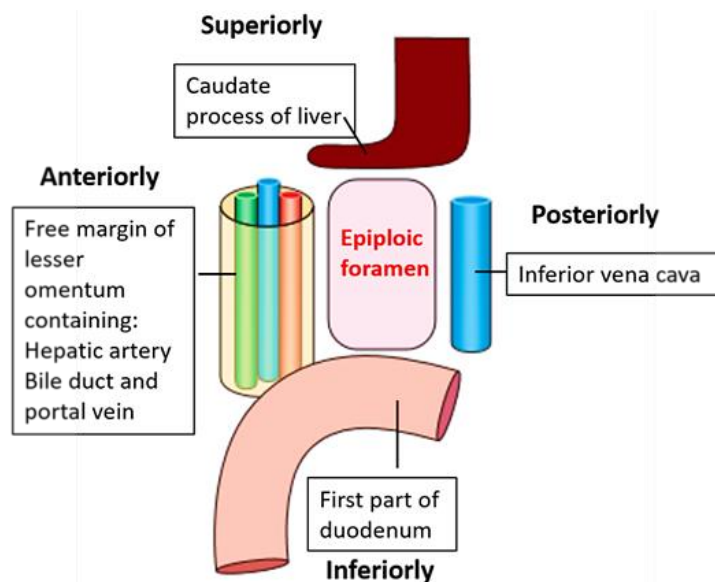
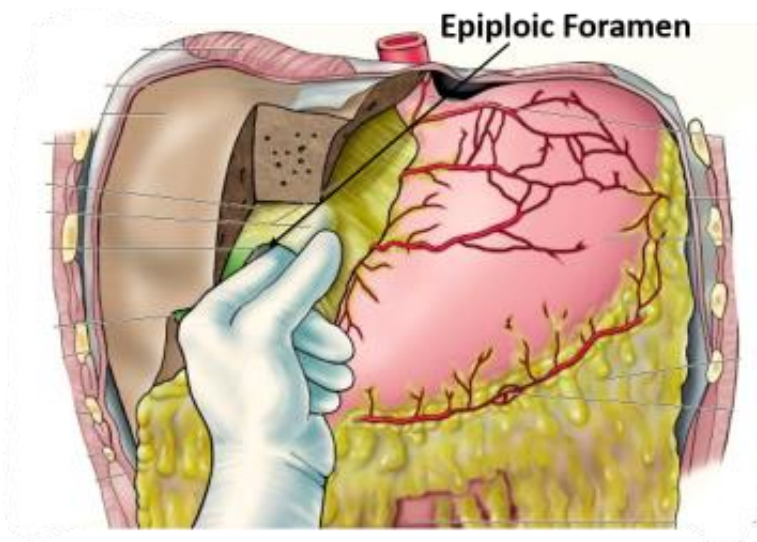
EPIPLOIC FORAMEN

VERTICAL SLIT -> LIKE OPENING THROUGH WHICH -> LESSER SAC COMMUNICATES WITH GREATER SAC.

FORAMEN IS SITUATED BEHIND THE RIGHT FREE MARGIN OF LESSER OMENTUM AT LEVEL OF T12 VERTEBRA.

BOUNDARIES -

- 1) ANTERIORLY: LESSER OMENTUM - CONTAINING - PORTAL VEIN
- PROPER HEPATIC ARTERY
- BILE DUCT
- 2) POSTERIORLY: - INFERIOR VENA CAVA
- RIGHT SUPRARENAL GLAND
- T12 VERTEBRA
- 3) SUPERIORLY - CAUDATE PROCESS OF LIVER
- 4) INFERIORLY - FIRST PART OF DUODENUM





ABDOMINAL AORTA

ABDOMINAL AORTA IS ABOUT 12.5CM LONG

IT BEGIN AS CONTINUATION OF DESCENDING THORACIC AORTA AT AORTIC OPEING

COURSE

1. BEGIN AT THE AORTIC OPENING OF DIAPHRAGM
2. IT RUN DOWNWARD AND END IN FRONT OF LOWER PART OF BODY OF VERTEBRA L4.

RELATIONS -

- 1 ANTERIORLY - COELIAC AND AORTIC PLEXUSES
 - BODY OF PANCREAS
 - THIRD PART OF DUODENUM
- 2.POSTERIORLY - BODY OF UPPER 4X LUMBAR VERTEBRA
 - ANTERIOR LONGITUDINAL LIGAMENT
- 3.TO RIGHT SIDE - INFERIOR VENA CAVA,
 - RIGHT CRUS OF DIAPHRAGM
 - CISTERNA CHYLI
- 4.TO LEFT SIDE - LEFT CRUS OF DIAPHRAGM
 - PANCREAS
 - 4TH PART OF DUODENUM

BRANCHES

1) VENTRAL BRANCHES-

1. COELIAC TRUNK → LEFT GASTRIC ARTERY
→ COMMON HEPATIC ARTERY
→ SPLENIC BRANCH
- 2.SUPERIOR MESENTERIC ARTERY → INFERIOR PANCREATICODUODENAL
→ MIDDLE COLIC
→ RIGHT COLIC
→ ILEO COLIC
→ 12-15 JEJUNAL
→ ILEAL BRANCHES
- 3.INFERIOR MESENTERIC ARTERY → LEFT COLIC
→ SIGMOID ARTERY
→ SUPERIOR RECTAL

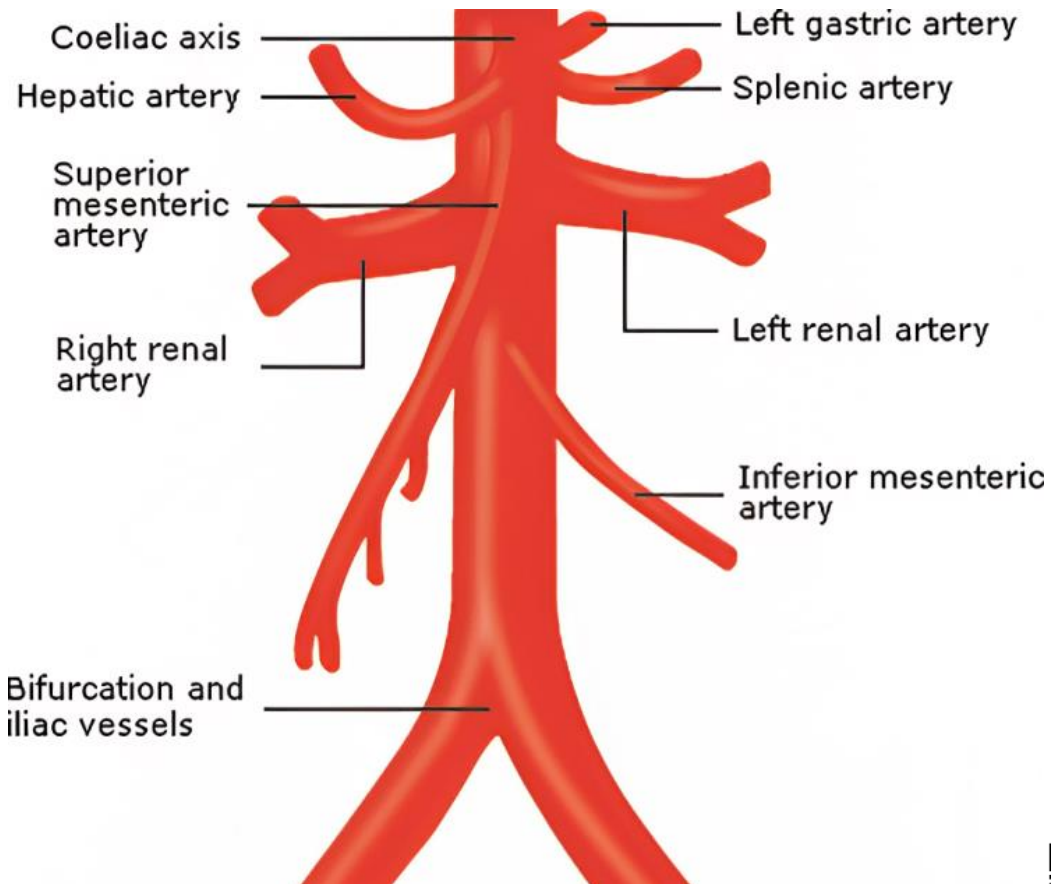
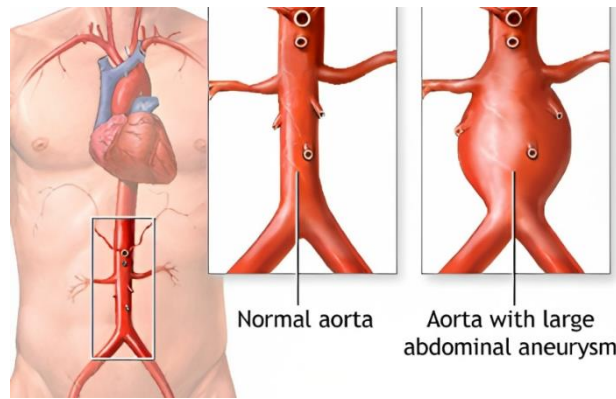
- #### 2) LATERAL BRANCHES - INFERIOR PHRENIC ARTERIES
- MIDDLE SUPRARENAL ARTERIES
 - RENAL ARTERIES
 - TESTICULAR OR OVARIAN ARTERIES

- #### 3) DORSAL BRANCHES - LUMBAR ARTERY
- MEDIAN SACRAL ARTERY

CLINICAL ANATOMY

AORTIC ANEURYSM -

- COMMONLY OCCURS BELOW THE ORIGIN OF RENAL ARTERIES USUALLY IN ELDERLY MEN
- MOST COMMON CAUSE OF AORTIC ANEURYSM IS ATHEROSCLEROSIS WHICH WEAKEN THE AORTIC WALL
- CLINICALLY IT PRESENT AS PULSATILE AND EXPANSILE ABDOMINAL MASS TYPICALLY JUST SUPERIOR TO AND TO LEFT OF UMBILICUS



POTAL VEIN



LARGE VEIN WHICH COLLECT BLOOD FROM - ABDOMINAL PART OF ALIMENTARY TRACT

- GALL BLADDER
- PANCREAS
- SPLEEN

IN LIVER, THE PORTAL VEIN BREAK UP INTO SINUSOIDS - WHICH DRAINED BY - HEPATIC VEIN TO INFERIOR VENA CAVA.

IT IS CALLED PORTAL VEIN BECAUSE - ITS MAIN TRIBUTARY, SUPERIOR MESENTERIC VEIN, BEGIN IN ONE SET OF CAPILLARIES (IN THE GUT) & PORTAL ONE END IN ANOTHER SET OF CAPILLARIES IN LIVER.

FORMATION

- PORTAL VEIN ABOUT 8CM LONG.
- FORMED BY UNION OF -> SUPERIOR MESENTERIC VEIN BEHIND NECK OF PANCREAS & SPLENIC VEIN.



COURSE - RUN UPWARD - FIRST BEHIND THE NECK OF PANCREAS

- NEXT BEHIND THE FIRST PART OF DUODENUM
- LASTLY - FREE MARGIN OF LESSER OMENTUM

- DIVIDED INTO - INFRADUODENAL

- RETRODUODENAL
- SUPRADUODENAL PART

- TERMINATION -> VEIN END AT RIGHT END OF PORTA HEPATIS BY DIVIDING INTO -> RIGHT & LEFT BRANCH

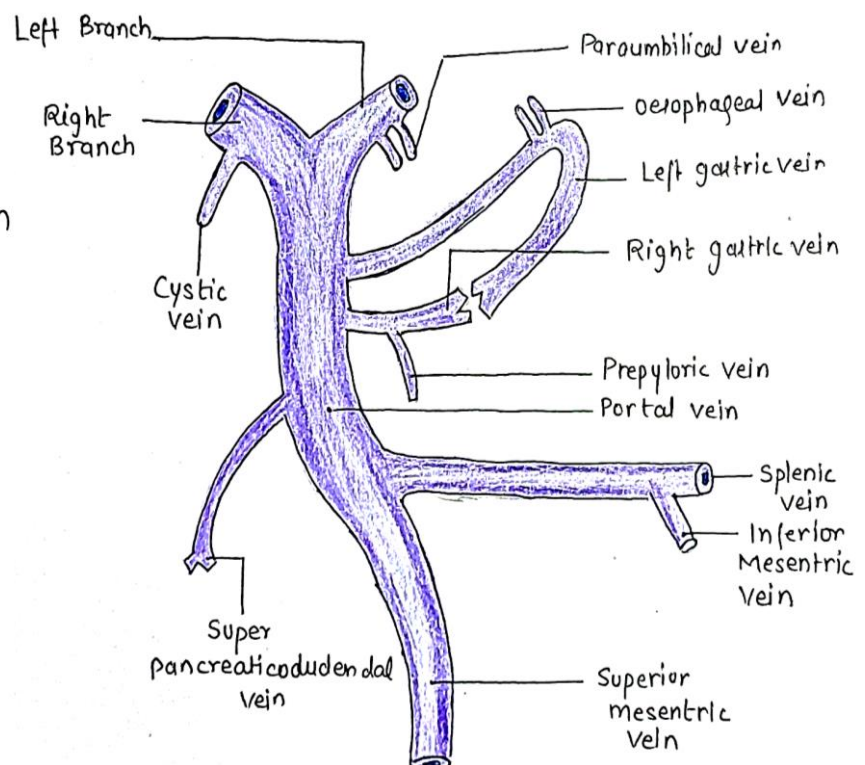
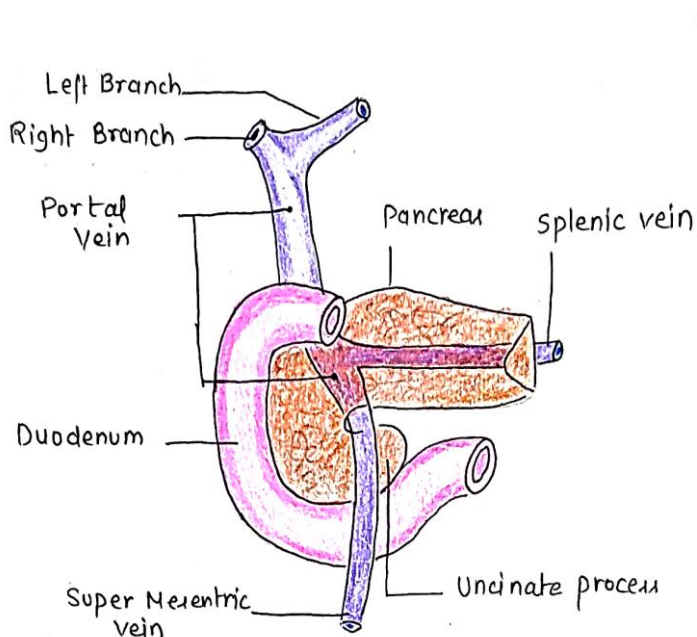
RELATIONS -

- INFRADUODENAL PART - ANTERIORLY - NECK OF PANCREAS
 - POSTERIORLY - INFERIOR VENA CAVA
- RETRODUODENAL PART - ANTERIORLY - FIRST PART OF DUODENUM
 - BILE DUCT
 - GASTRODUODENAL ARTERY
- POSTERIORLY - INFERIOR VENA CAVA
- SUPRADUODENAL PART - ANTERIORLY - HEPATIC ARTERY
 - BILE DUCT
- POSTERIORLY - INFERIOR VENA CAVA

BRANCHES -> RIGHT BRANCH - SHORTER & WIDER
-> LEFT BRANCH - LONGER & NARROWER

TRIBUTARIES - PORTAL VEIN RECEIVE THE FOLLOWING VEIN -

1. LEFT GASTRIC
2. RIGHT GASTRIC
3. SUPERIOR PANCREATODUODENAL
4. CYSTIC VEIN
5. PARAUMBILICAL VEIN.





PORTOCAVAL ANASTOMOSES

THERE ARE MANY SITES IN ABDOMINAL CAVITY WHERE ANASTOMOSIS EXISTS BETWEEN THE PORTAL AND SYSTEMIC VENOUS SYSTEM

1) UMBILICUS -

- LEFT BRANCH OF PORTAL VEIN COMMUNICATES WITH SUPERFICIAL VEIN OF ANTERIOR ABDOMINAL WALL AROUND UMBILICUS -> THROUGH PARAUMBILICAL VEIN

2) LOWER END OF OESOPHAGUS

- OESOPHAGEAL TRIBUTARIES OF LEFT GASTRIC VEIN ANASTOMOSE WITH OESOPHAGEAL TRIBUTARIES OF ACCESSORY HEMIAZYGOS VEIN

3) ANAL CANAL

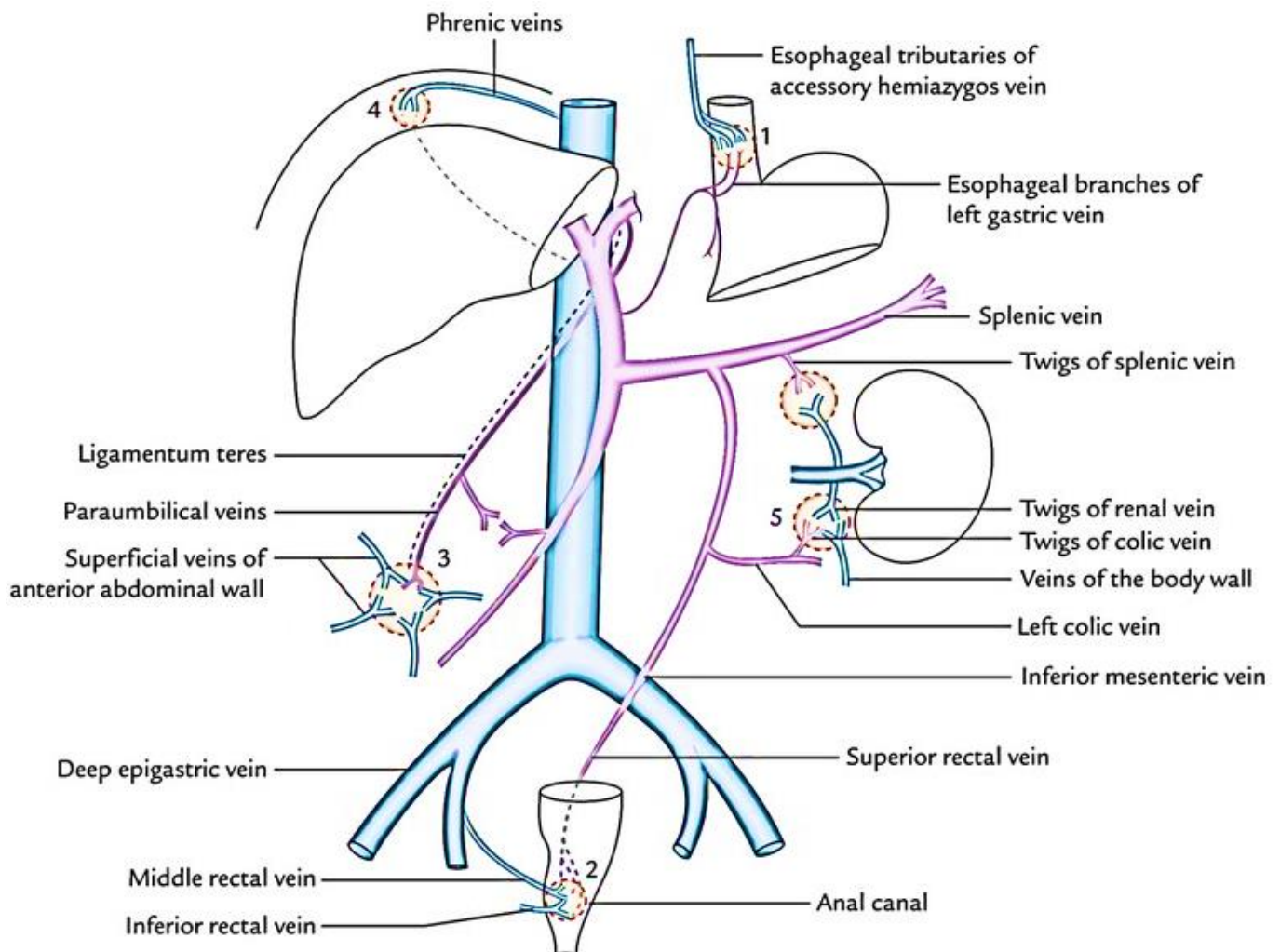
- SUPERIOR RECTAL VEIN, WHICH ULTIMATELY DRAINS INTO PORTAL VEIN ANASTOMOSES WITH MIDDLE AND INFERIOR RECTAL VEINS

4) EXTRAPERITONEAL SURFACE

- VEINS OF RETROPERITONEAL ORGANS SUCH AS DUODENUM, ASCENDING COLON AND DESCENDING COLON ANASTOMOSE WITH RETROPERITONEAL VEINS OF POSTERIOR ABDOMINAL WALL

5) BARE AREA OF LIVER

- HEPATIC VENULES ANASTOMOSE WITH PHRENIC AND INTERCOSTAL VEINS





CLINICAL ANATOMY

PORTAL HYPERTENSION -

- PORTAL PRESSURE: NORMAL PRESSURE IN THE PORTAL VEIN IS ABOUT 5-15MM HG
- IT IS USUALLY MEASURED BY SPLENIC PUNCTURE & RECORDING THE INTRASPLENIC PRESSURE

PORTAL HYPERTENSION (PRESSURE ABOVE 40MM HG): IT CAN BE USED BY THE FOLLOWING -

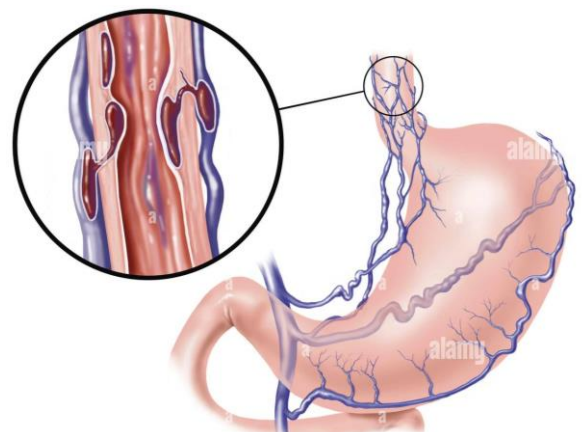
- 1) CIRRHOSIS OF LIVER, IN WHICH THE VASCULAR BED OF LIVER IS MARKEDLY OBLITERATED.
- 2) BANTI'S DISEASE
- 3) THROMBOSIS OF PORTAL VEIN.

THE EFFECT OF PORTAL HYPERTENSION ARE AS FOLLOWS: -

1. CONGESTIVE SPLENOMEGALY.
 2. COLLATERAL CIRCULATION THROUGH THE PORTOSYSTEMIC COMMUNICATIONS.
- IT FORMS -> CAPUT MEDUSAE, OESOPHAGEAL VARICES, HAEMORRHOIDS IN ANAL CANAL.



CAPUT MEDUSAE



OESOPHAGEAL VARICES

STOMACH



DEFINITION - A STOMACH IS → MUSCULAR BAG → FORMING WIDEST PART OF DIGESTIVE TUBE.

- ACT AS → RESERVOIR OF FOOD → HELP IN DIGESTION OF CARBOHYDRATES, PROTEIN & FATS.

LOCATION - UPPER LEFT PART OF ABDOMEN.

- OCCUPYING - EPIGASTRIC, UMBILICAL & LEFT HYPOCHONDRIAC REGION.

SHAPE - IN NORMAL ACTIVE PERSON SHAPE IS "J-SHAPED"

SIZE & CAPACITY - ABOUT 25CM LONG

- CAPACITY - 30ML AT BIRTH
- 1000ML AT PUBERTY
- 2LITRES OR MORE IN ADULTS.

EXTERNAL FEATURES -

- TWO ORIFICES - CARDIAC ORIFICE - IS JOINED BY - LOWER END OF OESOPHAGUS.
 - BEHIND THE LEFT 7TH COASTAL CARTILAGE.
 - 2.5CM FROM STERNUM.
 - AT LEVEL OF T11
- PYLORIC ORIFICE - OPEN INTO DUODENUM
 - AT LEVEL OF L1
 - ITS POSITION IS INDICATED ON THE SURFACE OF STOMACH -> BY PREPYLORIC VEIN
 - > BY CIRCULAR GROOVE



- TWO CURVATURES - LESSER CURVATURE - CONCAVE
 - FORM RIGHT BORDER OF STOMACH
 - PROVIDES ATTACHMENT OF LESSER OMENTUM
- GREATER CURVATURE - CONVEX
 - FORM LEFT BORDER OF STOMACH
 - PROVIDES ATTACHMENT TO GREATER OMENTUM, GASTROSPLENIC LIGAMENT, GASTROPHRENIC LIGAMENT.
- TWO SURFACE - ANTERIOR -> FACE - FORWARDS & UPWARDS
 - POSTERIOR -> FACE - BACKWARD & DOWNWARD
- TWO PARTS -> CARDIAC -> FURTHER SUB DIVIDED INTO -> FUNDUS & BODY
 - > PYLORIC -> PYLORIC ANTRUM & PYLORIC CANAL.

RELATION OF STOMACH -

- PERITONEAL RELATIONS - LINE BY PERITONEUM ON BOTH ITS SURFACES.
 - 1) AT LESSER CURVATURE - LAYER OF PERITONEUM LINING ANTERIOR & POSTERIOR SURFACE MEET.
 - AND BECOME CONTINUOUS WITH LESSER OMENTUM
 - 2) AT GREATER - TWO LAYER MEET -> TO FORM GASTROSPLENIC LIGAMENT.

- VISCERAL RELATION - ANTERIOR SURFACE - LIVER

- DIAPHRAGM
- TRANSVERSE COLON
- LEFT PLEURA
- PERICARDIUM
- 6-9 RIBS
- POSTERIOR SURFACE - DIAPHRAGM
 - LEFT KIDNEY
 - LEFT SUPRARENAL GLAND
 - PANCREAS
 - TRANSVERSE MESOCOLON
 - SPLENIC FLEXURE OF COLON
 - SPLENIC ARTERY

BLOOD SUPPLY - STOMACH IS SUPPLIED ALONG-

1. LESSER CURVATURE BY - LEFT GASTRIC ARTERY -> BRANCH COELIAC TRUNK
 - RIGHT GASTRIC ARTERY -> PROPER HEPATIC ARTERY
2. GREATER CURVATURE BY - RIGHT GASTROEPIPLOIC A. -> GASTRODUODENAL ARTERY
 - LEFT GASTROEPIPLOIC A. -> SPLENIC
3. FUNDUS - 5-7 SHORT GASTRIC ARTERIES -> BRANCH OF SPLENIC.

VEIN - RIGHT & LEFT GASTRIC VEIN -> DRAIN INTO PORTAL VEIN

- RIGHT GASTRO EPIPLOIC END -> SUPERIOR MESENTERIC VEIN
- LEFT GASTROEPIPLOIC END VEIN -> TERMINATE IN SPLENIC VEIN & SHORT GASTRIC VEINS

LYMPHATIC DRAINAGE - DIVIDED INTO 4X LYMPHATIC TERRITORIES -

- 1) AREA(A) - UPPER PART OF LEFT 1/3RD -> DRAIN INTO PANCREATOSPLENIC NODE -> TO REACH COELIAC NODES



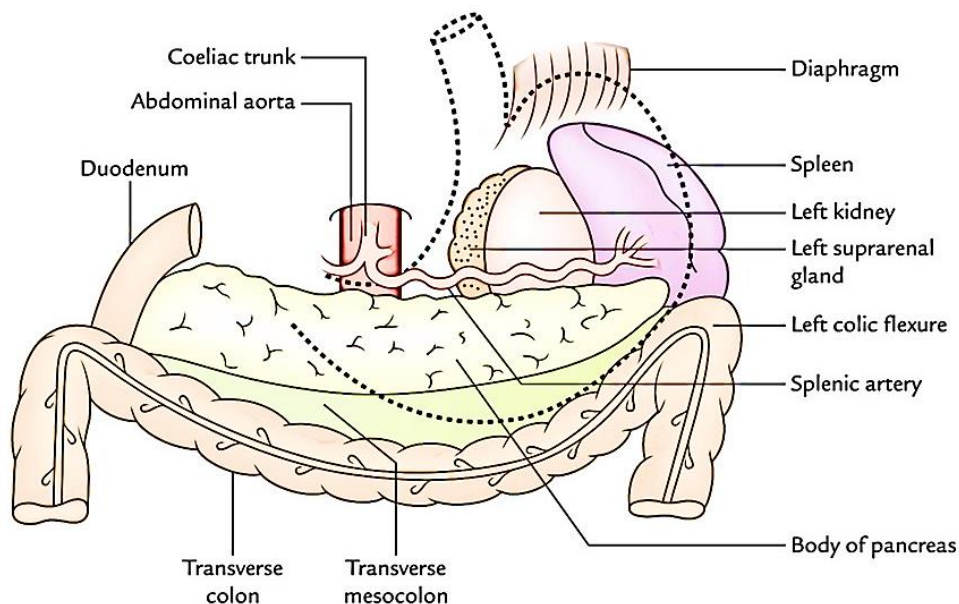
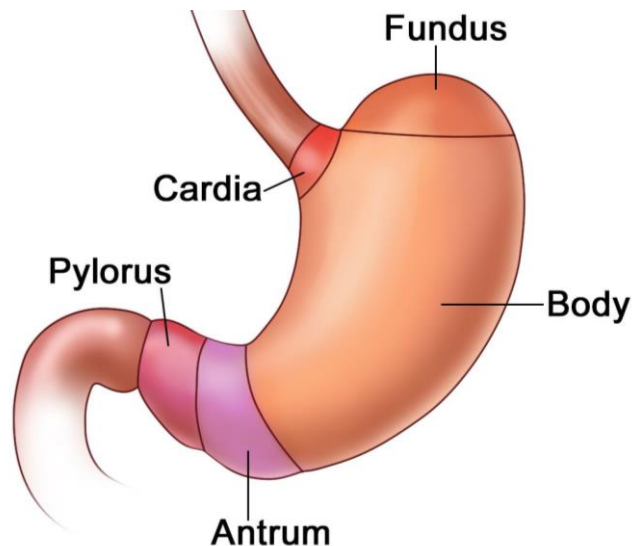
2) AREA(B) - RIGHT 2/3RD → DRAIN INTO LEFT GASTRIC NODE -
TO REACH COELIAC NODE

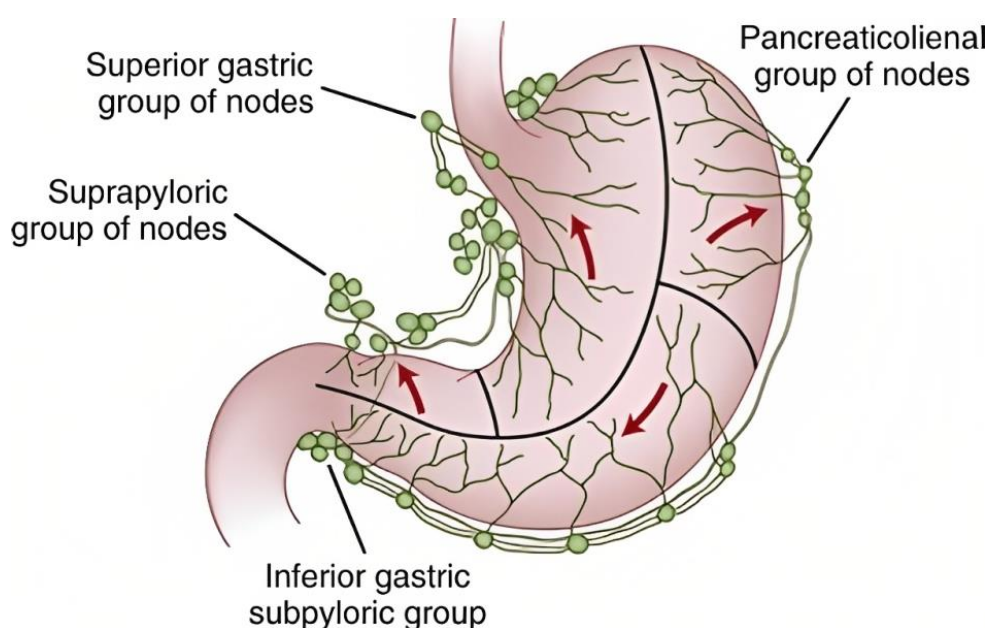
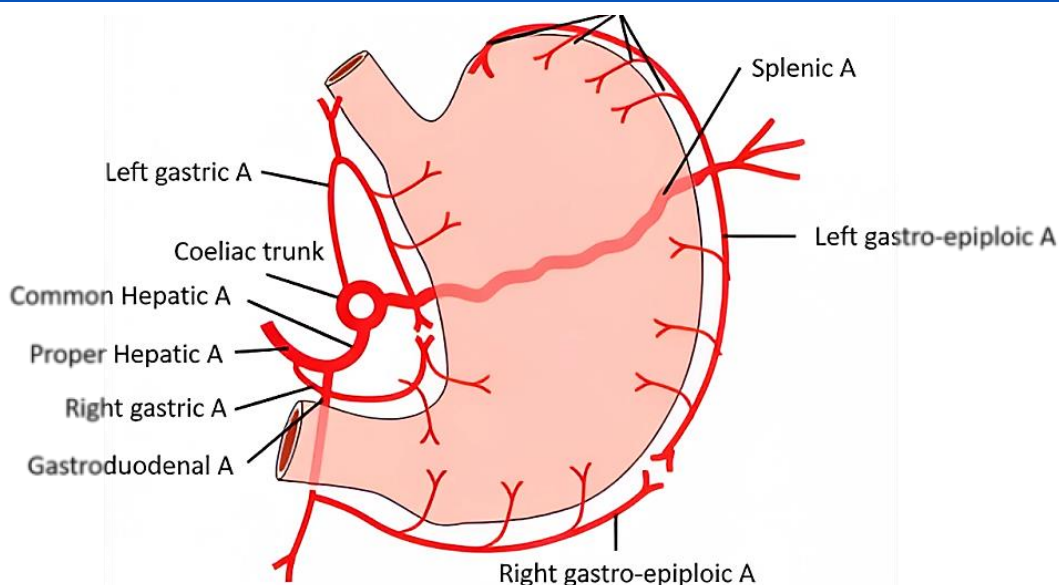
3) AREA(C) - LOWER PART OF LEFT 1/3RD → RIGHT GASTROEPIPLOIC NODE →
LYING ALONG ARTERY OF SAME NODE
→ DRAIN INTO → SUBPYLORIC NODE, HEPATIC NODE, COELIAC NODE

4) AREA(D) - PYLORIC PART → DRAIN INTO DIFFERENT DIRECTION → INTO PYLORIC,
HEPATIC, GASTRIC NODES → TO REACH COELIAC NODES
LYMPH FROM ALL AREA OF STOMACH ULTIMATELY REACH →
COELIAC NODE.

NERVE SUPPLY

- SYMPATHETIC NERVE → DERIVED FROM T6-10 SPINAL SEGMENT VIA
GREATER SPLANCHNIC NERVE, COELIAC & HEPATIC PLEXUS
- PARASYMPATHETIC NERVE → DERIVED FROM VAGI THROUGH OESOPHAGEAL PLEXUS, GASTRIC
NERVE.
 - ANTERIOR GASTRIC NERVE → CONTAIN MAINLY LEFT VAGAL FIBER
 - POSTERIOR GASTRIC NERVE → RIGHT VAGAL FIBERS





CLINICAL ANATOMY

GASTRIC CARCINOMA -

- COMMONLY OCCUR IN REGION OF PYLORIC ANTRUM ALONG GREATER CURVATURE OF STOMACH
- THE GREATER CANCER SPREADS BY LYMPH VESSELS TO LEFT SUPRACLAVICULAR LYMPH NODES
- ENLARGED AND PALPABLE LEFT SUPRACLAVICULAR NODE "VIRCHOW'S NODE"
- FIRST SIGN OF GASTRIC CANER "TROISSIER'S SIGN"

GASTRIC CANCER = MALIGNANT/CANCEROUS CELLS IN STOMACH*** ADENOCARCINOMA**

↳ from COLUMNAR GLANDULAR EPITHELIUM

*** LYMPHOMA**

↳ from LYMPHOCYTES

*** CARCINOID TUMOR**

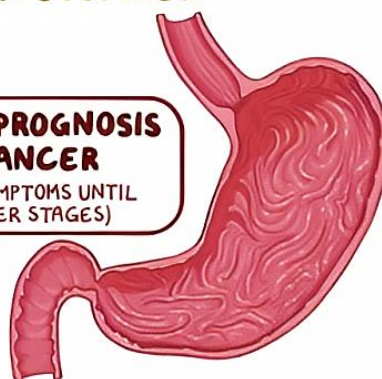
↳ from G-CELLS in STOMACH

*** LEIOMYOSARCOMA**

↳ from SMOOTH MUSCLE CELLS

**POOR PROGNOSIS
CANCER**

(NO SYMPTOMS UNTIL
LATER STAGES)





DUODENUM

DEFINITION - SHORT, WIDEST & MOST FIXED PART OF SMALL INTESTINE

- EXTEND FROM PYLORUS TO DUODENOJEJUNAL FLEXURE

- LIE ABOVE THE LEVEL OF UMBILICUS -> OPPOSITE FIRST, SECOND, THIRD LUMBAR VERTEBRA.

PARTS - 25CM LONG & DIVIDED INTO 4x PART

1. FIRST OR SUPERIOR PART, 5CM LONG
2. SECOND OR DESCENDING PART, 7.5CM LONG
3. THIRD OR HORIZONTAL PART, 10CM LONG
4. FOURTH OR ASCENDING PART, 2.5CM LONG



1) FIRST PART - BEGIN AT PYLORUS TO MEET SECOND PART AT SUPERIOR DUODENAL FLEXURE.

RELATION

- PERITONEAL RELATION - PROXIMAL 2.5CM MOVABLE → ATTACHMENT LESSER OMENTUM ABOVE
→ GREATER OMENTUM BELOW
 - DISTAL 2.5CM FIXED-RETROPERITONEAL-COVER ONLY ANTERIORLY
- VISCERAL - ANTERIOR - QUADRATE LOBE OF LIVER
 - GALL BLADDER
- POSTERIORLY - GASTRODUODENAL ARTERY
 - BILE DUCT
 - PARIETAL VEIN
- SUPERIORLY - EPIPLOIC FORAMEN
- INFERIORLY - HEAD & NECK OF PANCREAS



2) SECOND PART - BEGIN AT SUPERIOR DUODENAL FLEXURE TO REACH LOWER BORDER OF 3RD LUMBAR VERTEBRA.

RELATION

- PERITONEAL RELATION - RETROPERITONEAL - ANTERIOR SURFACE COVERED WITH PERITONEUM -> EXCEPT-MIDDLE → WHERE COLON RELATED
- VISCERAL - ANTERIORLY - RIGHT LOBE OF LIVER
 - TRANSVERSE COLON
 - ROOT OF THE TRANSVERSE MESOCOLON
 - SMALL INTESTINE

3) THIRD PART - BEGIN AT INFERIOR DUODENAL FLEXURE -> AND BY JOINING 4TH PART IN FRONT OF ABDOMINAL AORTA.

RELATION

- PERITONEAL RELATION - RETROPERITONEAL-ANTERIOR SURFACE IS COVERED BY PERITONEUM
MESENTERIC VESSEL
- VISCERAL RELATION - ANTERIORLY - SUPERIOR MESENTERIC VESSEL
 - ROOT OF MESENTERY
- POSTERIORLY - RIGHT URETER
 - RIGHT PSOAS MAJOR
 - TESTICULAR OR OVARIAN VESSEL
 - INFERIOR VENA CAVA
 - ABDOMINAL AORTA
- SUPERFICIALLY - HEAD OF PANCREAS



- INFERIORLY - COILS OF JEJUNUM

- 4) FOURTH PART** - RUN UPWARD UP TO UPPER BORDER OF 2ND LUMBAR VERTEBRA
- TO BECOME CONTINUOUS WITH JEJUNUM AT DUODENOJEJUNAL FLEXURE

RELATION

- PERITONEAL RELATION -> MOSTLY RETROPERITONEAL - COVERED WITH PERITONEUM ONLY ANTERIORLY.
- VISCERAL RELATION - ANTERIORLY - TRANSVERSE COLON
 - TRANSVERSE MESOCOLON
 - LESSER SAC
 - STOMACH
- POSTERIORLY - LEFT SYMPATHETIC CHAIN
 - LEFT RENAL ARTERY
 - LEFT GONADAL ARTERY
 - INFERIOR MESENTERIC VEIN
- TO RIGHT - ATTACHMENT OF UPPER PART OF ROOT OF MESENTERY
- TO LEFT - LEFT KIDNEY
 - LEFT URETER

ARTERIAL SUPPLY

- DEVELOP PARTLY FROM -> FOREGUT -> OPENING OF BILE DUCT INTO -> 2ND PART DUODENUM
 - > REPRESENT JUNCTION BETWEEN FOREGUT & MID GUT
- UP THE LEVEL OF OPENING -> SUPPLIED BY SUPERIOR PANCREATODUODENAL ARTERY
- BELOW -> INFERIOR PANCREATODUODENAL ARTERY

VENOUS DRAINAGE

- VEINS OF DUODENUM DRAIN INTO - SPLENIC SUPERIOR MESENTERIC PORTAL VEN

NERVE SUPPLY -> SYMPATHETIC NERVE -> T9-10 SPINAL

-> PARASYMPATHETIC -> FROM VAGUS PASS THROUGH COELIAC PLEXUS.

INTERIOR OF DUODENUM

- INTERIOR OF SECOND PART OF DUODENUM PRESENT FOLLOWING SPECIAL FEATURES -

1) MAJOR DUODENAL PAPILLA -

- WELL-MARKED CONICAL PROJECTION ON POSTEROMEDIAL WALL
- SITUATED 8-10CM DISTAL TO PYLORUS
- ON ITS SUMMIT OPENS -> COMMON HEPATOPANCREATIC DUCT

2) MINOR DUODENAL PAPILLA -

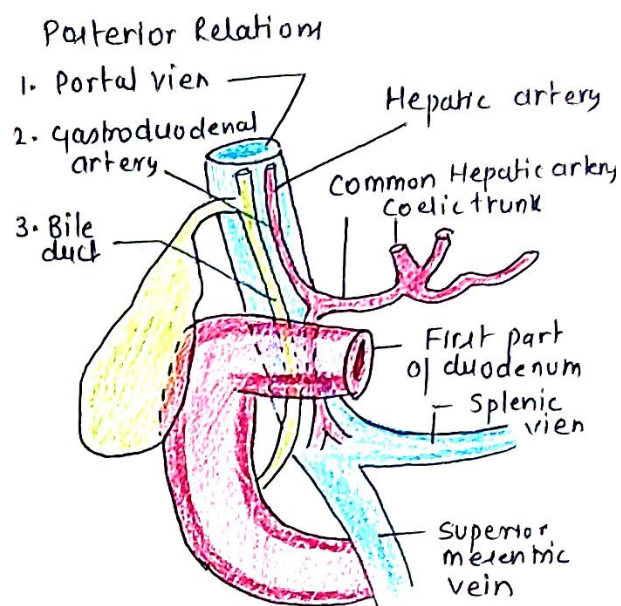
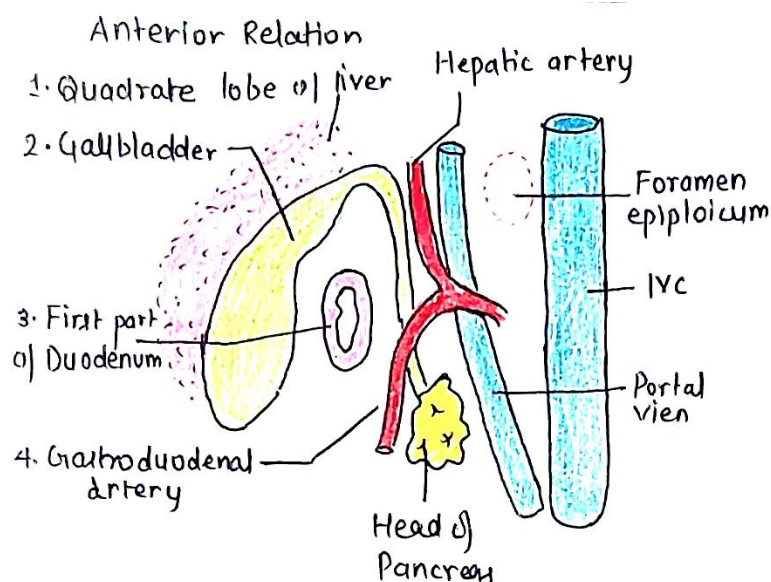
- SMALL CONICAL PROJECTION
- SITUATED 2CM PROXIMAL TO MAJOR DUODENAL PAPILLA
- ACCESSORY PANCREATIC DUCT OPEN ON ITS SUMMIT

3) PLICA LONGITUDINALIS -

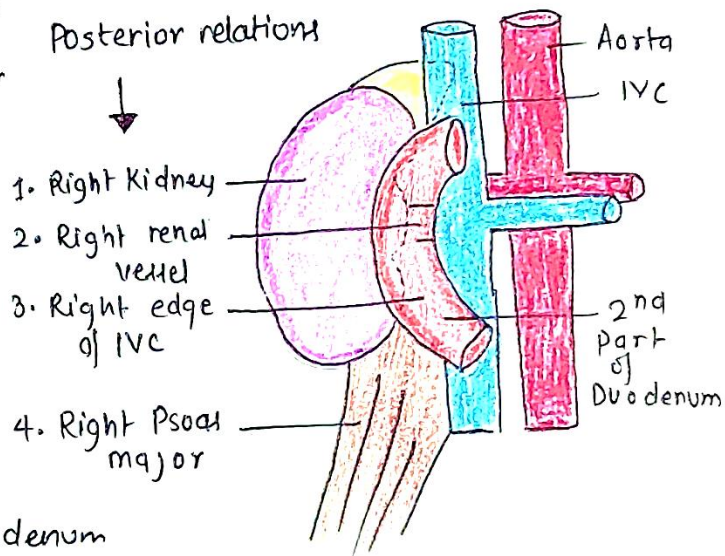
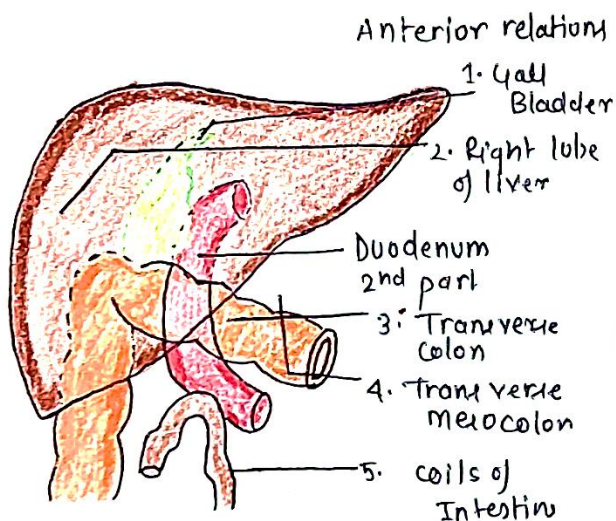
- VERTICAL TORTUOUS FOLD OF MUCOUS MEMBRANE EXTENDING DOWNWARD FROM MAJOR DUODENAL PAPILLA

4) ARCH OF PLICA SEMICIRCULARIS -

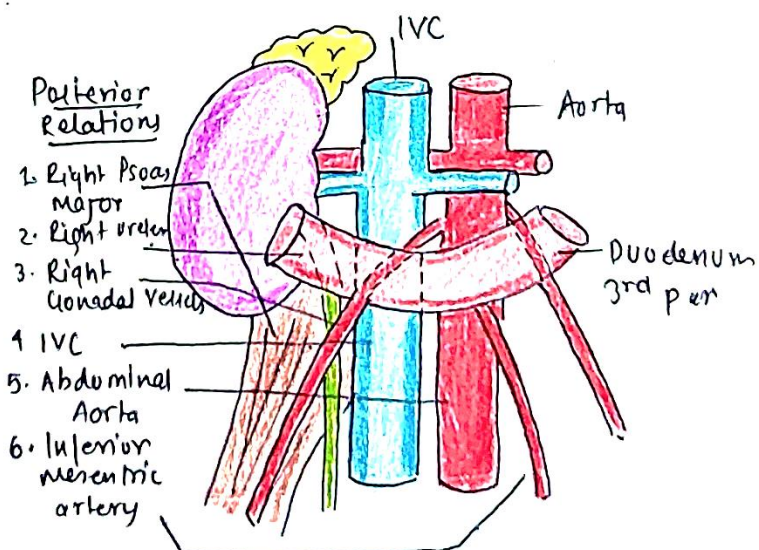
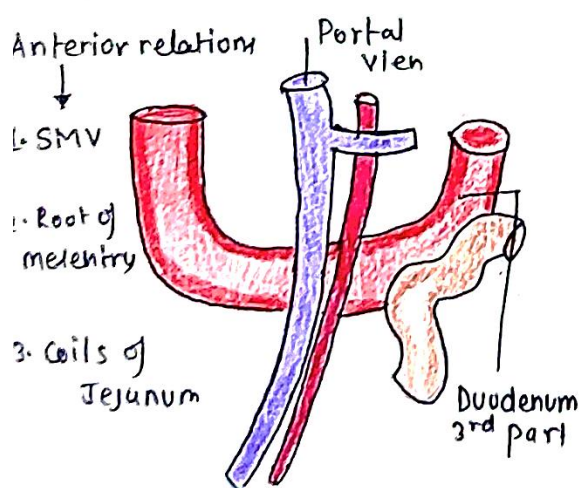
- PLICA SEMICIRCULARIS FORMS AN ARCH ABOVE MAJOR DUODENAL PAPILLA LIKE A HOOD



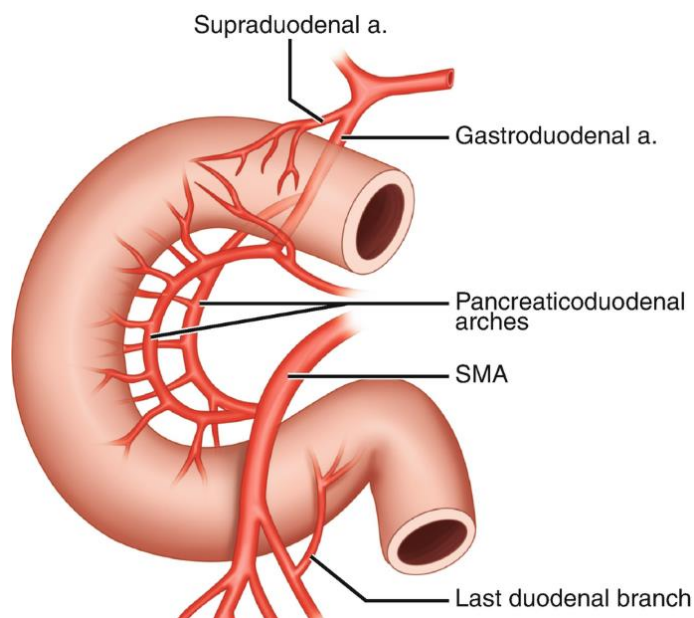
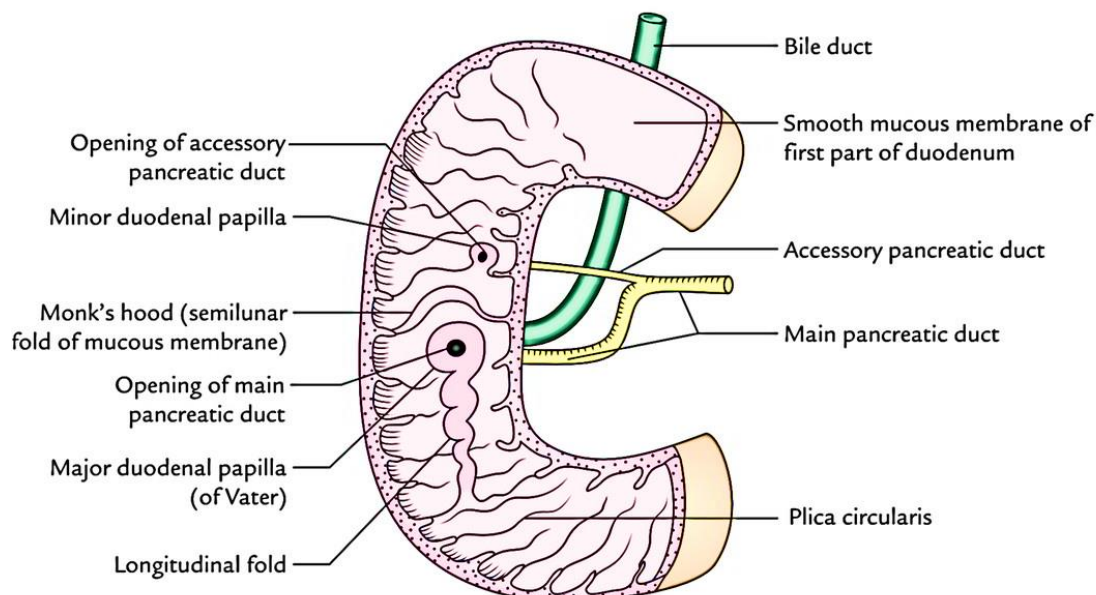
∴ Relation of first part of Duodenum



∴ Relation of 2nd part of Duodenum



∴ Relation of 3rd part of Duodenum



CLINICAL ANATOMY

DUODENAL ULCER -

- DUODENAL ULCERS, ARE INFLAMMATORY EROSIONS OF DUODENAL MUCOSA
- COMMONLU OCCUR IN FIRT PART OF DUODENUM
- GASTRIC ULCER COMMONLY OCCUR LESSER CURVATURE OF STOMACH

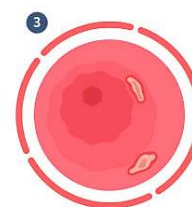
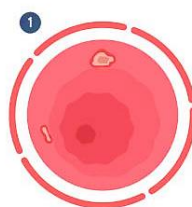
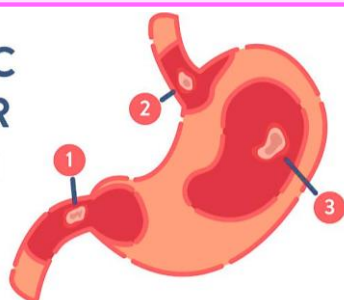
DUODENAL DIVERTICULA -

- CONGENITAL AND ALMOST ALWAYS OCCUR IN MDEIAL WALL OF SECOND PART OF DUODENUM

REFERRED PIAN -

- PAIN ARISING FROM DUODENUM IS POORLY LOCALIZED AND REFERRED TO EPIGASTRIUM

PEPTIC ULCER TYPES





CAECUM

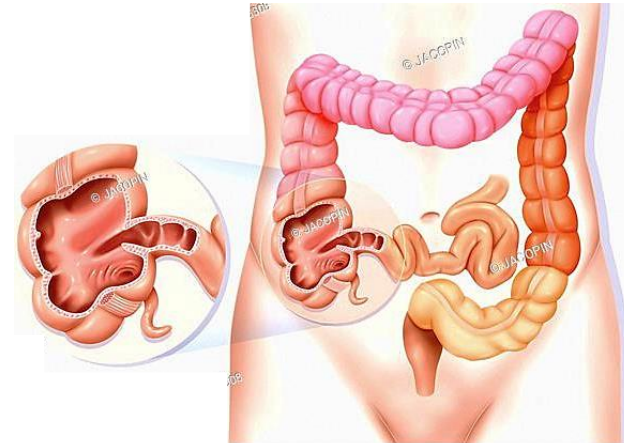
- LARGE BLIND SAC FORMING THE COMMENCEMENT OF LARGE INTESTINE
- SITUATED IN - **RIGHT ILIAC FOSSA**
- ABOVE THE LATERAL HALF OF INGUINAL LIGAMENT
- COMMUNICATION- SUPERIORLY - ASCENDING COLON
MEDIALLY - COELOCONIC JUNCTION WITH ILEUM
POSTEROMEDIALY- APPENDIX

DIMENSION- 6CM LONG AND 7.5 CM BROAD (GREATER WIDTH THAN LENGTH)

RELATION-

VISCERAL RELATIONS

- ANTERIOR - COIL OF INTESTINE
 - ANTERIOR ABDOMINAL WALL
- POSTERIOR - RIGHT PSOAS AND ILIACUS
- NERVE - GENITOFEMORAL NERVE
 - FEMORAL NERVE
 - LATERAL CUTANEOUS NERVE OF THIGH
- VESSEL - TESTICULAR OR OVARIAN



PERITONEAL RELATIONS

90% CAECUM IS ALMOST COMPLETELY SURROUNDED BY PERITONEUM AND HAVE WIDE RETROCAECAL RECESS

10% UPPER PART OF POSTERIOR SURFACE IS NON-PERITONEAL AND LIES DIRECTLY ON FASCIA ILIACA

ARTERIAL SUPPLY -> BRANCHES OF ILEOCOLIC ARTERY

VEIN SUPPLY -> SUPERIOR MESENTERIC VEIN

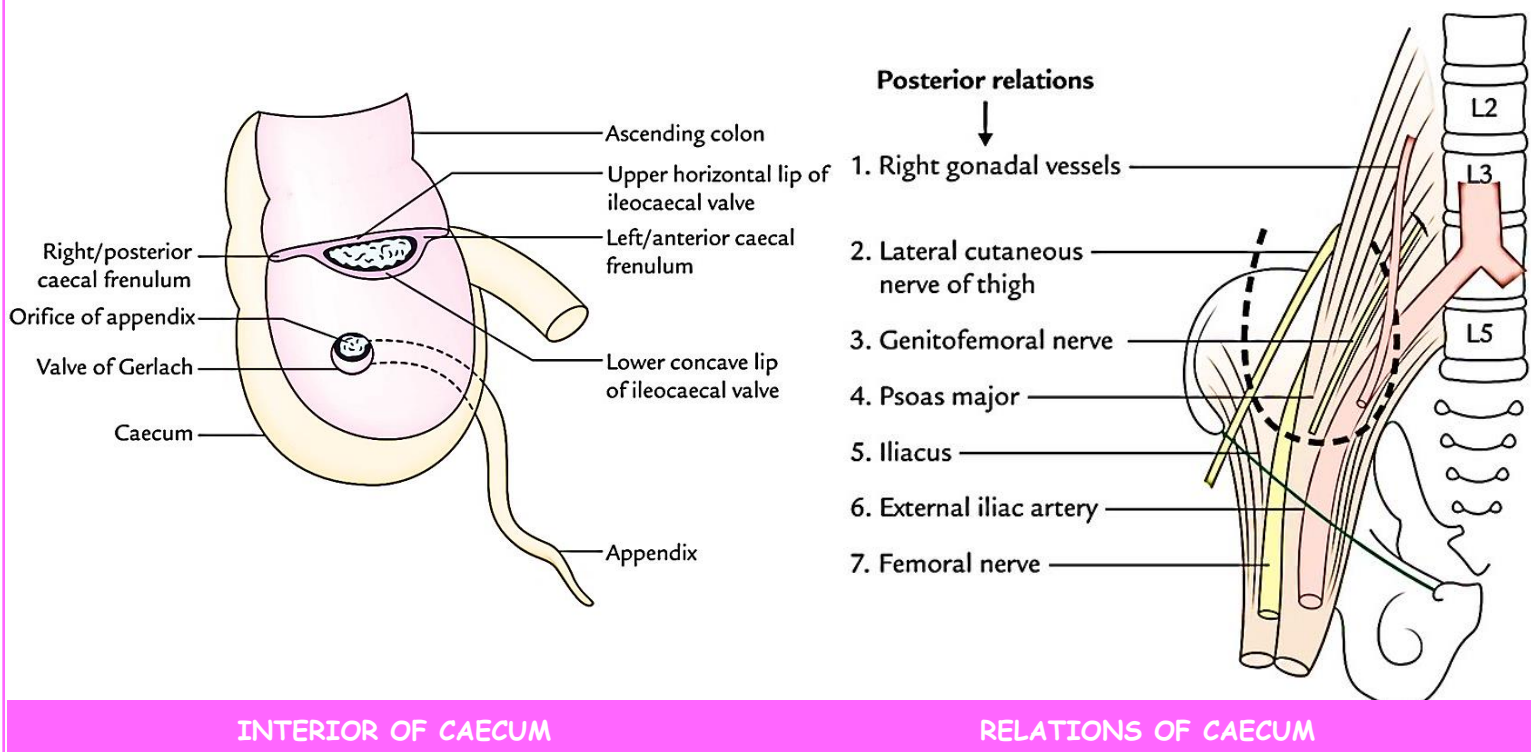
NERVE -> SYM: T11 TO L1
-> PARA SYM:- VAGUS NERVE

ILIOCAECAL VALVE

- LOWER END OF ILEUM OPEN POSTEROMEDIAL -> CAECOCOLIC JUNCTION
- **ILEOCAECAL OPENING GUARDED, ILEOCAECAL VALVE**
- TWO FRENULA - FORMED BY FUSION OF LIPS AT THE END OF APERTURE
- THESE ARE → LEFT OR ANTERIOR FRENULA
→ RIGHT OR POSTERIOR FRENULA
- VALVE IS ACTIVELY CLOSED BY SYMPATHETIC NERVE -> CAUSE TONIC CONTRACTION OF ILEOCAECAL SPHINCTER

FUNCTION

- PREVENT REFLEX. FROM CAECUM TO ILEUM
- REGULATE PASSAGE OF ILEAL CONTENTS INTO CAECUM



VERMIFORM APPENDIX

WORM LIKE DIVERTICULUM - ARISING FROM POSTEROMEDIAL WALL OF CAECUM.
ABOUT 2CM BELOW ILEOCAECAL ORIFICE.

DIMENSIONS - LENGTH VARIES FROM 2 TO 20 CM WITH AN AVERAGE OF 9 CM
 - LONGER IN CHILDREN THAN IN ADULT.

POSITION - LIE IN RIGHT ILIAC FOSSA → BASE → IS FIXED
 TIP → DIRECTION
 - POSITION ARE OFTEN COMPARED TO HOUR HAND OF CLOCK.

→ **PARACOLIC OR 11'O CLOCK POSITION - APPENDIX MAY PASS UPWARD**

→ **RETROCOLIC OR 12'O CLOCK POSITION -> APPENDIX MAY LIE BEHIND CAECUM**
 -> **COMMONEST POSITION - 65%**

→ **SPLenic OR 2'O CLOCK POSITION -> APPENDIX POINT TOWARDS SPLEEN**

→ **PROMONTERIC OR 3'O CLOCK POSITION -> HORIZONTALLY**

→ **PELVIC OR 4'O CLOCK POSITION -> MAY DESCEND INTO PELVIS**
 -> **COMMON POSITION-30%**

→ **MIDINGUINAL OR 6'O CLOCK POSITION -> BELOW THE CAECUM & MAY POINT TOWARDS INGUINAL LIGAMENT.**

APPENDICULAR ORIFICE -

- SITUATED - POSTEROMEDIAL OF CAECUM 2CM BELOW THE ILEOCAECAL ORIFICE
- OCCASIONALLY GUARDED BY - SEMILUNAR FOLD OF THE MUCOUS MEMBRANE, KNOWN AS 'VALVE OF GERLACH'
- ORIFICE IS MOVED ON SURFACE → BY POINT SITUATED 2CM BELOW
 → TRANSTUBERCULAR & RIGHT LATERAL PLANES
- MC BURNEY'S POINT -> SITE OF MAX.TENDERNESS IN APPENDICITIS
 -> POINT LIE AT JUNCTION OF LATERAL 1/3RD AND MEDIAL



2/3RD OF LINE JOINING THE UMBILICUS TO RIGHT ANTERIOR, SUPERIOR ILIAC SPINE.

PERITONEAL RELATION

- APPENDIX IS SUSPENDED BY SMALL, TRIANGULAR FOLD OF PERITONEUM CALLED MESOAPPENDIX.

BLOOD SUPPLY

- APPENDICULAR ARTERY → IS BRANCH OF LOWER DIVISION → OF ILEOCOLIC ARTERY
- RUN BEHIND - TERMINAL PART OF ILEUM & ENTERS THE MESOAPPENDIX
- BLOOD DRAINED BY - APPENDICULAR VEIN
 - ILEOCOLIC VEIN
 - SUPERIOR MESENTERIC VEIN → TO PORTAL VEIN

NERVE - SYMPATHETIC NERVE → T9 TO T10 SEGMENT THROUGH THE COELIAC PLEXUS
PARASYMPATHETIC NERVE → DERIVED FROM VAGUS

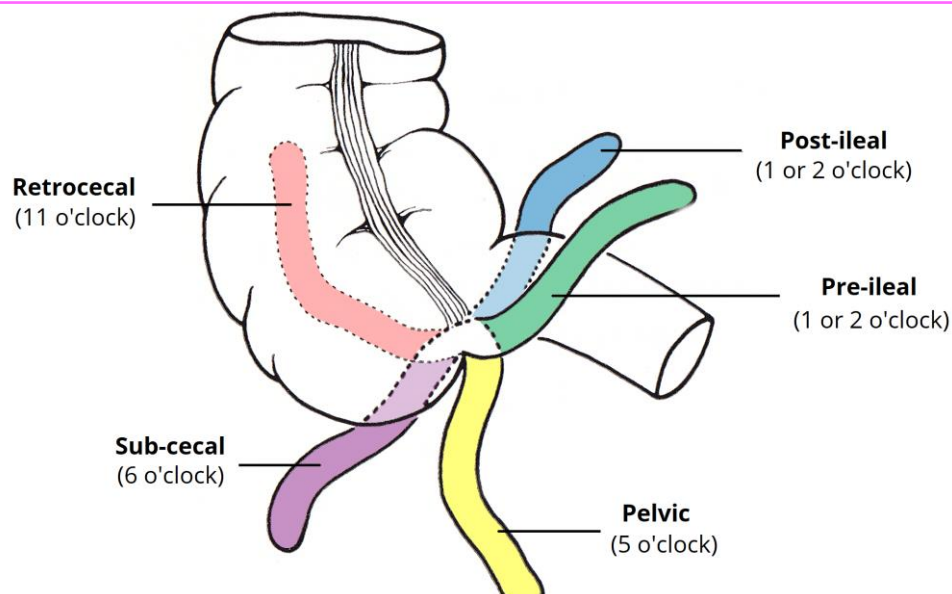
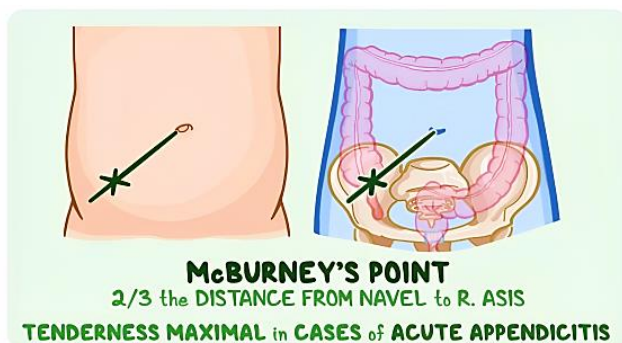
CLINICAL ANATOMY

APPENDICITIS -

- INFLAMMATION OF APPENDIX IS CALLED APPENDICITIS
- ACUTE APPENDICITIS IS A COMMON OCCURRENCE AND IS SURGICAL EMERGENCY
- IT COMMONLY OCCUR DUE TO OBSTRUCTION OF ITS LUEN BY OEDEMA

MCBURNEY'S POINT -

- SITE OF MAXIMUM TENDERNESS IN APPENDICITIS
- POINT LIE AT JUNCTION OF LATEAL ONE-THIRD AND MEDIAL TWO-THIRD OF LINE JOINING THE UMBILICUS TO RIGHT ANTEIOR SUPERIOR ILIAC SPINE



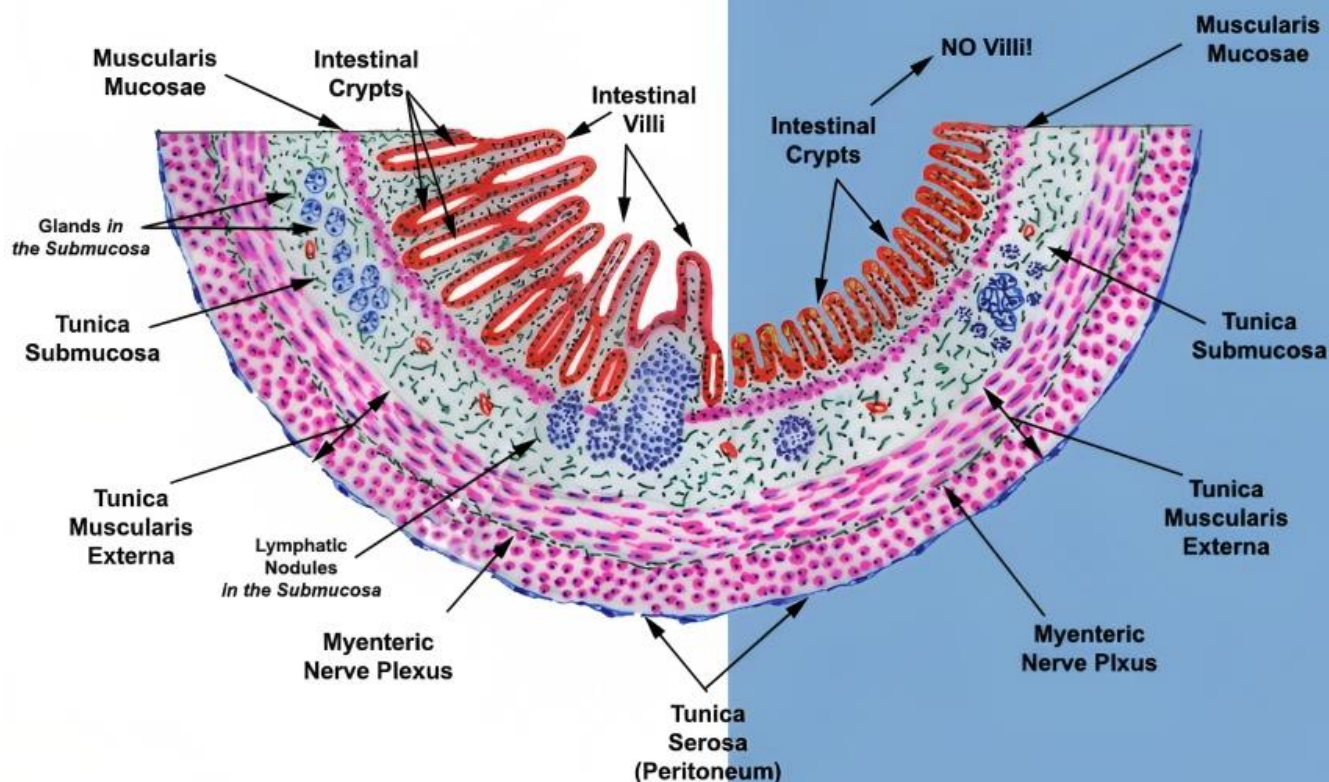


SMALL AND LARGE INTESTINE

Feature	Small Intestine	Large Intestine
Length	6-7 mtrs.	1.5mtrs.
Caliber	Narrower	Wider
Taeniae coli	Absent	Present
Sacculations	Absent	Present
Appendices epiploicae	Absent	Present
Villi	Present	Absent
Plicae circulars	Present	Absent
Peyer's patches	Present in ileum	Absent
Crypts of lieberkuhn	Crypts contain absorptive cells and paneth cells	Crypts contain numerous goblet cells, few absorptive cells, and no paneth cells

SMALL INTESTINE

LARGE INTESTINE





SPLEEN

- LARGEST LUMPHOID ORGAN OF BODY, ACT AS FILTER FOR BLOOD AND PLAY IMPORTANT ROLE IN IMMUNE RESPONSE FOR BODY

LOCATION -> LEFT HYPOCHONDRUM BETWEEN THE FUNDUS OF STOMACH AND DIAPHRAGM
-> BEHIND MID AXILLARY LINE OPPOSITE 9TH, 10TH, AND 11TH RIBS

SIZE & SHAPE -> WEDGE SHAPED SOFT ORGAN WITH PURPLE COLOR

- > THICKNESS - 1 INCH
- > BREADTH - 3 INCH
- > LENGTH - 5 INCH

EXTERNAL FEATURES

TWO ENDS - ANTERIOR END -> BROAD AND MORE LIKE BORDER

-> DIRECTED DOWNWARD, FORWARD AND TO LEFT

- POSTERIOR END -> BLUNT AND ROUNDED

-> DIRECTED UPWARD, BACKWARD AND MEDIALY TOWARD VERTEBRAL COLUMN

THREE BORDER - SUPERIOR BORDER -> THIN AND CONVEX

-> CHARACTERISTICALLY PRESENT ONE OR TWO NOTCHES

- INFERIOR BORDER -> ROUNDED

-> SEPARATES THE VISCERAL SURFACE FROM DIAPHRAGMATIC SURFACE

- INTERMEDIATE BORDER -> ROUNDED

-> SEPARATES THE GASTRIC IMPRESSION FROM RENAL IMPRESSION ON VISCERAL SURFACE

TWO SURFACE - DIAPHRAGMATIC SURFACE -> SMOOTH, CONVE AND DIRECTED UPWARD, BACKWARD

- VISCERAL SURFACE - CONCAVE AND IRREGULAR

RELATION

PERITONEAL -> SPLEEN COMPLETELY ENCLOSED IN PERITONEUM

-> EXCEPT AT HILUM, FROM WHERE TWO PERITONEAL FOLDS

-> EXTENDS -> ONE TO STOMACH AND ONE TO LEFT KIDNEY CALLED GASTROSPLENIC AND LIENORENAL LIAGMENTS

GASTROSPLENIC LIAGMENTS -

- EXTEND FROM HILUM OF SPLEEN TO UPPER 1/3 OF GREATER CURVATURE OF STOMACH
- CONTAINS -> SHORT GASTRIC VESSEL

LIENORENAL LIAGMENTS -

- EXTENDS FROM HILUM OF SPLEEN TO ANTERIOR SURFACE OF LEFT KIDNEY
- CONTAIN -> TAIL OF PANCREAS
- > SPLENIC VESSELS
- > PANCREATOSPLENIC LYMPH NODES

VISCERAL

VISCERAL SURFACE RELATED TO FOLLOWING VISCERA

- 1) FUNDUS OF STOMACH
- 2) ANTERIOR SURFACE OF LEFT KIDNEY
- 3) LEFT COLIC FLEXURE
- 4) TAIL OF PANCREAS



GASTRIC IMPRESSION -> PRODUCED BY FUNDUS OF STOMACH

RENAL IMPRESSION -> PRODUCED BY LEFT KIDNEY

COLIC IMPRESSION -> PRODUCE BY LEFT COLIC FLEXURE

PANCREATIC IMPRESSION -> PRODUCED BY TAILOF PANCREAS

ARTERIAL SUPPLY

- SUPPLIED BY SPLENUIC ARTERY
- LARGEST BRANCH OF COELIAC TRUNK

VENOUS DRAINAGE

- DARNED BY SPLENIC VEIN
- TRIBUTARIES -> SHORT GASTIC VEINS
 - > LEFT GASTROEPIPLOIC VEINS
 - > PANCREATIC VEINS
 - > IINFERIOR MESENTERIC VEIN

NERVE SUPPLY -

- SUPPLIED BY SYMPATHETIC FIBRES DERIVED FROM COELIAC PLEXUS

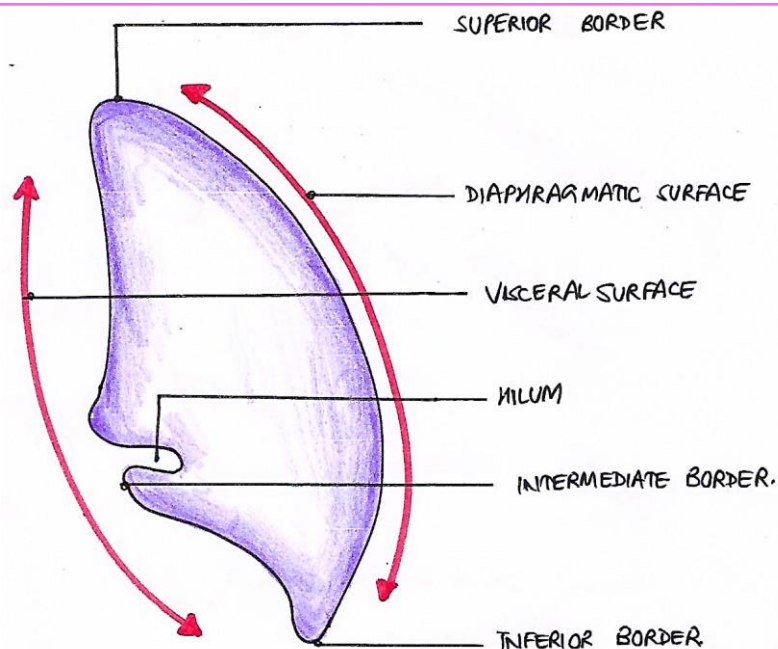
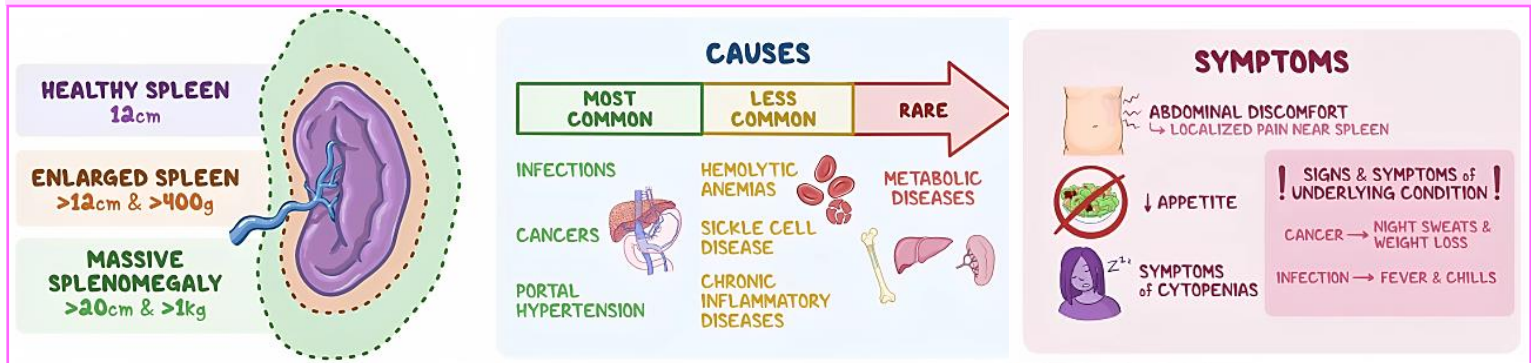
CLINICAL ANATOMY

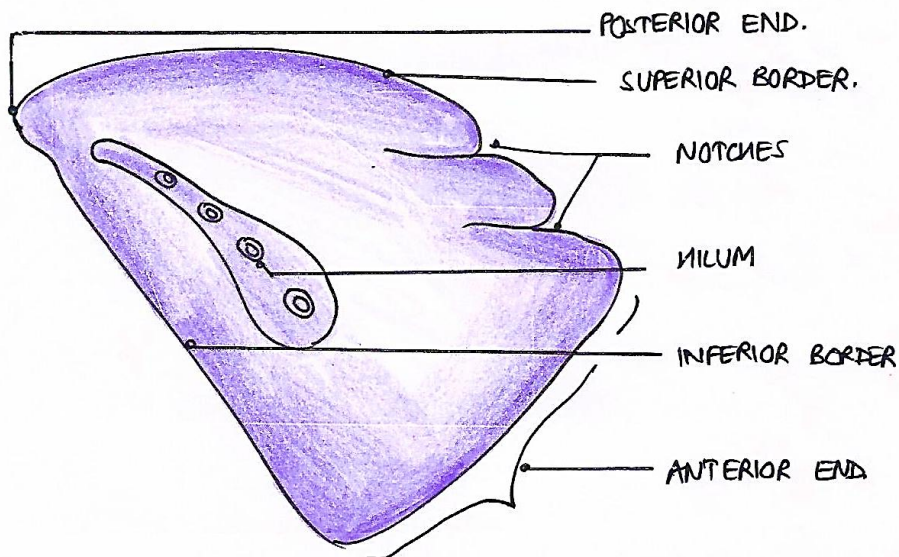
SPLENOMEGALY -

- ENLARGEMENT OF SPLEEN OCCUR IN NUMBER OF DISEASES
- COMMONLY OCCUR IN 1) MALARIA 2) CIRRHOSIS OF LIVER 3) KALA-AZAR 4) LEUKAEMIA

SPLENECTOMY

- SURGICAL REMOVAL OF SPLEEN
- PERFORMED WHEN SPLEEN IS RUPTURE OR INADVERTENTLY NICKED AT OPERATION





LIVER



LIVER IS LARGEST GLAND OF BODY

SITUATED IN RIGHT UPPER QUADRANT OF ABDOMINAL CAVITY

SECRETES BILE AND PERFORMS VARIOUS METABOLIC FUNCTION

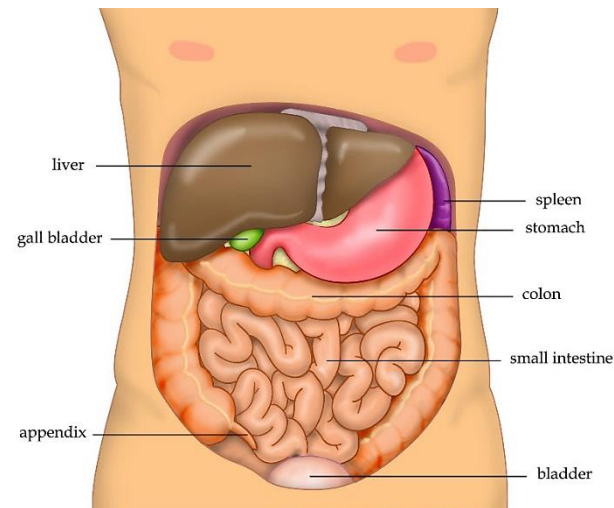
- LOCATION**
- RIGHT HYPOCHONDRIUM
 - GREATER PART IN EPIGASTRIUM
 - EXTEND INTO LEFT HYPOCHONDRIUM

EXTERNAL FEATURE - WEDGE-SHAPED.

- FIVE SURFACE - ANTERIOR
- POSTERIOR
- SUPERIOR
- INFERIOR
- RIGHT

- ONE PROMINENT BORDER - INFERIOR BORDER
 - SEPARATES ANTERIOR FROM INFERIOR SURFACE
- TWO LOBES - DIVIDED INTO- RIGHT & LEFT LOBES BY FALCIFORM LIGAMENT → ANTERIORLY & SUPERIORLY
 - FISSURE LIGAMENTUM TERES - INFERIORLY
 - FISSURE FOR LIGAMENTUM VENOSUM -> POSTERIORLY
- RIGHT LOBE - LARGER THE LEFT LOBE
 - PRESENT CAUDATE AND QUADRATE LOBES

- CAUDATE LOBE**
- SITUATED ON POSTERIOR SURFACE
 - BOUNDED -> RIGHT -> GROOVE FOR THE INFERIOR VENA CAVA
 - LEFT-> FISSURE FOR LIGAMENTUM VENOSUM
 - INFERIORLY → PORTA HEPATIS.

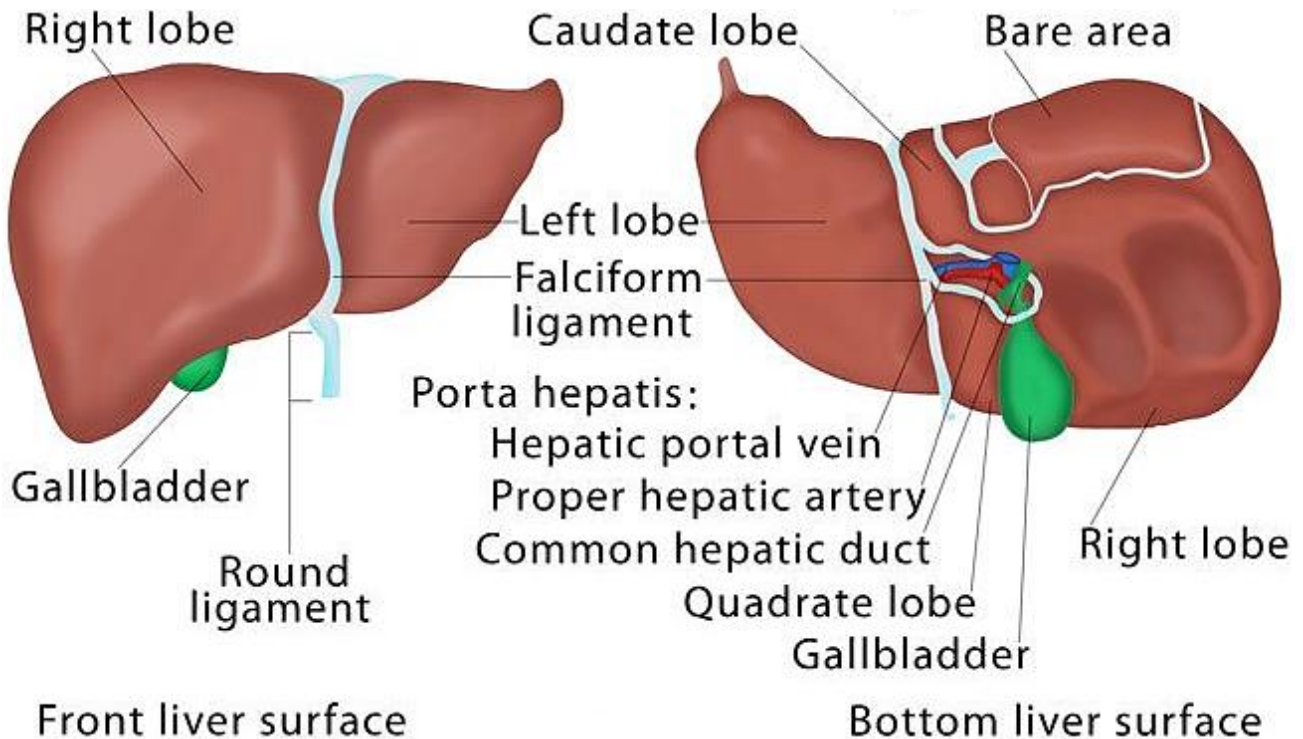




- QUADRATE LOBE**
- SITUATED ON → INFERIOR SURFACE
 - BOUNDED → ANTERIOR BY INFERIOR BORDER
POSTERIORLY → PORTA HEPATIS
RIGHT → GALL BLADDER
LEFT → FISSURE FOR LIGAMENTUM TERES

PORTA HEPATIS - DEEP, TRANSVERSE FISSURE ABOUT 5CM LONG

- SITUATED ON, INFERIOR SURFACE OF RIGHT LOBE OF LIVER
- LIE B/W CAUDATE LOBE ABOVE AND QUADRATE LOBE BELOW
- PORTAL VEIN, HEPATIC ARTERY, HEPATIC NERVE - ENTER



LIGAMENT - LIGAMENT OF LIVER ARE 2 TYPE - FALSE & TRUE

FALSE LIGAMENT -> ARE ACTUALLY PERITONEAL FOLDS

- 1.FALCIFORM LIGAMENT** - SICKLE-SHAPED FOLD OF PERITONEUM
 - CONNECT THE LIVER TO UNDER SURFACE OF DIAPHRAGM AND ANTERIOR ABDOMINAL WALL.
- 2.CORONARY LIGAMENT** - TRIANGLE FOLD OF PERITONEUM CONNECTING-BARE AREA TO DIAPHRAGM
 - CONSIST OF TWO LAYER - UPPER AND LOWER
- 3.RIGHT TRIANGULAR LIGAMENT** - SMALL TRIANGULAR FOLD OF PERITONEUM
 - WHICH CONNECTING RIGHT LATERAL SURFACE OF LIVER TO DIAPHRAGM
- 4.LEFT TRIANGULAR LIGAMENT** - SMALL TRIANGULAR FOLD OF PERITONEUM
 - WHICH CONNECT UPPER SURFACE OF LEFT LOBE TO DIAPHRAGM
- 5.LESSER OMENTUM** - FOLD OF PERITONEUM CONNECTING LESSER CURVATURE OF STOMACH → VISCERAL SURFACE OF LIVER



- HEPATIC ATTACHMENT IS -J SHAPE
- VERTICAL LIMB ATTACH, MARGIN OF FISSURE FOR LIGAMENT VENOSUM
- HORIZONTAL LIMB → MARGIN OF PORTA HEPATIS.

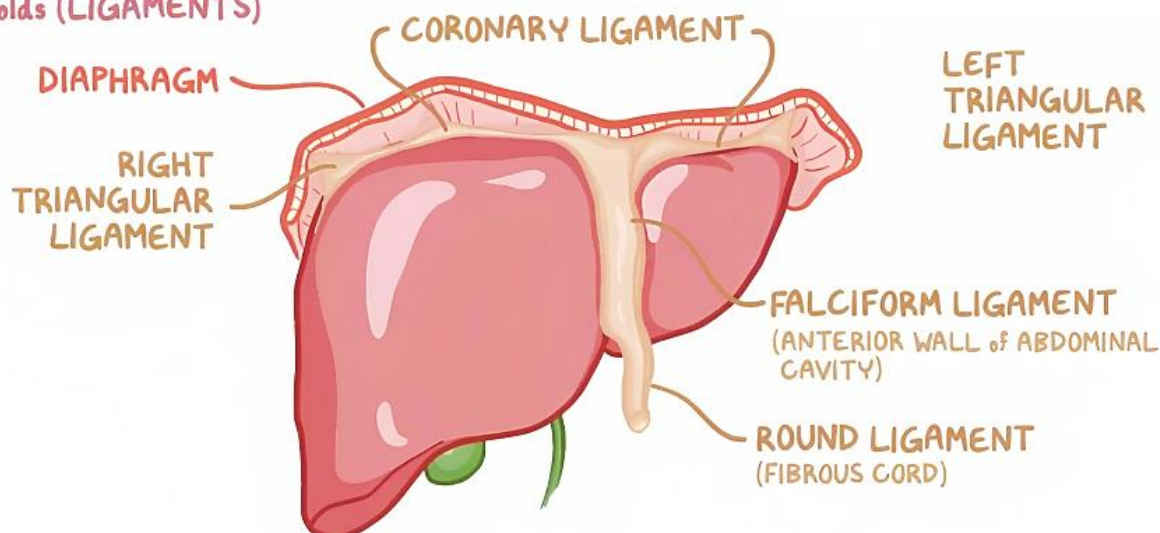
TRUE LIGAMENTS → THEY ARE ACTUALLY REMNANTS OF FETAL STRUCTURE

-LIGAMENTUM TERES HEPATIS → REMNANT OF LEFT UMBILICAL VEIN

-LIGAMENTUM VENOSUM → REMNANT OF DUCTUS VENOSUS

→ WHICH IN FETAL LIFE CONNECT LEFT BRANCH OF PORTAL VEIN WITH INTERIOR VENA CAVA

* 5 PERITONEAL folds (LIGAMENTS)



RELATION -

PERITONEAL RELATION

- MOST OF LIVER IS COVERED BY PERITONEUM
- AREA NOT COVERED BY PERITONEUM ARE AS FOLLOWS -
 1. TRIANGULAR BARE AREA - ON THE POSTERIOR SURFACE OF RIGHT LOBE
 - LIMITED BY SUPERIOR & INFERIOR LAYER OF CORONARY LIGAMENT
 2. GROOVE FOR INFERIOR VENA CAVA → POSTERIOR SURFACE OF RIGHT LOBE
 3. FOSSA FOR GALLBLADDER → LIE ON INFERIOR SURFACE OF RIGHT LOBE
 4. AREA OF ATTACHMENT OF LESSER OMENTUM

VISCERAL RELATION -

- 1) **ANTERIOR SURFACE - RELATED TO XIPHOID PROCESS**
- 2) **DIAPHRAGM ON EACH SIDE → SEPARATE PLEURA → ABOVE LEVEL OF LINE DRAWN FROM XIPHISTERNAL JOINT TO 10TH RIBS IN MID AXILLARY LINE**
→ LUNGS → ABOVE LEVEL OF LINE FROM SAME JOINT TO 8TH RIB.
- 3) **POSTERIOR SURFACE → IS TRIANGULAR → BARE AREA → RIGHT SUPRARENAL**
 - GROOVE FOR INFERIOR VENA CAVA → UPPER PART OF VESSEL
 - CAUDATE LOBE → CRURA OF DIAPHRAGM

-FISSURE FOR LIGAMENTUM VENOSUM → CONTAIN 2 LAYERS OF LESSER OMENTUM



- POSTERIOR SURFACE OF LEFT LOBE → OESOPHAGEAL IMPRESSION

4) INFERIOR SURFACE - INFERIOR SURFACE OF LEFT LOBE → GASTRIC IMPRESSION

- FISSURE FOR LIGAMENTUM TERES - PASS INFERIOR TO PORTA HEPATITIS FROM BORDER

- QUADRATE LOBE → RELATED PYLORUS FIRST PART OF DUODENUM

- FOSSA FOR GALL BLADDER → LIE TO RIGHT OF QUADRATE LOBE
→ RIGHT OF THIS FOSSA → BEAR COLIC IMPRESSION

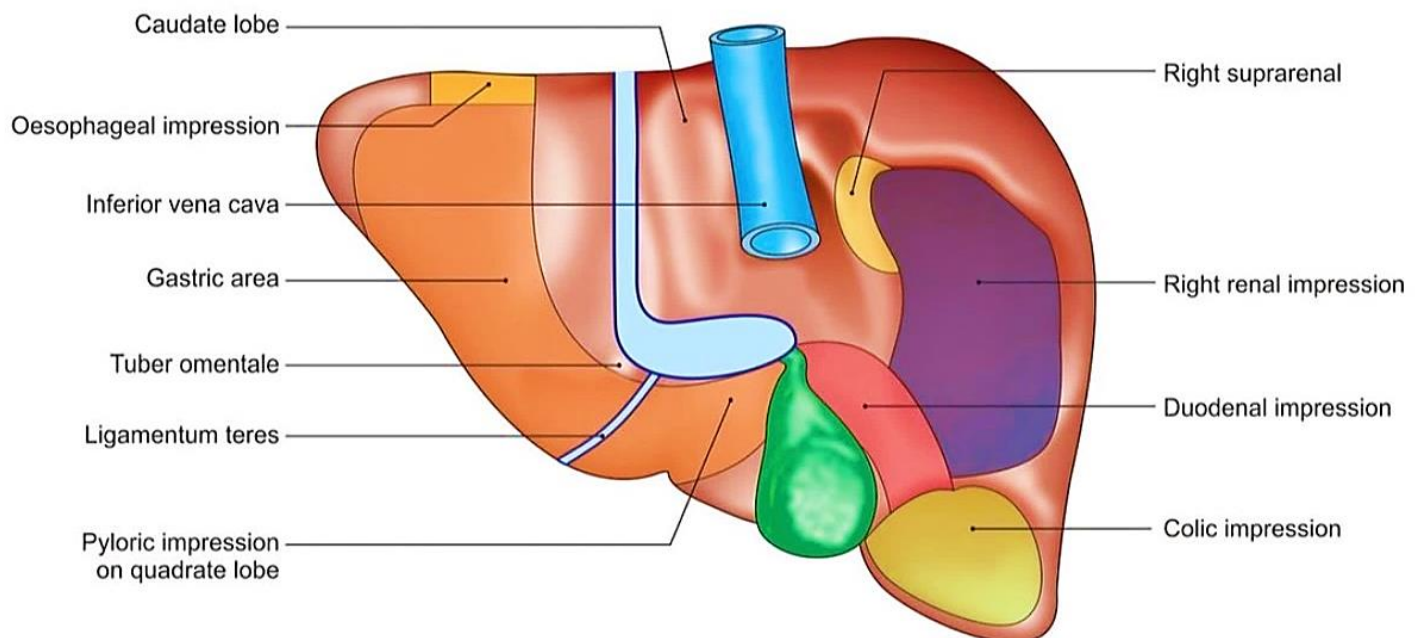
5) RIGHT SURFACE - QUADRILATERAL & CONVEX

- RELATED TO DIAPHRAGM OPPOSITE 7TH TO 11TH RIBS IN MIDAXILLARY LINE

- DIAPHRAGM SEPARATE → PLEURA UP TO 10TH RIB
→ LUNGS UPTO 8TH RIB

6) SUPERIOR SURFACE - QUADRILATERAL & CONCAVITY IN MIDDLE → IS CARDIAC IMPRESSION

- EACH SIDE - CONVEX → TO FIT THE DOME OF DIAPHRAGM



BLOOD SUPPLY

LIVER IS HIGHLY VASCULAR ORGAN

RECEIVE BLOOD FROM 2 SOURCE → ARTERIAL BLOOD → IS SUPPLY BY → HEPATIC ARTERY (20%)
→ VENOUS → IS SUPPLY BY → PORTAL VEIN (80%)

VENOUS DRAINAGE - BY 3 LARGE HEPATIC VEIN - LEFT HEPATIC VEIN

- MIDDLE HEPATIC VEIN

- RIGHT HEPATIC VEIN

- 3 VEIN MAY ENTER IVC INDEPENDENTLY

- BUT LEFT & MIDDLE VEIN USUALLY JOIN, SO THAT ONLY 2 MAJOR VEIN JOIN THE IVC

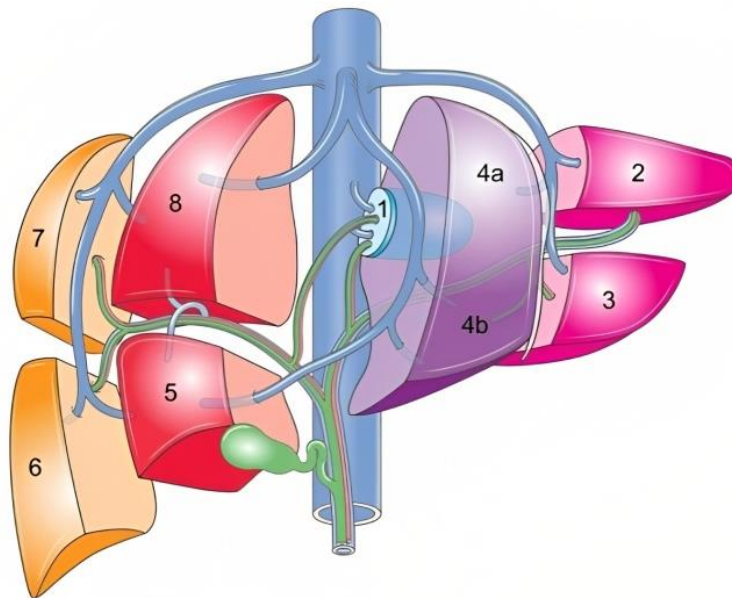
**NERVE SUPPLY -**

SYMPATHETIC FIBERS → DERIVED FROM COELIAC PLEXUS
→ RUN ALONG LESSER OMENTUM & ENTER PORTA HEPATITIS

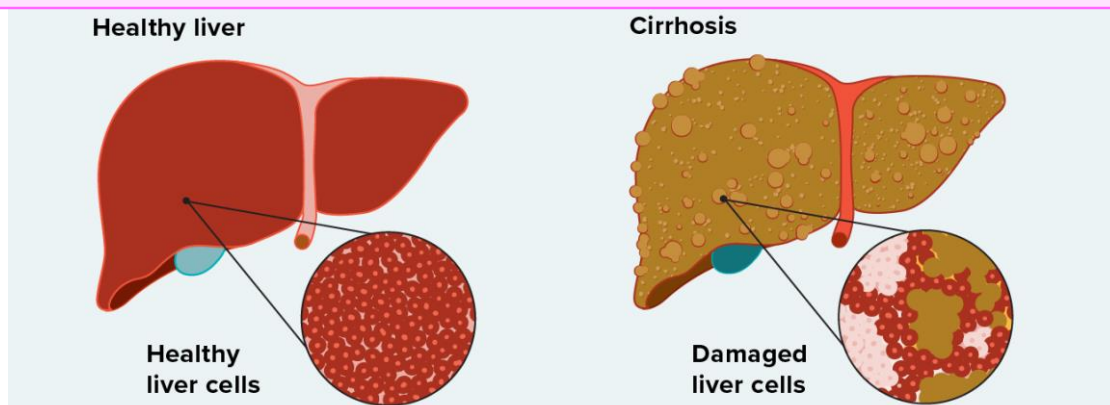
PARASYMPATHETIC FIBER → DERIVED FROM HEPATIC BRANCH OF ANTERIOR VAGAL TRUNK
→ REACH PORTA HEPATITIS THROUGH LESSER OMENTUM

HEPATIC SEGMENTS - STRUCTURAL UNIT OF LIVER

- RIGHT LOBE - DIVIDED INTO → ANTERIOR & POSTERIOR PART
- LEFT LOBE - DIVIDED INTO → MEDIAL & LATERAL PARTS
- EACH OF THESE PART FURTHER DIVIDED INTO UPPER & LOWER PART
- VEIN DRAINING THE HEPATIC SEGMENTS ARE INTERSEGMENTAL → THEY DRAIN MORE THAN ONE SEGMENT
- FISSURE FOR LIGAMENTUM TERES & LIGAMENTUM VENOSUM → MAKE JUNCTION BETWEEN MEDIAL & LATERAL SEGMENT OF LEFT LOBE.

**CLINICAL ANATOMY****CIRRHOSIS OF LIVER -**

- HEPATOCYTES SOMETIMES MAY UNDERGO NECROSIS FOLLOWING THEIR INJURY AND DEATH CAUSED BY INFECTION, TOXINS, ALCOHOL AND POISON
- DEAD HEPATOCYTES ARE REPLACED BY FIBROUS TISSUE BY PROLIFERATION OF PERILOBULAR CONNECTIVE TISSUE
- THE RESULTANT HEPATIC FIBROSIS IS CLINICALLY TERMED CIRRHOSIS OF LIVER





EXTRAHEPATIC BILIARY APPARATUS

EBA COLLECTS BILE FROM LIVER → STORE IT IN GALL BLADDER → TRANSMIT IT TO → SECOND PART OF DUODENUM.

APPARATUS CONSIST OF - RIGHT & LEFT HEPATIC DUCT

- COMMON HEPATIC DUCT
- GALL BLADDER, CYSTIC DUCT & BILE DUCT

RIGHT & LEFT HEPATIC DUCTS → EMERGE AT PORTA HEPATIS FROM THE RIGHT & LEFT LOBES OF THE LIVER.

COMMON HEPATIC DUCT - FORMED BY UNION OF RIGHT & LEFT HEPATIC DUCT NEAR THE RIGHT END OF PORTA HEPATIS

GALL BLADDER - PEAR SHAPED → RESERVOIR OF BILE

→ SITUATED IN FOSSA → ON THE INFERIOR SURFACE OF RIGHT LOBE OF LIVER

→ GALL BLADDER IS DIVIDED INTO - FUNDUS

- BODY

- NECK

1) FUNDUS - PROJECT BEYOND THE INFERIOR BORDER OF LIVER

2) BODY - LIE IN THE FOSSA FOR THE GALL BLADDER ON THE LIVER

3) NECK - NARROW UPPER END OF GALL BLADDER

- SITUATED NEAR THE RIGHT END OF PORTA HEPATIS

CYSTIC DUCT - CYSTIC DUCT IS ABOUT 3-4CM LONG

- BEHIND THE NECK OF GALL BLADDER - RUN DOWNWARD, BACKWARD

- END BY JOINING THE COMMON HEPATIC

- MUCOUS MEMBRANE OF CYSTIC DUCT FORM FROM 5-12 CRESCENTIC FOLD

→ ARRANGED SPIRALLY → CALLED SPIRAL VALVE OF HEISTER

BILE DUCT

FORMED BY UNION OF CYSTIC & COMMON HEPATIC DUCT NEAR THE PORTA HEPATIS.

SPHINCTER -

- SPHINCTER CHOLEDOCUS - TERMINAL PART OF BILE DUCT - SURROUND SMOOTH MUSCLE - THAT FORM SPHINCTER CHOLEDOCUS.

- SPHINCTER PANCREATICUS → ANOTHER LESS DEVELOPED SPHINCTER, AROUND TERMINAL PART OF PANCREATIC DUCT IS THE SPHINCTER PANCREATICUS.

- SPHINCTER AMPULLAE → THIS IS THIRD SPHINCTER SURROUNDS THE HEPATOPANCREATIC AMPULLA.

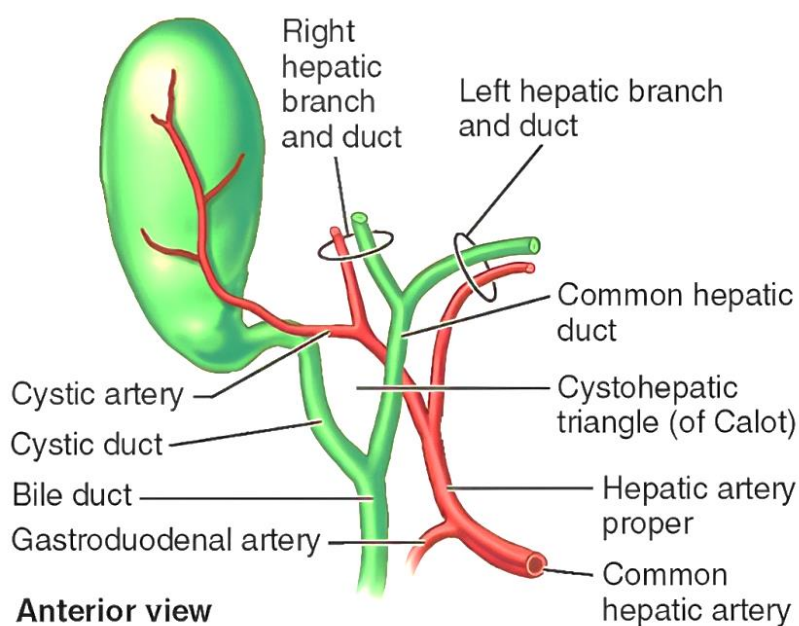
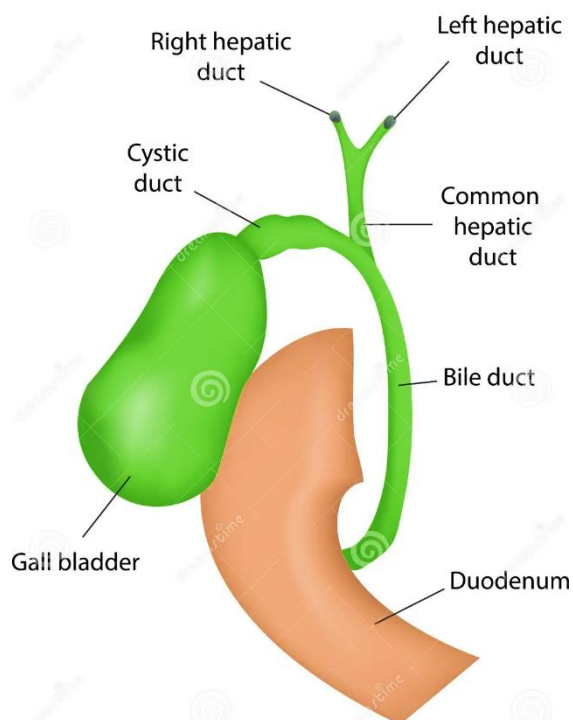
CLINICAL ANATOMY

CHOLECYSTITIS -

- CHOLECYSTITIS IS THE INFLAMMATION OF GALL BLADDER
- MAYBE ACUTE AND CHRONIC

OBSTRUCTION OF COMMON BILE DUCT

- USUALLY OCCUR DUE TO GALLSTONES, PANCREATIC CARCINOMA, ENLARGED NEOPLASTIC HEPATIC LYMPH NODES
- IT CAUSES OBSTRUCTION TO BILE FLOW, WHICH LEADS TO JAUNDICE



PANCREAS



PANCREAS GLAND THAT IS PARTLY EXOCRINE AND PARTLY ENDOCRINE

- EXOCRINE - SECRETS - DIGESTIVE PANCREATIC JUICE
- ENDOCRINE - SECRETS - HORMONE E.G. - INSULIN

PANCREATIC JUICE HELPS IN DIGESTION OF LIPIDS, CARBOHYDRATES, PROTEIN
PANCREATIC HORMONES MAINTAIN GLUCOSE HOMEOSTASIS

LOCATION -> LIE IN POSTERIOR ABDOMINAL WALL

-> AT 1ST AND 2ND LUMBAR VERTEBRA

PANCREAS- DIVIDED INTO HEAD, NECK, BODY AND TAIL

1) HEAD OF PANCREAS -

- ENLARGED FLATTENED RIGHT END OF PANCREAS
- SITUATED WITHIN C - SHAPE CURVE OF DUODENUM

EXTERNAL FEATURE - 3 BORDER - SUPERIOR, INFERIOR, RIGHT LATERAL

- 2 SURFACE - ANTERIOR & POSTERIOR
- ONE PROCESS - UNCINATE PROCESS

RELATION

1. BORDER- SUPERIOR -> OVERLAPPED BY 1ST PART OF DUODENUM

INFERIOR BORDER -> 3RD PART OF DUODENUM

RIGHT BORDER -> 3RD PART OF DUODENUM

2. SURFACE - ANTERIOR - FIRST PART OF DUODENUM

- TRANSVERSE COLON & JEJUNUM

- POSTERIOR - INFERIOR VENA CAVA

- RENAL VEIN





- RIGHT CRUS OF DIAPHRAGM

UNCINATE PROCESS -> SUPERIOR MESENTERIC VESSEL

2) NECK OF PANCREAS

- CONSTRICTED PART OF PANCREAS BETWEEN HEAD AND BODY
- IT ABOUT 2.5CM LONG AND DIRECTED FORWARD, UPWARD, AND LEFT

EXTERNAL FEATURE - 2 SURFACE -> ANTERIOR, POSTERIOR

- 2 BORDER -> UPPER AND LOWER

RELATION

- ANT. SURFACE -> PERITONEAL COVERING POSTERIOR WALL OF LESSER SAC
-> PYLORUS

-POST. SURFACE -> SUPERIOR MESENTERIC VEIN

-UPPER BORDER -> FIRST PART OF DUODENUM

-LOWER BORDER -> ROOT OF TRANSVERSE MESOCOLON



3) BODY OF PANCREAS -

- ELONGATED PART OF GLAND EXTENDING FROM ITS NECK TO TAIL
- PASSES TOWARD LEFT OF MIDLINE WITH A SLIGHT UPWARD AND BACKWARD INCLINATION

EXTERNAL FEATURE - 3 BORDER-ANTERIOR, SUPERIOR, INFERIOR

- 3 SURFACE - ANTERIOR, POSTERIOR AND INFERIOR

- ONE PROCESS - TUBER OMENTALE

RELATION -

ANT. BORDER - PROVIDE ATTACHMENT TO ROOF OF TRANSVERSE MESOCOLON

SUP. BORDER - COELIAC TRUNK, HEPATIC ARTERY, SPLENIC ARTERY

INF. BORDER - SUPERIOR MESENTERIC VESSEL

3. SURFACE - ANT. SURFACE - COVERED BY PERITONEUM

- LESSER SAC & STOMACH

POST. SURFACE - DEVOID OF PERITONEUM

- AORTA

- LEFT SUPRARENAL GLAND & LEFT KIDNEY

- SPLENIC VEIN

INFERIOR SURFACE - COVERED BY PERITONEUM

- DUODENOJEJUNAL FLEXURE

4) TAIL OF PANCREAS

- IT IS NARROW LEFT EXTREMITY OF PANCREAS
- LIE IN LIENORENAL LIGAMENT ALONG WITH SPLENIC VESSEL
- CONTAIN LARGE NUMBER OF ISLET OF LANGERHANS PER UNIT OF TISSUE

RELATIONS -

- REALTED TO VISCERAL SURFACE OF SPLEEN BETWEEN GASTRIC IMPRESSION AND COLIC IMPRESSION

**DUCTS OF PANCREAS - 2 DUCTS - MAIN & ACCESSORY PANCREATIC DUCT****1) MAIN PANCREATIC DUCT**

- 3MM IN DIAMETER
- LIE NEAR POSTERIOR SURFACE OF PANCREAS
- BEGIN AT TAIL, RUN TOWARD RIGHT & BEND AT NECK DOWNWARD TO RIGHT IN THE HEAD
- WITH IN HEAD OF PANCREAS -> PANCREATIC DUCT RELATE TO BILE DUCT
- 2X DUCT ENTER THE WALL OF SECOND PART OF DUODENUM
- JOIN TO FORM HEPATO PANCREATIC AMPULLA OF VATER WHICH OPEN → AS MAJOR DUODENAL PAPILLA
- 8 TO 10 CM DISTAL TO PYLORUS

2) ACCESSORY PANCREATIC DUCT

- BEGIN IN LOWER PART OF HEAD, CROSS FRONT OF MAIN DUCT
- OPEN INTO DUODENUM AT MINOR DUODENAL PAPILLA
- 6 TO 18 CM DISTAL TO PYLORUS

ARTERIAL SUPPLY

- MAINLY BY- PANCREATIC BRANCHES OF SPLENIC ARTERY
- SUPERIOR PANCREATODUODENAL ARTERY
- INFERIOR PANCREATICO DUODENAL ARTERY

VENOUS DRAINAGE -

- SPLENIC VEIN
- SUPERIOR MESENTERIC VEIN
- PORTAL VEIN

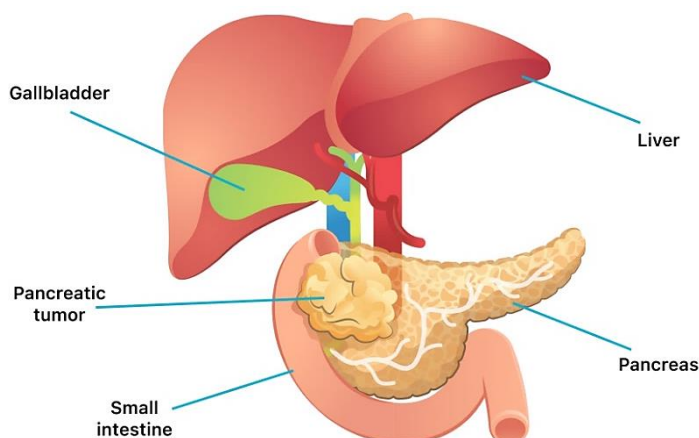
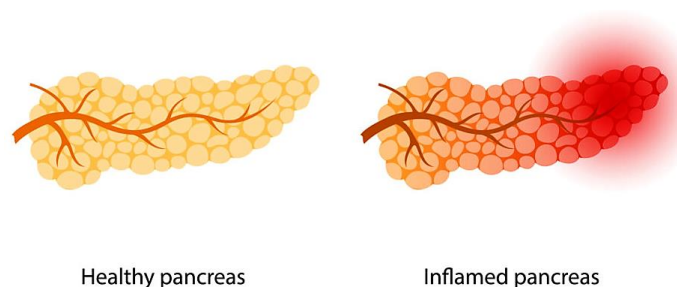
- NERVE SUPPLY** - PARASYMPATHETIC NERVE -> VAGUS NERVE
- SYMPATHETIC NERVE -> SPLANCHNIC NERVE

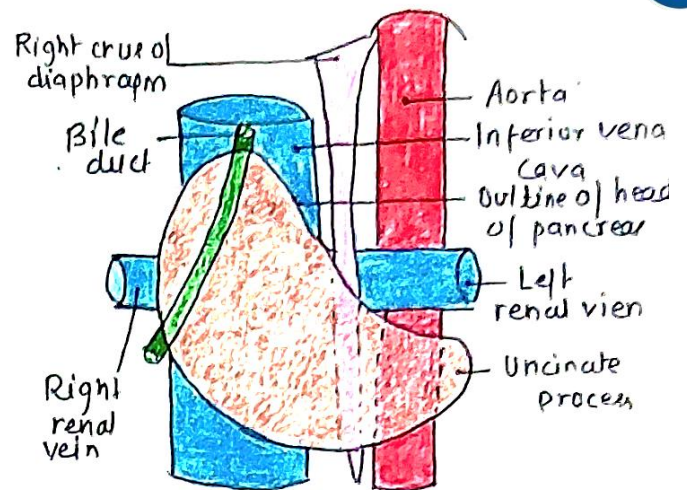
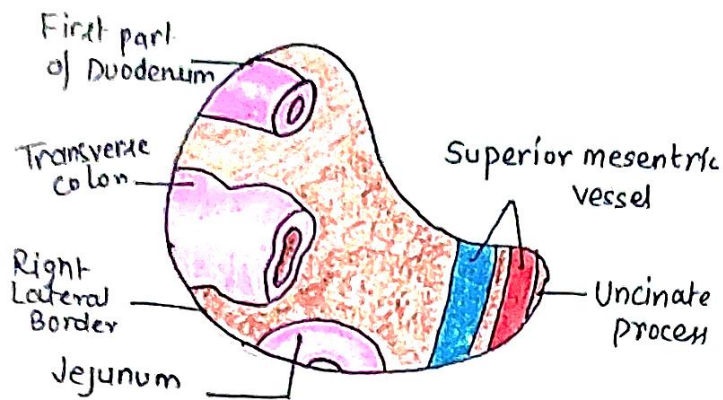
CLINICAL ANATOMY**CARCINOMA OF HEAD OF PANCREAS**

- IT COMPRESSES THE BILE DUCT LEADING TO PERSISTENT OBSTRUCTIVE JAUNDICE
- IT MAY PRESS THE PORTAL VEIN

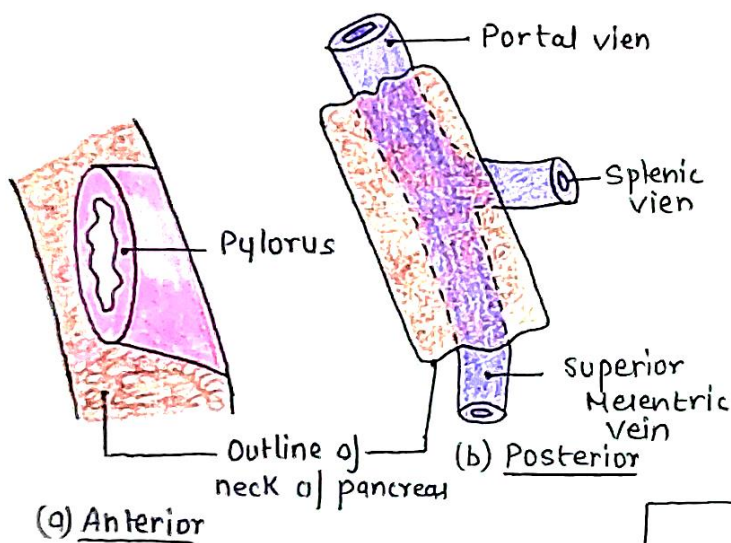
ACUTE PANCREATITIS

- ACUTE INFLAMMATION OF PANCREAS
- IT OCCUR DUE TO OBSTRUCTION OF PANCREATIC DUCT, VIRAL INFECTION AND TRAUMA
- SERIOUS CONDITION BECAUSE ACTIVATED PANCREATIC ENZYME LEAK INTO SUBSTANCE OF PANCREAS AND INITIATE AUTODIGESTION OF GLAND

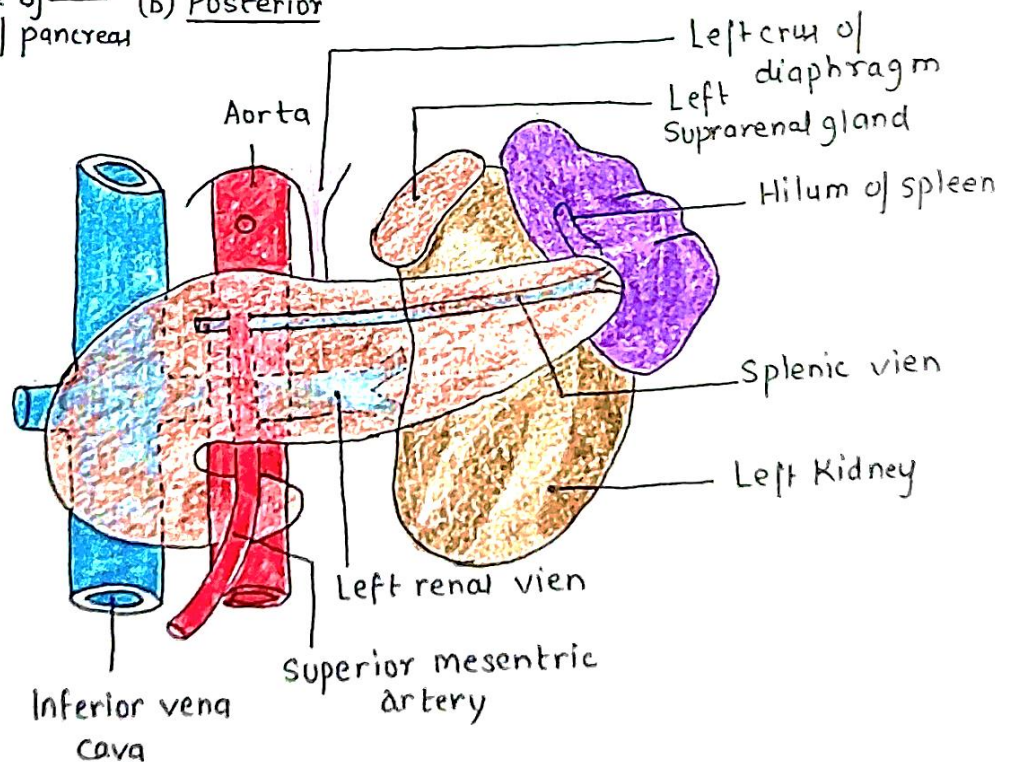
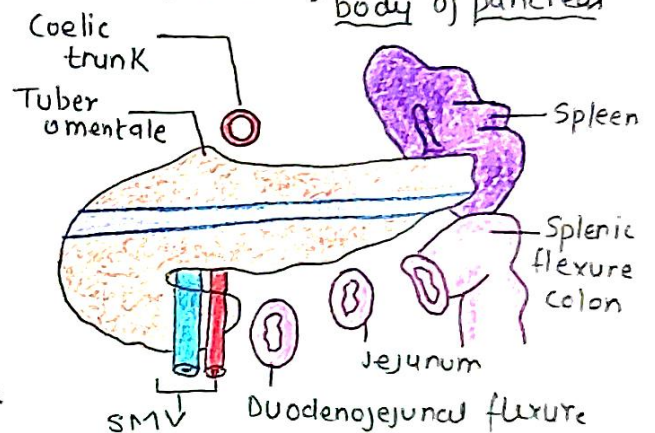
**ACUTE PANCREATITIS**



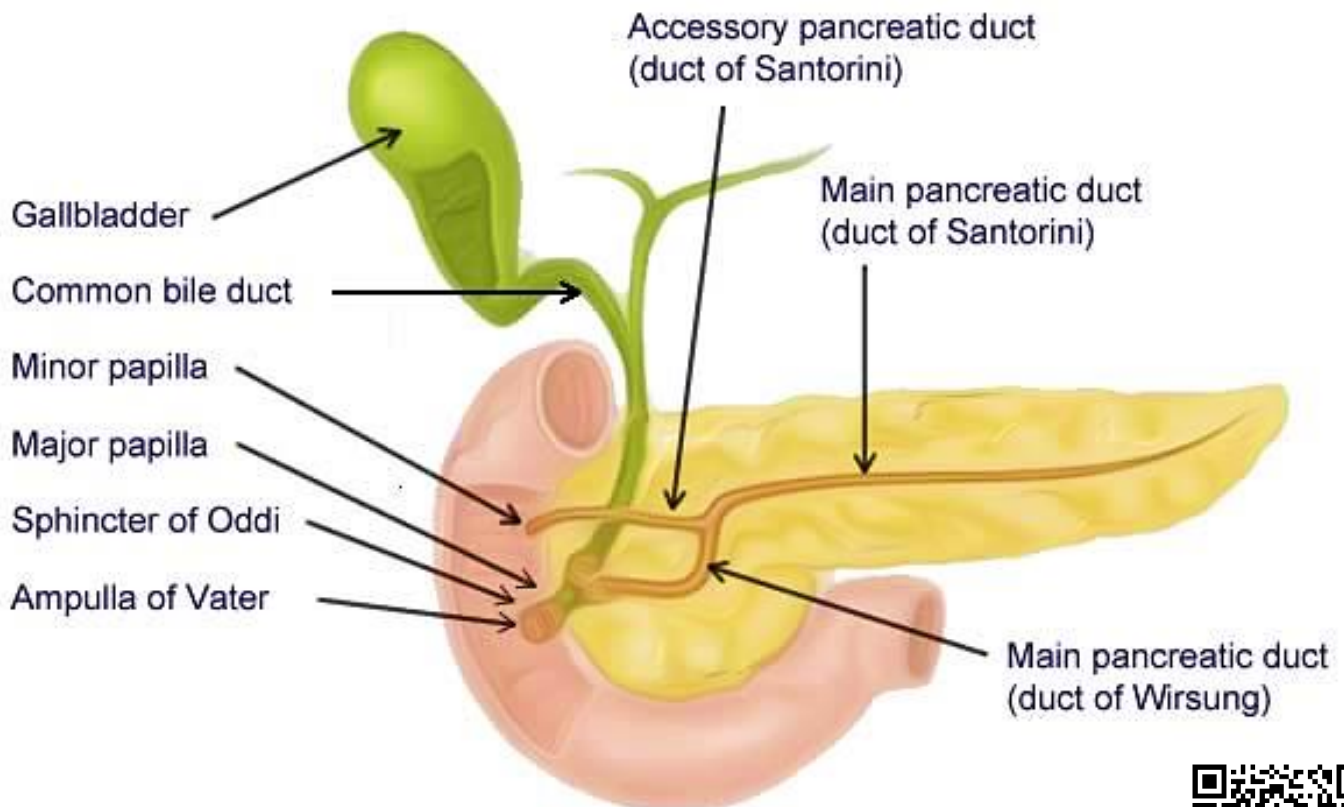
∴ Relation of the neck of pancreas



∴ Relation of anterior surface of body of pancreas



∴ Posterior relation of the body of the pancreas



KIDNEY



DEFINITION - PAIR OF EXCRETORY ORGANS, BEAN SHAPED, REDDISH BROWN

-SITUATED ON **POSTERIOR ABDOMINAL WALL**

-EACH SIDE OF VERTEBRAL COLUMN BEHIND PERITONEUM

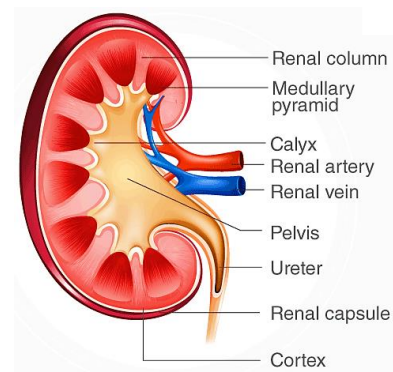
LOCATION

- OCCUPY EPIGASTRIC HYPOCHONDRIAC LUMBAR & UMBILICAL REGION
- EXTEND -> UPPER BORDER OF T2 TO CENTER BODY OF L3
- RIGHT KIDNEY IS SLIGHTLY LOWER THAN LEFT

SHAPE -> EACH KIDNEY IS ABOUT - 11CM LONG 6CM BROAD 3CM THICK

-> **WEIGHT** - 150g IN MALE

- 135g IN FEMALE



EXTERNAL FEATURE - BEAN SHAPE

1) 2 POLES - UPPER POLE -> BROAD, CLOSE CONTACT WITH SUPRARENAL GLAND

LOWER POLE -> THIN AND POINTED

2) 2 SURFACE - ANTERIOR SURFACE - IRREGULAR

- POSTERIOR SURFACE - FLAT

3) 2 BORDER - LATERAL BORDER - CONVEX

- MEDIAL BORDER - CONCAVE, MIDDLE PART SHOW DEPRESSION - HILUM

4) HILUM - FOLLOWING STRUCTURE SEEN IN HILUM

- FROM ANTERIOR SIDE TO POSTERIOR -RENAL VEIN, **RENAL ARTERY**, RENAL PELVIS

RELATION OF KIDNEY - RETROPERITONEAL ORGAN

(PERITONEUM COVERED ANTERIOR ONLY)

**RELATION COMMON TO 2 KIDNEY -**

UPPER POLE - SUPRARENAL GLAND

MEDIAL BORDER - SUPRARENAL GLAND, URETER

POSTERIOR SURFACE - DIAPHRAGM

- MEDIAL & LATERAL ARCUATE LIGAMENTS
- PSOAS MAJOR
- QUADRATUS LUMBORUM
- TRANSVERSUS ABDOMINIS
- SUBCOSTAL VESSELS
- SUBCOSTAL, ILIOHYPOGASTRIC & ILIOINGUINAL NERVES.

OTHER RELATION OF RIGHT KIDNEY

ANTERIOR RELATIONS - RIGHT SUPRARENAL GLAND

- LIVER
- SECOND PART OF DUODENUM
- HEPATIC FLEXURE OF COLON
- SMALL INTESTINE

OTHER RELATION TO LEFT KIDNEY

ANTERIOR RELATIONS - LEFT SUPRARENAL GLAND

- SPLEEN
- STOMACH
- PANCREAS
- SPLENIC VESSELS
- SPLENIC FLEXURE & DESCENDING COLON
- JEJUNUM

CAPSULES OR COVERINGS OF KIDNEY**1.FIBROUS CAPSULE** - THIN MEMBRANE - CLOSELY INVEST THE KIDNEY

- NORMALLY IT CAN EASILY STRIPPED OFF
- BUT IN CERTAIN DISEASE IT BECOME ADHERENT & CANNOT STRIPPED.

2.PERINEPHRIC FAT - LAYER OF ADIPOSE TISSUE

3.RENAL FASCIA - FIBROAREOLAR SHEATH → CONSIST OF 2 LAYER → ANTERIOR - **FASCIA OF GEROTA.**
 → POSTERIOR - **FASCIA OF ZUCKERKANDL'S**

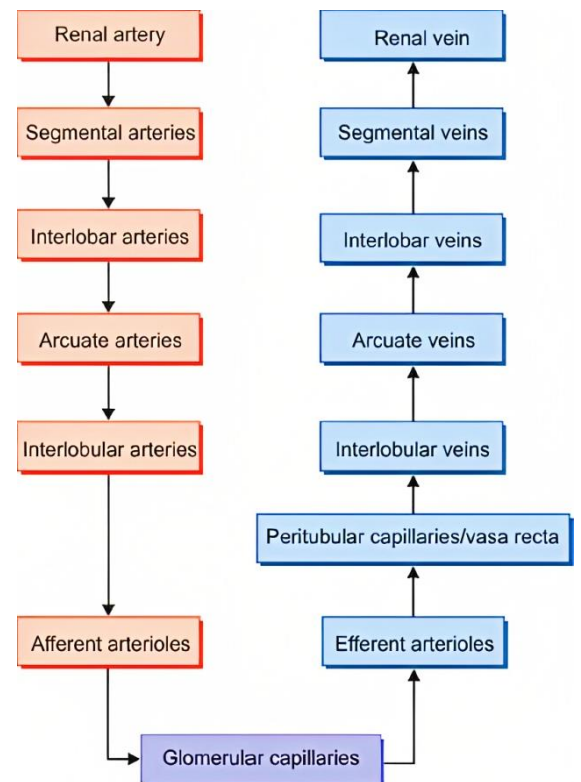
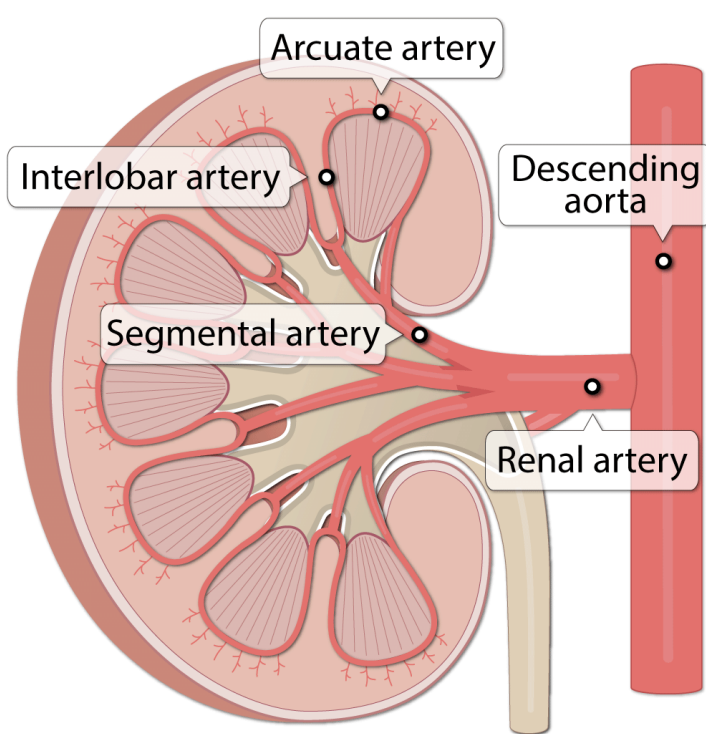
EXTENSION_ - SUPERIORLY - 2 LAYERS ENCLOSE SUPRARENAL GLAND

- THEN FUSE EACH OTHER & BECOME CONTINUOUS AS DIAPHRAGMATIC FASCIA
- INFERIORLY - 2 LAYERS REMAIN SEPARATE & ENCLOSE URETER
 - ANTERIOR - LOST IN EXTRAPERITONEAL TISSUE OF ILIAC FOSSA
 - POSTERIOR - BLEND WITH FASCIA ILIAC.
- Laterally - 2 LAYERS UNITE FIRMLY & CONTINUOUS WITH FASCI TRANSVERSALIS
- Medially - ANTERIORLY LAYER PASSES IN FRONT OF KIDNEY AND MERGE WITH CONNECTIVE TISSUE SURROUND AORTA AND INFERIOR VENA CAVA

4) PARANEPHRIC FAT - LAYER OF FAT LYING OUTSIDE THE RENAL FASCIA

**ARTERIAL SUPPLY**

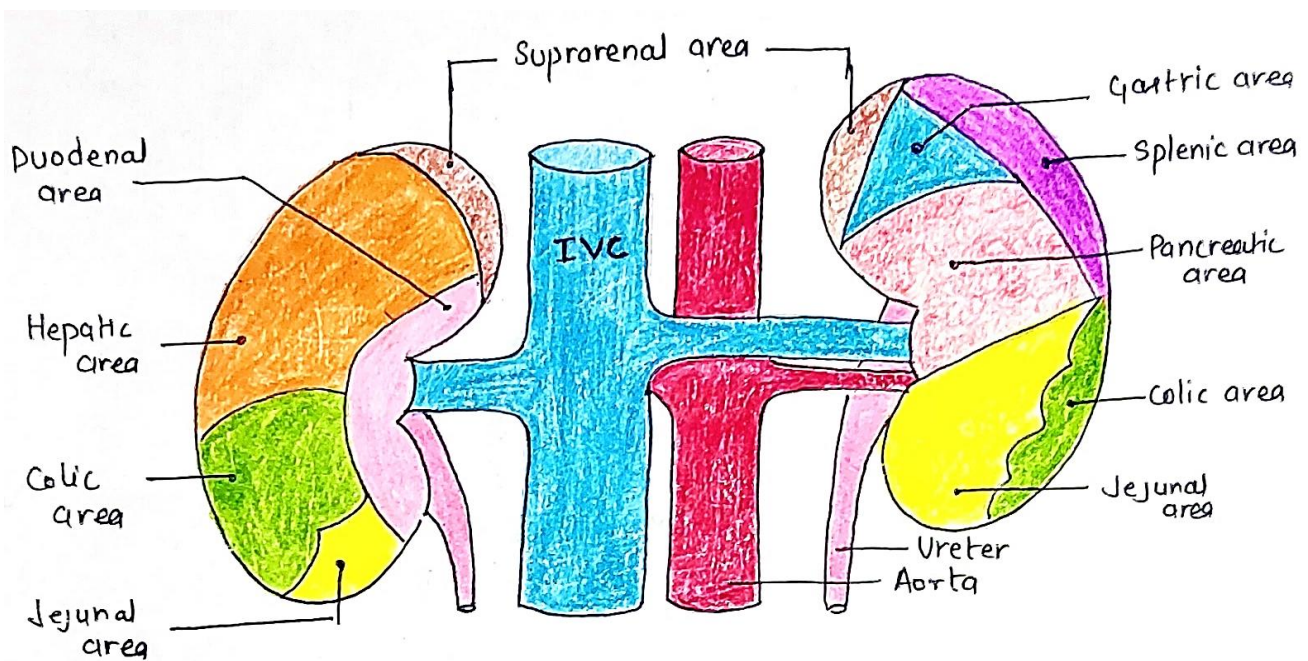
- SUPPLIED BY RENAL ARTERIES ARISE DIRECTLY FROM ABDOMINAL AORTA

**VENOUS DRAINAGE -**

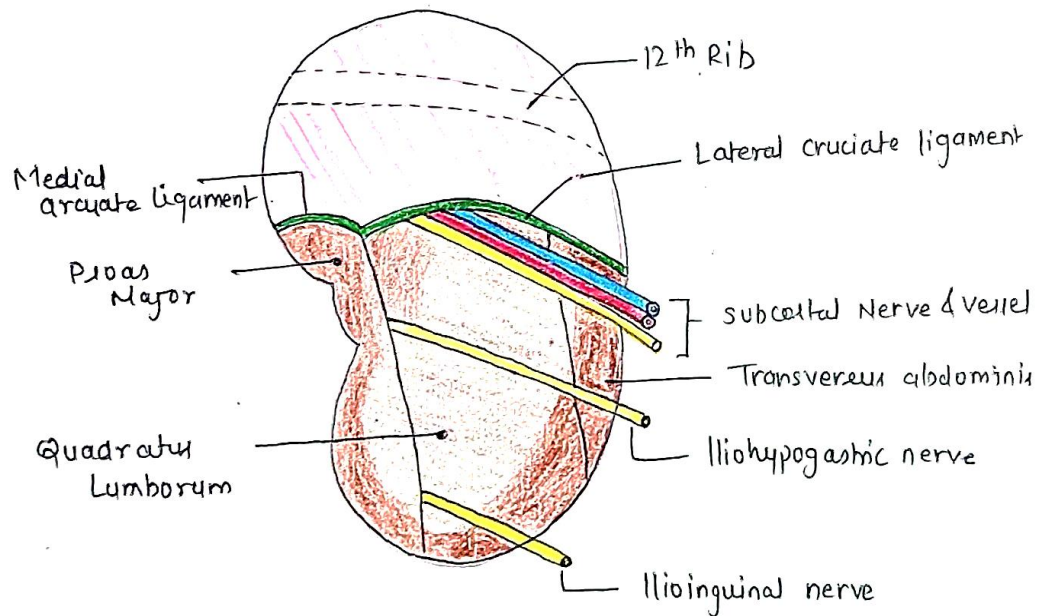
VENOUS BLOOD FROM KIDNEY DRAINED BY RENAL VEINS

NERVE SUPPLY

- SUPPLIED BY RENAL PLEXUS OF NERVES WHICH REACH KIDNEY ALONG RENAL ARTERY



∴ Anterior relations of Kidneys



∴ Posterior relation of kidney

CLINICAL ANATOMY

COMMON CONGENITAL ANOMALIES

A) LOBULATED KIDNEY -

- PERSISTENCE OF FOETAL LOBULATION IN ADULT KIDNEY
- NO CLINICAL SIGNIFICANCE

B) ABERRANT ARTERY

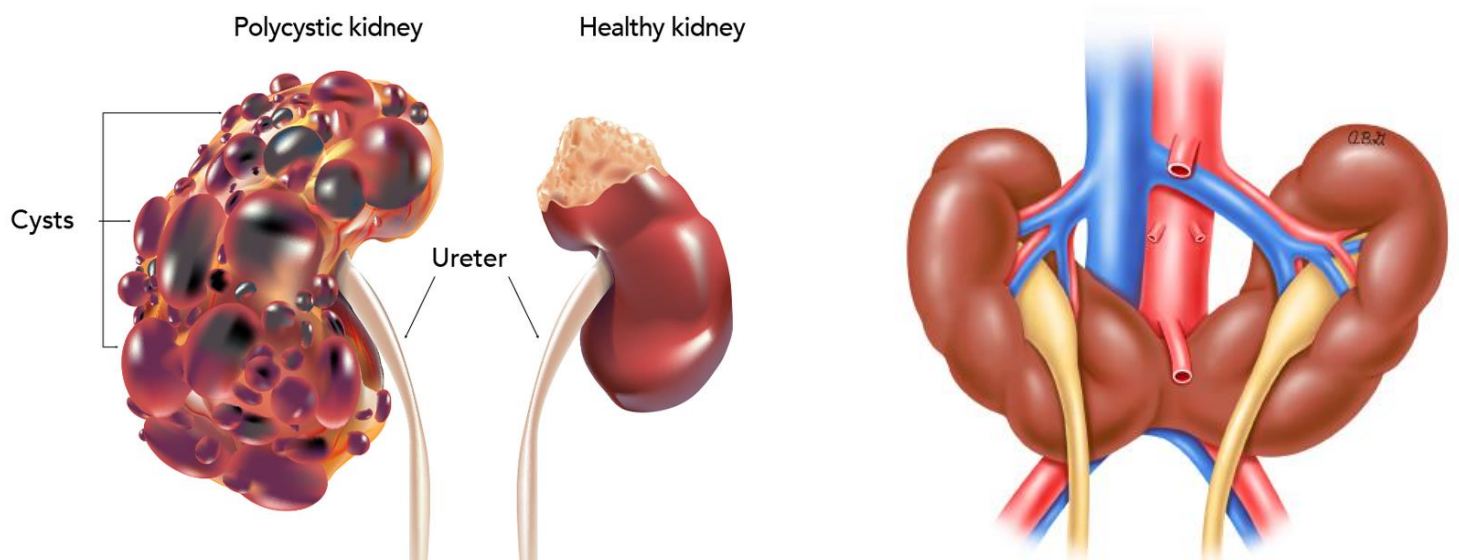
- PERSISTENCE OF ONE OF FETAL ARTERIES IS COMMON

C) CONGENITAL POLYCYSTIC KIDNEY

- IT IS FORMED IF LUMINAL CONTINUITY BETWEEN THE NEPHRONS AND COLLECTING TUBULES FAIL TO ESTABLISH
- GLOMERULI CONTINUE TO EXCRETE URINE WHICH ACCUMULATES IN TUBULES DUE TO LACK OF OUTLET, AS RESULT TUBULES UNDERGOES CYSTIC ENLARGEMENTS

D) HORSESHOE KIDNEY

- IT OCCURS DUE TO FUSION OF LOWER POLES OF KIDNEYS
- THE URETERS PASS ANTERIOR TO ISTHMUS





URETER

PAIR OF NARROW, THICK-WALLED MUSCULAR TUBES: CONVEY URINE FROM THE KIDNEYS TO THE URINARY BLADDER.

COURSE

BEGINS WITHIN THE RENAL SINUS- FUNNEL SHAPED DILATATION CALLED THE RENAL PELVIS.

URETER IS CONSTRICTED AT FIVE PLACES.

- i. AT THE PELVIURETERIC JUNCTION.
- ii. AT THE BRIM OF THE LESSER PELVIS.
- iii. POINT OF CROSSING OF URETER BY DUCTUS DEFERENS OR BROAD LIGAMENT OF UTERUS.
- iv. DURING ITS OBLIQUE PASSAGE THROUGH THE BLADDER WALL.
- v. AT ITS OPENING IN LATERAL ANGLE OF TRIGONE.

RELATIONS

1) RENAL PELVIS-> IN THE RENAL SINUS, BRANCHES OF RENAL VESSELS LIE BOTH IN FRONT AND BEHIND IT.

2) OUTSIDE THE KIDNEY - ANTERIORLY:

- ON THE RIGHT SIDE: RENAL VESSELS AND SECOND PART OF THE DUODENUM.
- ON THE LEFT SIDE THE RENAL VESSELS, THE PANCREAS, THE PERITONEUM AND THE JEJUNUM

POSTERIORLY: PSOAS MAJOR MUSCLE

3) ABDOMINAL PART OF URETER-

A)_ANTERIORLY:-

ON THE RIGHT SIDE, THE URETER IS RELATED TO:

- 1) THIRD PART OF THE DUODENUM
- 2) PERITONEUM
- 3) RIGHT COLIC VESSELS
- 4) ILEOCOLIC VESSELS
- 5) GONADAL VESSELS
- 6) ROOT OF THE MESENTERY
- 7) TERMINAL PART OF THE ILEUM

ON THE LEFT SIDE THE URETER IS RELATED TO:

- 1) PERITONEUM
- 2) GONADAL ARTERY
- 3) LEFT COLIC VESSELS
- 4) SIGMOID COLON
- 5) SIGMOID MESOCOLON

B) POSTERIORLY: THE URETER LIES ON:

- 1) PSOAS MAJOR
- 2) TIPS OF TRANSVERSE PROCESSES
- 3) GENITOFEMORAL NERVE

**C) MEDIALY: ON THE RIGHT SIDE- INFERIOR VENA CAVA****4) PELVIC PART OF URETER-****A) POSTERIORLY:**

- 1) INTERNAL ILIAC ARTERY
- 2) INTERNAL ILIAC VEIN
- 3) LUMBOSACRAL TRUNK
- 4) SACROILIAC JOINT

B) Laterally:

- 1) FASCIA COVERING THE OBTURATOR INTERNUS
- 2) SUPERIOR VESICAL ARTERIES
- 3) OBTURATOR NERVE
- 4) OBTURATOR ARTERY
- 5) OBTURATOR VEIN
- 6) INFERIOR VESICAL VEINS
- 7) MIDDLE RECTAL ARTERIES
- 8) IN THE FEMALE, IT FORMS THE POSTERIOR BOUNDARY OF THE OVARIAN FOSSA

IN MALES:

- DUCTUS DEFERENS CROSSES THE URETER SUPERIORLY FROM LATERAL TO MEDIAL SIDE.
- SEMINAL VESICLE LIES BELOW AND BEHIND THE URETER
- VESICAL VEINS SURROUND THE TERMINAL PART OF URETER.

IN FEMALES:

- THE URETER LIES IN THE EXTRAPERITONEAL CONNECTIVE TISSUE IN THE LOWER AND MEDIAL PART OF THE BROAD LIGAMENT OF THE UTERUS
- UTERINE ARTERY LIES FIRST ABOVE AND IN FRONT OF URETER AND CROSSES IT SUPERIORLY FROM LATERAL TO MEDIAL SIDE.
- THE URETER LIES LATERAL TO THE SUPRAVAGINAL PORTION OF THE CERVIX.
- THE TERMINAL PORTION OF THE URETER LIES ANTERIOR TO THE VAGINA.

5) INTRAVESICAL PART: VALVULAR ACTION- PREVENTS REGURGITATION OF URINE FROM THE BLADDER TO THE URETER.**BLOOD SUPPLY**

- 1) UPPER PART RECEIVES BRANCHES FROM THE RENAL ARTERY.
- 2) MIDDLE PART RECEIVES BRANCHES FROM THE AORTA.
- 3) PELVIC PART IS SUPPLIED BY BRANCHES FROM THE VESICAL, MIDDLE RECTAL, OR UTERINE VESSELS

NERVE SUPPLY

- 1) SYMPATHETIC FROM T10 TO L1 SEGMENTS
- 2) PARASYMPATHETIC FROM S2 TO S4 NERVES



PERINEAL MEMBRANE

PERINEAL MEMBRANE IS VERY STRONG TRIANGULAR MEMBRANE THAT STRETCH ACROSS THE UROGENITAL TRIANGLE BETWEEN ISCHIOPUBIC RAMI AT SIDES

IT INTERVENES BETWEEN THE SUPERFICIAL PERINEAL POUCH BELOW AND DEEP PERINEAL POUCH ABOVE

PERINEAL MEMBRANE IS ALMOST TRIANGULAR MEMBRANE WITH FOLLOWING ATTACHMENTS:

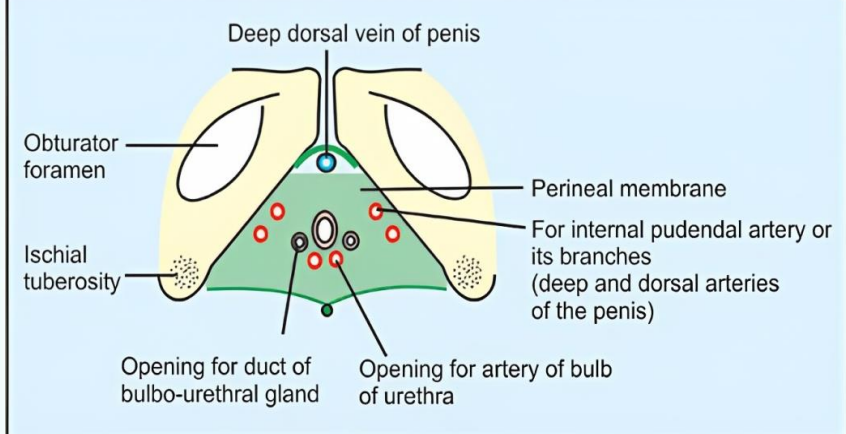
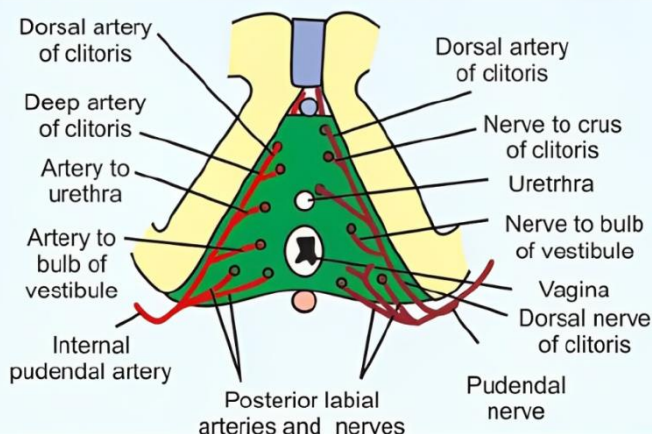
- **Laterally-** TO PERIOSTEUM OF ISCHIOPUBIC RAMI
- **APEX-** TO ARCuate LIGAMENT OF PUBIS
- **THE PART WHERE IT IS ATTACHED TO ARCuate LIGAMENT OF PUBIS IS PARTICULARLY THICK AND CALLED TRANSVERSE PERINEAL LIGAMENT.**
- **POSTERIOR BORDER IS FUSED TO DEEP PARTS OF PERINEAL BODY**

PERINEAL MEMBRANE IN MALE IS CROSSED BY OR PIERCED BY:

- URETHRA 2-3 CM BEHIND THE INFERIOR BORDER OF PUBIC SYMPHYSIS
- ARTERY TO THE BULB OF PENIS
- DUCT OF BULBOURETHRAL GLAND
- MUSCULAR BRANCHES TO MUSCLES
- DEEP ARTERY OF THE PENIS, URETHRAL ARTERY
- DORSAL ARTERY AND DORSAL NERVES OF PENIS
- POSTERIOR SCROTAL VESSELS AND NERVES, ANTERIOR TO TRANSVERSE PERINEAL

PERINEAL MEMBRANE IN FEMALE IS PIERCED BY:

- URETHRA, 2-3 CM BEHIND THE INFERIOR BORDER OF PUBIC SYMPHYSIS
- VAGINA (CENTRALLY), BEHIND URETHRA
- DEEP ARTERY OF CLITORIS
- DORSAL ARTERIES AND NERVES OF CLITORIS
- ARTERY TO BULB OF VESTIBULE
- MUSCULAR BRANCHES TO MUSCLE
- POSTERIOR LABIAL VESSELS AND NERVES, ANTERIOR TO TRANSVERSE PERINEAL





DEEP PERINEAL SHAPE



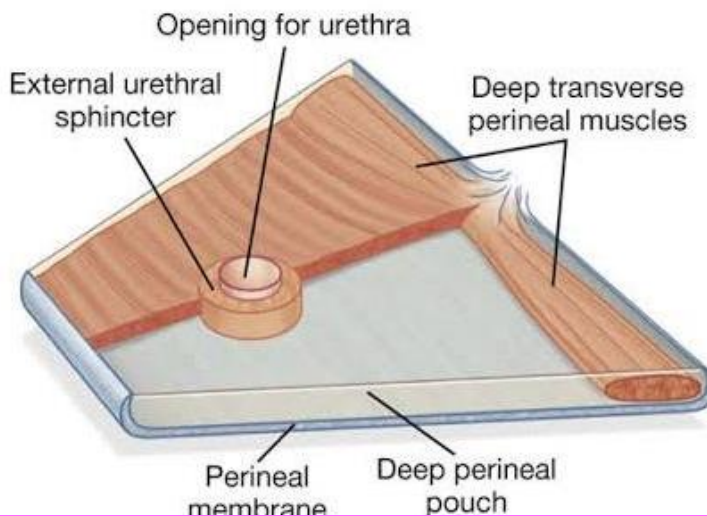
DEFINITION - THIN SPACE -> UROGENITAL REGION

- SITUATED DEEP TO PERINEAL MEMBRANE

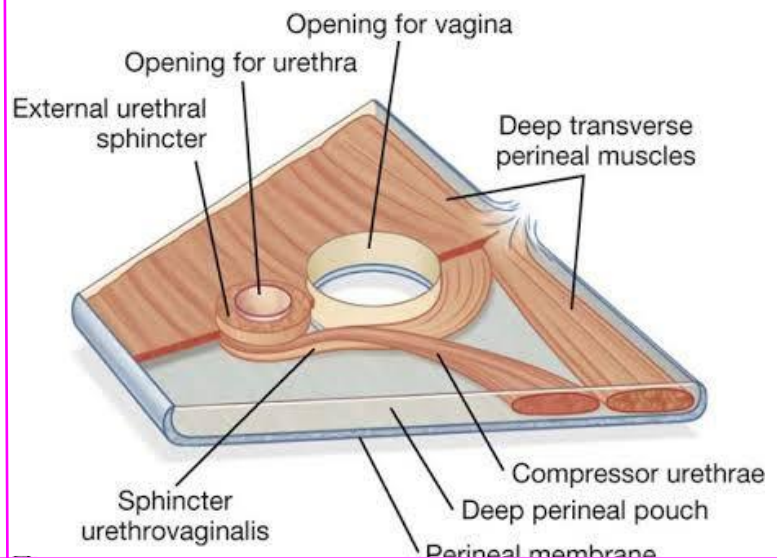
BOUNDARIES - SUPERFICIAL -> PERINEAL MEMBRANE

- ON EACH SIDE -> ISCHIO PUBIC RAMI

CONTENT-	MALE	FEMALE
1) TUBES -	PART OF URETHRA	- URETHRA & VAGINA
2) MUSCLES	- SPHINCTER URETHRA - DEEP TRANSVERSE PERINEI	- SPHINCTER URETHRA - COMPRESSOR URETHRA - SPHINCTER URETHROVAGINALIS
3) NERVE	- DORSAL NERVE OF PENIS - MUSCULAR BRANCHES FROM - PERINEAL NERVE	- DORSAL NERVE OF CLITORIS
4) VESSEL	- ARTERY OF PENIS - ARTERY TO BULB OF PENIS - URETHRA ARTERY - DEEP & DORSAL ARTERIES OF PENIS	- ARTERY IF CLITORIS - ARTERY TO BULB OF VESTIBULE - URETHRAL ARTERY



MALE DEEP PERINEAL SHAPE



FEMALE DEEP PERINEAL SHAPE



ISCHIORETICAL FOSSA

WEDGE-SHAPED FOSSA SITUATED -> EACH SIDE ANAL CANAL BELOW -> PELVIC DIAPHRAGM.

-> BASE - DOWNWARD, TOWARD SURFACE

-> APEX - UPWARD

BOUNDARIES

1) BASE -> FORMED BY SKIN OF PERINEUM

2) APEX -> FORMED BY - LINE WHERE -> OBTURATOR FASCIA MEET INFERIOR FASCIA OF PELVIC DIAPHRAGM



- 3) ANTERIORLY -> POSTERIOR BORDER OF PERINEAL MEMBRANE
- 4) POSTERIORLY -> GLUTEUS MAXIMUS
 - > SACROTUBEROUS LIGAMENT
- 5) LATERAL WALL -> OBTURATOR INTERNUS
 - > ISCHIAL TUBerosITY
- 6) MEDIAL -> LEVATOR ANI
 - > EXTERNAL ANAL SPHINCTER

SPACE AND CANALS OF FOSSA:

1) PERIANAL SPACE

- PERIANAL FOSSA FORM OF SEPTUM PASSES Laterally LONGITUDINAL COAT OF ANAL CANAL
- EXTEND - MEDIALlY FROM WHITE LINE OF HILTON
 - Laterally -> PUDENDAL CANAL
- SEPARATES SHALLOW SUBCUTANEOUS PERIANAL SPACE FROM DEEP ISCHIOANAL SPACE
- FAT IN TIGHTLY ARRANGED IN SMALL LOCULI FORMED BY -> COMPLETE SEPTA

2) ISCHIOANAL SPACE

- LARGE AND DEEP
- FAT- IN LOOSELY ARRANGED IN LARGE LOCULI FORMED- BY-> INCOMPLETE DELICATE SEPTA.
- LUNATE FASCIA-> ARCHES OVER THE ISCHIAL FAT

3) PUDENDAL CANAL

- FASCIAL CANAL IN LATERAL WALL OF IF
- ENCLOSING - PUDENDAL NERVE
 - INTERNAL PUDENDAL VESSEL

SUPERIOR SURFACE -> MALE - COMPLETELY COVERED BY PERITONEUM
-> FEMALE - PERITONEUM COVERED GREATER POINT EXCEPT
SMALL AREA NEAR POSTERIOR BORDER.

CONTENTS OF ISCHIOANAL FOSSA

1. ISCHIOANAL PAD OF FAT
2. INFERIOR RECTAL NERVE & VESSEL
3. PUDENDAL CANAL
4. POSTERIOR SCROTAL OR POSTERIOR LABIAL NERVE & VESSEL
5. PERINEAL BRANCH OF 4TH SACRAL(S4)
6. PERFORATING CUTANEOUS BRANCHES OF NERVE (S2, S3)

CLINICAL ANATOMY

ISCHIORECTAL ABSCESS -

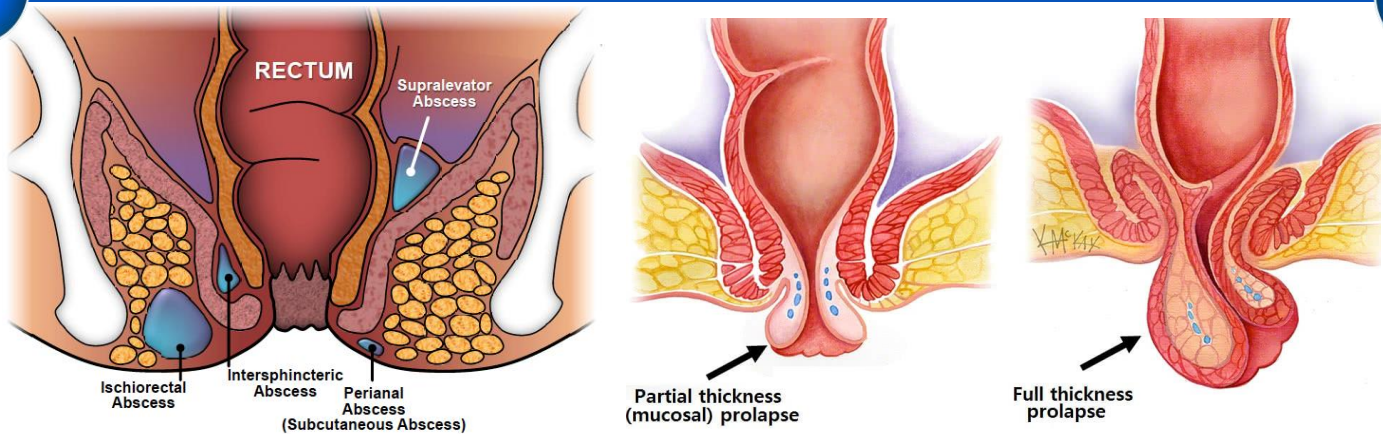
- ISCHIORECTAL FOSSA IS PRONE FOR INFECTION DUE TO ITS LOCATION
- INFECTION MAY OCCUR FROM BOILS AND ABRASION OF PERIANAL SKIN & PELVIC INFECTION

HORSESHOE-SHAPED ABSCESS

INFECTION MAY READILY PASS FROM ONE FOSSA TO OTHER THROUGH HORSESHOE-SHAPE RECESS BEHIND ANAL CANAL

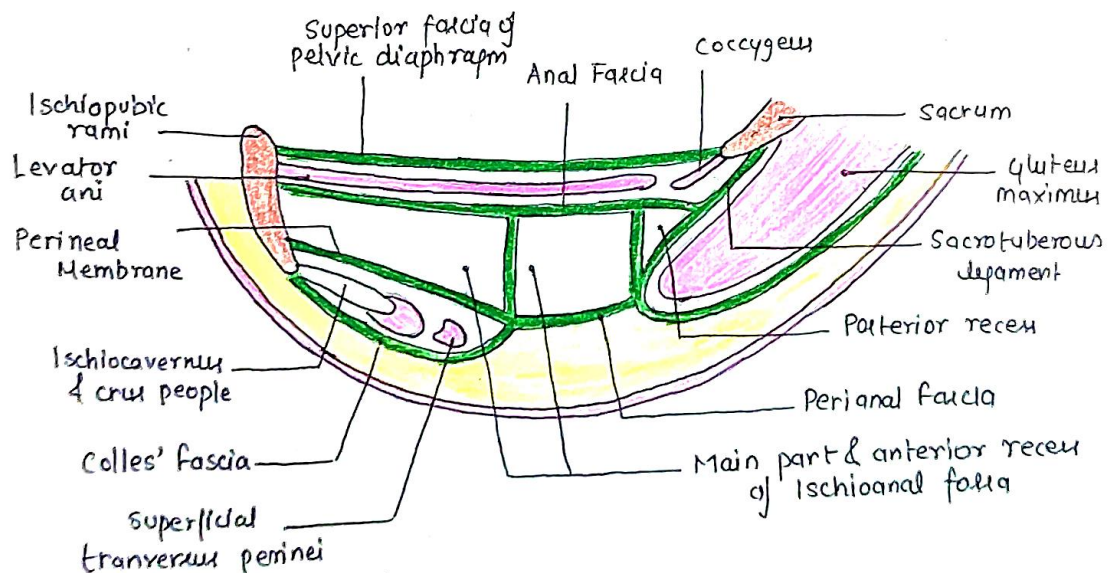
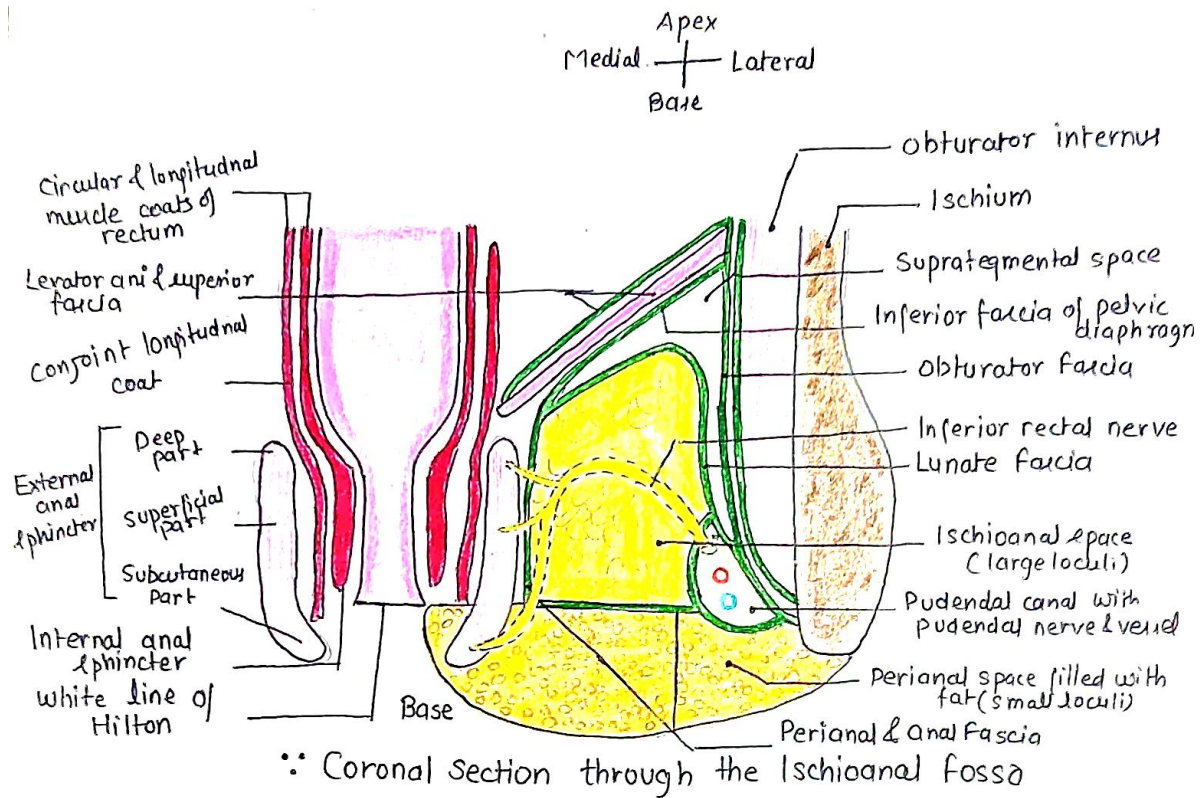
RECTAL PROLAPSE

- FAT IN ISCHIORECTAL FOSSA PROVIDES A CUSHION LIKE SUPPORT TO RECTUM AND ANAL CANAL
- THE LOSS OF FAT DEBILITATING DISEASE IN CHILDREN, NAMELY DIARRHOEA AND CAUSE RECTAL PROLAPSE



ISCHIORECTAL ABSCESS

RECTAL PROLASE





URINARY BLADDER

- MUSCULAR RESERVOIR OF URINE LIE IN ANTERIOR PART OF PELVIC CAVITY
- SITUATED -> ANTERIOR PART OF LESSER PELVIC IMMEDIATELY BEHIND PUBIC SYMPHYSIS
 - > IN FRONT OF RECTUM IN MALE AND UTERUS IN FEMALE
- SHAPE - EMPTY → TETRAHEDRAL
FULL → OVOID
- CAPACITY -> ADULT MALE - 120 TO 320ML
 - > URINE BEYOND 220ML CAUSE A DESIRE TO MICTURATE
 - > FILLING URINE UP TO 500ML MAYBE TOLERATED BUT BEYOND THIS, IT CAUSE PAIN DUE TO TENSION OF WALL

EXTERNAL FEATURE

- 1) EMPTY BLADDER - APEX
 - BASE OR FUNDUS
 - NECK
 - 3 SURFACE - SUPERIOR
 - RIGHT AND LEFT INFEROLATERAL
 - 4 BORDER - 2 LATERAL, 1 ANTERIOR, 1 POSTERIOR
- 2) FULL BLADDER - APEX
 - NECK
 - TWO SURFACE - ANTERIOR OR POSTERIOR

RELATION

- 1) APEX - MEDIAN UMBILICAL LIGAMENT
- 2) BASE - FEMALE - UTERINE CERVIX
 - VAGINA
 - MALE- UPPER - SEPARATED FROM RECTUM BY RECTOVESICAL POUCH
 - LOWER - SEMINAL VESICLE, VAS-DEFERENS
- 3) NECK - LOWER MOST FIXED PART OF BLADDER
 - MALE- SMOOTH MUSCLE SURROUND BLADDER NECK AND PREPROSTATIC URETHRA→
PREPROSTATIC → DEVOID OF PARASYMPATHETIC CHOLINERGIC NERVE
 - FEMALE- RELATED TO PELVIC FASCIA → SURROUNDING THE UPPER PART OF URETHRA
- 4) SUPERIOR SURFACE -
 - MALE - COMPLETELY COVERED BY PERITONEUM
 - FEMALE - PERITONEUM COVER GREATER PART EXCEPT SMALL AREA NEAR POSTERIOR BORDER.
- 5) INFEROLATERAL SURFACE - DEVOID OF PERITONEUM
 - MALE- PUBIS
 - PUBOPROSTATIC LIGAMENT
 - RETROPUBIC FAT
 - LEVATOR ANI
 - OBTURATOR INTERNUS



-FEMALE- SAME EXCEPT - **PUBOPROSTATIC LIGAMENT**

LIGAMENT

TRUE LIGAMENT - CONDENSATION OF PELVIC FASCIA AROUND NECK AND BASE OF BLADDER

- LATERAL TRUE LIGAMENT
- MEDIAL PUBOPROSTATIC LIGAMENT OR PUBOVESICAL LIGAMENT
- MEDIAN UMBILICAL LIGAMENT
- POSTERIOR LIGAMENT WITH VENOUS PLEXUS.

FALSE LIGAMENT - THEY ARE PERITONEAL FOLD

- MEDIAN UMBILICAL FOLD
- MEDIAL UMBILICAL FOLD
- LATERAL FALSE LIGAMENT
- POSTERIOR FALSE LIGAMENT

ARTERIAL SUPPLY

- MAIN- SUPERIOR, INFERIOR VESICAL ARTERY BRANCH OF INTERNAL ILIAC ARTERY
- ADDITIONAL - OBTURATOR AND INFERIOR GLUTEAL ARTERIES SUPPLY

VENOUS DRAINAGE - VESICAL VENOUS PLEXUS-->INTERNAL ILIAC VEIN

NERVE

- 1) PARASYMPATHETIC EFFERENT FIBERS - S2,3,4 → MOTOR TO DETRUSOR MUSCLE
- 2) SYMPATHETIC EFFERENT FIBERS - T11 TO L2 INHIBITORY TO DETRUSOR MUSCLE
- 3) SOMATIC PUDENDAL NERVE - SUPPLY-SPHINCTER URETHRAE - VOLUNTARY
- 4) SENSORY NERVE. PAIN SENSATION CARRIED BY - PARASYMPATHETIC NERVE.

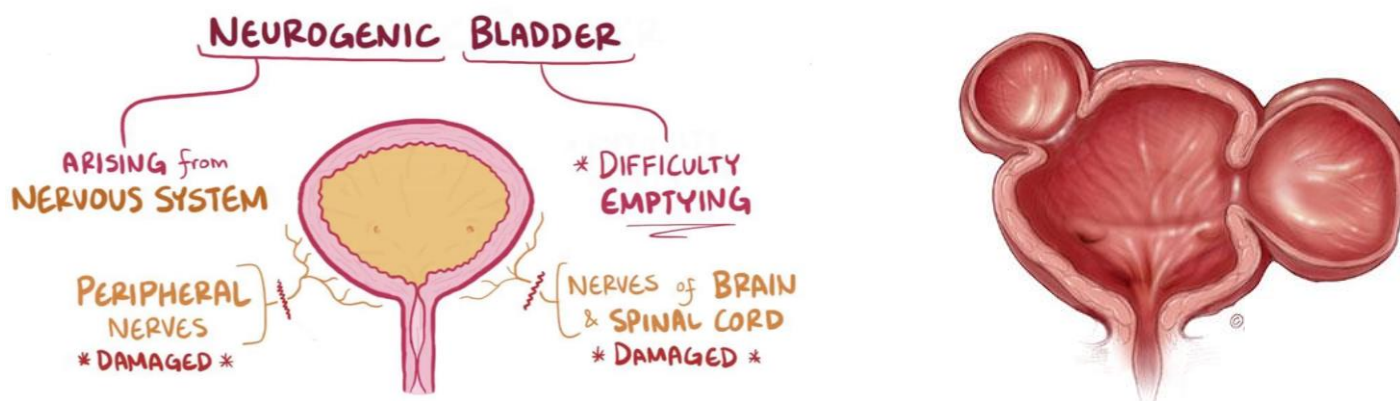
CLINICAL ANATOMY

TRABECULATED BLADDER -

- IT RESULTS DUE TO CHRONIC OBSTRUCTION TO OUTFLOW OF URINE BY ENLARGED PROSTATE
- BLADDER BECOME DISTENDED AND MUSCULATURE HYPERTROPHIES
- MUSCULAR FASCICULI INCREASE IN SIZE AND INTERSPACE IN ALL DIRECTION GIVING RISE TO AN OPEN WEAVE APPEARANCE OF BLADDER WALL, KNOWN AS TRABECULATED BLADDER

NEUROGENIC BLADDER

- ANY DEFECT IN NEURAL MECHANISM OF MICTURITION LEADS TO NEUROGENIC BLADDER
- NEUROGENIC BLADDER LACKS THE NORMAL NEURAL CONTROL OF MICTURITION







MALE URETHRA

MALE URETHRA IS ABOUT 18-20CM LONG

EXTENDS FROM THE INTERNAL URETHRAL ORIFICE IN UB TO THE EXTERNAL OPENING AT THE END OF THE PENIS.

CONSIDERED IN TWO PARTS:

A) POSTERIOR URETHRA

- PREPROSTATIC PART- 1-1.5 CM IN LENGTH.
 - EXTENDS ALMOST VERTICALLY FROM BLADDER NECK TO VERUMONTANUM (SUPERIOR ASPECT) IN PROSTATIC URETHRA.
 - CONTRACTION OF PREPROSTATIC URETHRA SERVES TO PREVENT RETROGRADE FLOW OF EJACULATE THROUGH PROXIMAL URETHRA INTO BLADDER.
 - IT IS ABSENT IN FEMALE.
- PROSTATIC PART- 3-4 CM IN LENGTH.
 - MIDLINE RIDGE CALLED URETHRAL CREST PROJECTS INTO THE LUMEN CAUSING THE LUMEN TO APPEAR CRESCENTIC IN TRANSVERSE SECTION.
 - VERUMONTANUM (COLLICULUS SEMINALIS), AN ELEVATION, AT ABOUT MIDDLE OF URETHRAL CREST. IT CONTAINS SLIT-LIKE ORIFICE OF PROSTATIC UTRICLE
- MEMBRANOUS PART- 1.5 CM
 - SHORTEST AND LEAST DILATABLE
 - NARROWEST SECTION EXCEPT EXTERNAL ORIFICE

B) ANTERIOR URETHRA (SPONGY PART)

- LIES IN CORPUS SPONGIOSUM
- 16 CM LONG WHEN PENIS IS FLACCID

A. BULBAR URETHRAL (PROXIMAL) COMPONENT- SURROUNDED BY BULBOSPONGIOSUS.

B. PENDULOUS/PENILE COMPONENT- CONTINUES TO THE TIP OF PENIS.

ARTERIES

- URETHRAL ARTERY ARISES FROM INTERNAL PUDENDAL ARTERY AND REACH GLANS PENIS.
- DORSAL PENILE ARTERIES VIA CIRCUMFLEX BRANCHES ON EACH SIDE

VEINS

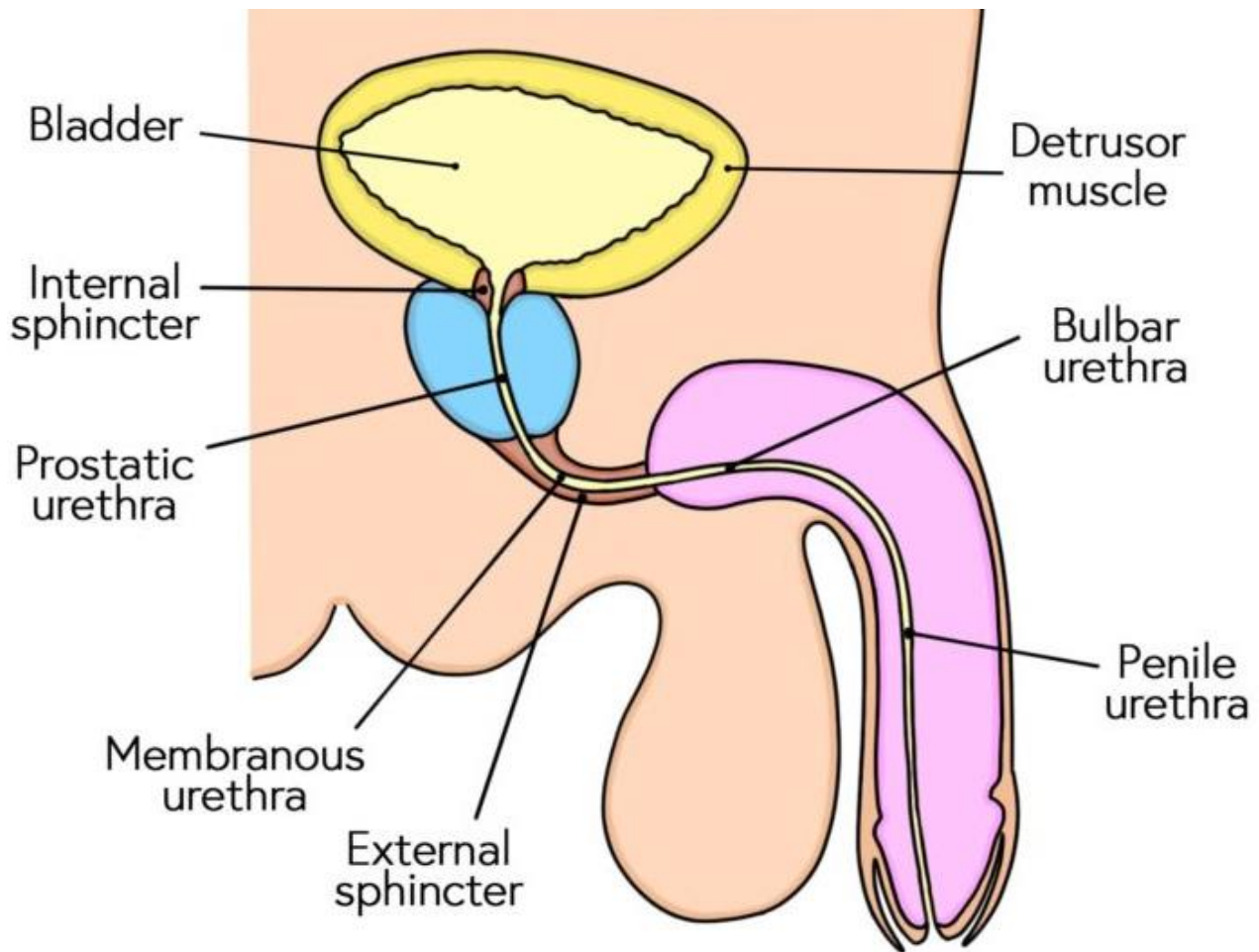
- ANTERIOR URETHRA
 1. DORSAL VEIN OF PENIS
 2. INTERNAL PUDENDAL VEIN
 3. INTERNAL ILIAC VEINS
- POSTERIOR URETHRA
 1. PROSTATIC AND VESICAL VENOUS PLEXUS
 2. INTERNAL ILIAC VEINS.

LYMPHATIC DRAINAGE

1. PROSTATIC URETHRA- INTERNAL ILIAC.
2. MEMBRANOUS URETHRA- INTERNAL ILIAC.
3. ANTERIOR URETHRA- DEEP INGUINAL.

**NERVE**

- PROSTATIC PLEXUS SUPPLIES THE SMOOTH MUSCLE OF PROSTATE AND PROSTATIC URETHRA.
- PARASYMPATHETIC NERVES ARE FROM 2ND-4TH SACRAL SEGMENT

**PROSTATE**

PROSTATE IS A PYRAMIDAL SHAPED, FIBROMUSCULAR GLANDULAR ORGAN, WHICH SURROUNDS PROSTATIC URETHRA

SECRETES -> ACID PHOSPHATASE, FIBRINOLYSIN, CITRIC ACID, AMYLASE, PROSTATE-SPECIFIC ANTIGEN

IN FEMALE HOMOLOGUE IS PARAURETHRAL GLAND

LOCATION -> LESSER PELVIS BELOW NECK OF URINARY BLADDER

ABOVE -> UROGENITAL DIAPHRAGM

BEHIND -> LOWER PART OF PUBIC SYMPHYSIS

FRONT -> RECTAL AMPULLA

SHAPE -> INVERTED CONE IN SHAPE

MEASUREMENT -> WEIGHT -3G, WIDTH -4CM, LENGTH-3CM



EXTERNAL FEATURES

APEX -> DIRECTED DOWNWARD

-> REST ON SUPERIOR SURFACE OF UROGENITAL DIAPHRAGM

BASE -> DIRECTED UPWARD

-> SURROUNDS THE NECK OF URINARY BLADDER

SURFACE

ANTERIOR SURFACE - NARROW & CONVEX FRO SIDE TO SIDE

- SITUATED 2CM BEHIND THE PUBIC SYMPHYSIS

POSTERIOR SURFACE - BROAD AND FLAT

- LIE IN FRONT OF AMPULLA OF RECTUM

INFEROLATERAL SURFACE - RELATED TO ANTERIOR FIBERS OF LEVATOR ANI

LOBES OF PROSTATE

ANTERIOR LOBE -> LIE IN FRONT OF URETHRA AND CONNECT TWO LATERAL LOBES

-> DEVOID OF GLANULAR TISSUE AND OFTEN CALLED ISTHMUS

POSTERIOR LOBE -> LIE BEHIND EJACULATORY DUCTS

-> PRIMARY CARCINOMA OF PROSTATE BEHINGS IN LOBE

MEDIAN LOBE -> WEDGE SHPAED

-> LIE BEHIND UPPER PART OF URETHRA AND IN FRONT OF EJACULATORY DUCT

-> BASE PRODUCE AN ELEVATION AT APEX OF TRIGONUM VESICA CALLED UVLA VESICAE

-> MEDIAN LOBE NORMALLY PROJECTS INTO PROSTATIC URETHRA RAISING A RIDGE CALLED URETHRAL CREST

-> CONTAIN MUCH OF GLANDULAR TISSUE

LATERAL LOBES -> LIE ON EACH SIDE OF URETHRA

-> CONTAIN SOME GLANDULAR TISSUE

STRUCTURES WITHIN PROSTATE

1) PROSTATIC URETHRA

2) EJACULATORY TUBES

3) PROSTATIC UTRICLE

CAPSULES OF PROSTATE

TRUE CAPSULE -> FORMED BY CONDENSATION OF PERIPHERAL FIBROUS STROMA OF GLAND

FALSE CAPSULE -> DERIVED FROM PELVIC FASCIA

-> OUTSIDE THE TRUE CAPSULE AND ENVELOPS THE PROSTATE GLAND AND URINARY BLADER IN SAME COMPARTMENT

ARTERIAL SUPPLY

SUPPLIED BY BRANCHES OF INFERIOR VESICAL, MIDDLE RECTAL & INTERNAL PUDENDAL ARTERIES



VENOUS DRAINAGE

VEIN FROM PROSTATE FORM A RICH VENOUS PLEXUS AROUND THE SIDES AND BASE OF GLAND AND OCCUPY SPACE BETWEEN TRUE AND FALSE CAPSULES

NERVE SUPPLY

SYMPATHETIC SUPPLY -> PROVIDED BY SUPERIOR HYPOGASTRIC PLEXUS

-> PREGANGLIONIC SYMPATHETIC FIBRES ARISE FROM L1 & L2

PARASYMPATHETIC SUPPLY -> PROVIDED BY PELVIC SPLANCHNIC NERVE

-> CONVEY PREGANGLIONIC FIBRES FROM S2 - S4 SPINAL SEGMENTS



OVARIES

OVARIES ARE FEMALE GONADS, WHICH PRODUCE FEMALE GAMATES CALLED OOCYTES

OVARIES ARE ALMONDS SHAPED AND GREYISH PINK IN COLOUR

EACH OVARY IS ABOUT 4CM LONG, 2CM WIDE AND 1CM THICK

POSITION

1. IN NULLIPAROUS WOMEN -> LONG AXIS IS NEARLY VERTICAL AN UPPER POLE AND A LOWER POLE.
2. IN MULTIPAROUS WOMEN -> LONG AXIS BECOMES HORIZONTAL; UPPER POLE POINTS Laterally AND THE LOWER POLE Medially.

EXTERNAL FEATURES

BEFORE ONSET OF OVULATION- OVARIES HAS SMOOTH SURFACES- GREYISH-PINK
AFTER PUBERTY- SURFACE BECOMES UNEVEN- COLOUR CHANGES FROM PINK TO GREY.

- OVARY HAS TWO POLES OR EXTREMITIES—
 - i. UPPER OR TUBAL POLE
 - ii. LOWER OR UTERINE POLE;
- TWO BORDERS—
 - i. ANTERIOR OR MESOVARIAN BORDER
 - ii. POSTERIOR OR FREE BORDER
- TWO SURFACES—LATERAL AND MEDIAL.

RELATION

PERITONEAL RELATIONS

- CONNECTED TO THE POSTERIOR LAYER OF THE BROAD LIGAMENT BY CALLED THE MESOVARIUM.
- MESOVARIUM TRANSMITS THE VESSELS AND NERVES TO AND FROM THE OVARY
- LATERAL PART OF THE BROAD LIGAMENT OF UTERUS FORMS DISTINCT FOLD KNOWN AS SUSPENSORY LIGAMENT OR INFUNDIBULOPELVIC LIGAMENT. CONTAINS THE OVARIAN VESSELS AND NERVES.

VISCERAL RELATIONS

- UPPER OR TUBAL POLE:
 - BROADER
 - RELATED TO THE UTERINE TUBE AND THE EXTERNAL ILIAC VEIN.
- LOWER OR UTERINE POLE:
 - NARROWER
 - RELATED TO THE PELVIC FLOOR.
- ANTERIOR OR MESOVARIAN BORDER:
 - STRAIGHT
 - RELATED TO THE UTERINE TUBE AND THE OBLITERATED UMBILICAL ARTERY.
- POSTERIOR OR FREE BORDER:
 - CONVEX
 - RELATED TO THE UTERINE TUBE AND THE URETER.
- LATERAL SURFACE:
 - RELATED TO THE OVARIAN FOSSA- LINED BY PARIETAL PERITONEUM.
- MEDIAL SURFACE:
 - COVERED BY THE UTERINE TUBE



- THE PERITONEAL RECESS BETWEEN THE MESOSALPINX AND THIS SURFACE IS KNOWN AS THE OVARIAN BURSA.

ARTERIAL SUPPLY

- OVARIAN ARTERY ARISES FROM- ABDOMINAL AORTA JUST BELOW THE RENAL ARTERY. IT SENDS BRANCHES TO THE OVARY THROUGH THE MESOVARIUM.
- UTERINE ARTERY GIVES SOME BRANCHES WHICH REACH THE OVARY THROUGH THE MESOVARIUM.

VENOUS DRAINAGE

- VEINS EMERGE AT THE HILUS- FORM A PAMPINIFORM PLEXUS AROUND THE ARTERY.
- PLEXUS CONDENSES INTO SINGLE OVARIAN VEIN NEAR THE PELVIC INLET.
- ASCENDING ON THE POSTERIOR ABDOMINAL WALL, IT DRAINS INTO THE INFERIOR VENA CAVA ON THE RIGHT SIDE AND INTO THE LEFT RENAL VEIN ON THE LEFT SIDE.

LYMPHATIC DRAINAGE

- LATERAL AORTIC NODES
- PREAORTIC NODES.

NERVE SUPPLY

- OVARIAN PLEXUS, DERIVED FROM THE RENAL, AORTIC AND HYPOGASTRIC PLEXUSES, ACCOMPANIES THE OVARIAN ARTERY.
- SYMPATHETIC NERVES (T10, T11) ARE AFFERENT FOR PAIN AS WELL AS EFFERENT OR VASOMOTOR.
- PARASYMPATHETIC NERVES (S2-4) ARE VASODILATOR

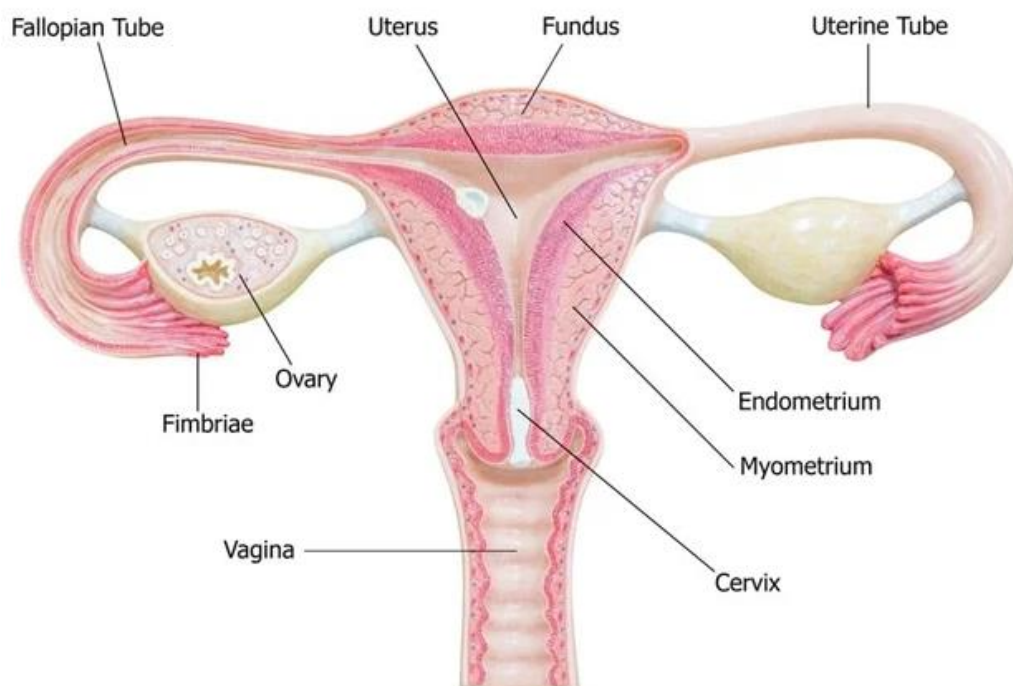
CLINICAL ANATOMY

OVARIAN TORSION -

THE TORSION OF AN OVARY MAY OCCUR DUE TO AN ABNORMALLY LONG MESOVARIUM AND SUSPENSORY LIAMENT OF OVARY

OVARIAN CARCINOMA

CARCINOMA OF AN OVARY IS COMMON AND ACCOUNT FOR ABOUT 15% OF ALL CANCER AND 20% OF GYNAECOLOGICAL CNACERS





UTERINE TUBES

DEFINITION - TORTUOUS DUCT WHICH, CONVEY OOCYTE

- SITUATION IN UPPER FREE MARGIN OF BROAD LIGAMENT OF UTERUS
- DIMENSION- UTERINE TUBE IS ABOUT **10CM** LONG.

SUBDIVISION

- 1) INFUNDIBULUM - LATERAL END OF UTERINE TUBE IS LIKE FUNNEL SHAPE
 - BEAR NUMBER OF FINGER LIKE PROJECTION - FIMBRIAE
- 2) AMPULLA - MEDIAL TO THE INFUNDIBULUM
 - THIN WALLED DILATED AND TORTUOUS - 4MM DIAMETER
- 3) ISTHMUS - SUCCEEDS THE AMPULLA
- 4) INTRAMURAL - INTERSTITIAL PART OF THE TUBE IS ABOUT 1CM LONG

COURSE

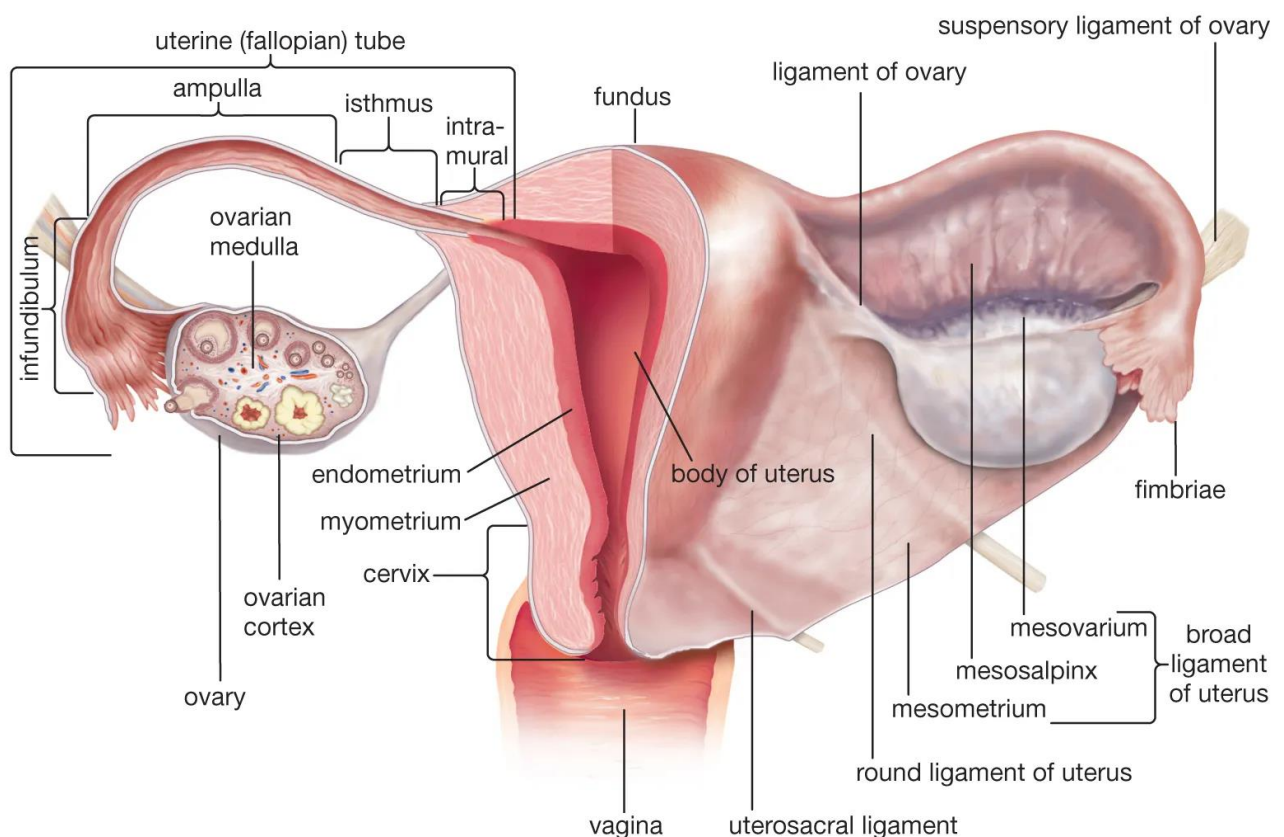
- 1) ISTHMUS - POSTEROLATERALLY IN HORIZONTAL PLANE
- 2) AMPULLA - ARCHES OVER THE OVARY
- 3) INFUNDIBULUM - PROJECT BEYOND THE FREE MARGIN OF BROAD LIGAMENT
- 4) UTERINE TUBE LIE - IN UPPER FREE MARGIN OF THE BROAD LIGAMENT

BLOOD SUPPLY

- UTERINE ARTERY - SUPPLIES - MEDIAL 2/3 OF TUBE
- OVARIAN ARTERY - SUPPLIES- LATERAL 1/3 OF TUBE

NERVE SUPPLY

- 1) SYMPATHETIC NERVE- T10 TO T12 & L1-L2 SEGMENT FROM HYPOGASTRIC PLEXUSES
- 2) PARASYMPATHETIC NERVE- DERIVED FROM VAGUS - LATERAL HALF





UTERUS



CHILD BEARING ORGAN IN FEMALE

SITUATED IN PELVIS B/W BLADDER AND RECTUM

- PYRIFORM SHAPE - 7.5 CM LONG
- 5 CM BROAD
 - 2.5CM THICK

PARTS OF UTERUS

- 1. FUNDUS** - FREE END OF UTERUS
 - LIE ABOUT OPENING OF UTERINE TUBE
 - FERTILIZED OOCYTE IS USUALLY IMPLANTED IN POSTERIOR WALL OF FUNDUS
- 2. BODY** - ANTERIOR PART - IS FLAT RELATED TO URINARY BLADDER
 - COVERED BY PERITONEUM
 - FORM SUPERIOR WALL OF UTEROVESICAL POUCH
 - POSTERIOR SURFACE - IS CONVEX RELATED TO TERMINAL ILEUM
 - COVERED WITH PERITONEUM
 - FORM ANTERIOR WALL OF RECTOUTERINE POUCH
- 3. LATERAL BODY** - ROUND AND CONVEX
 - PROVIDE ATTACHMENT TO **BROAD LIGAMENT OF UTERUS**
- 4. CERVIX** - THE CERVIX IS LOWER CYLINDRICAL PART OF UTERUS.
 - LOWER PART OF CERVIX PROJECTS INTO ANTERIOR WALL OF VAGINA
 - DIVIDED INTO SUPRA VAGINAL AND VAGINAL



SUPPORTS OF UTERUS

THE UTERUS IS A MOBILE ORGAN WHICH UNDERGOES EXTENSIVE CHANGES IN SIZE & SHAPE DURING THE REPRODUCTIVE PERIOD OF LIFE.

IT IS SUPPORTED BY A NUMBER OF FACTORS WHICH ARE CHIEFLY MUSCULAR & FIBROMUSCULAR

- 1) PRIMARY SUPPORT - MUSCULAR OR ACTIVE SUPPORT**
 - PELVIC DIAPHRAGM
 - PERINEAL BODY
 - DISTAL URETHRAL SPHINCTER MECHANISM
- 2) FIBROMUSCULAR OR MECHANICAL SUPPORT**
 1. UTERINE AXIS
 2. PUBOCERVICAL LIGAMENT
 3. TRANSVERSE CERVICAL LIGAMENT
 4. UTERO SACRAL LIGAMENT
 5. ROUND LIGAMENTS OF UTERUS
- 3) SECONDARY SUPPORT**
 1. BROAD LIGAMENT
 2. VESICOUTERINE POUCH & FOLD OF PERITONEUM
 3. RECTOVAGINAL OR RECTOUTERINE POUCH & FOLD OF PERITONEUM



ROLE OF INDIVIDUAL SUPPORTS

1) PELVIC DIAPHRAGM -

- SUPPORT PELVIC VISCERA & WRIST INCREASE IN INTRAABDOMINAL PRESSURE
- PUBOCOCCYGEUS- INSERT INTO PERINEAL BODY BETWEEN VAGINAL RECTUM
- **TORN DURING PARTURITION THE SUPPORT OF UTERUS LOST.**

2.) PERINEAL BODY- FIBROMUSCULAR NODE TO WHICH TEN MUSCLES ARE ATTACHED.

THE MUSCLE ARE -

- 2 SUPERFICIAL TRANSVERSE PERINEI.
- 2 DEEP TRANSVERSE PERINEI.
- 2 PUBOCOCCYGEUS.
- 2 BULBOSPONGIOUS.
- 1 SINGLE SPHINCTER ANI EXTERNUS.
- LONGITUDINAL MS COATS OF ANAL CANAL.

3.) URETHRAL SPHINCTER MECHANISM -

- UROGENITAL DIAPHRAGM DOES NOT EXIST IN URETHRA IS WITHIN THE WALL OF URETHRA.
- IN ADDITION, COMPRESSOR URETHRAE & SPHINCTER URETHRAE VAGINALIS INSERT INTO VAGINA SUPPORT UTERUS INDIRECTLY.

4) UTERINE AXIS -

- ANTEVERTED POSITION OF UTERUS- PREVENT ORGAN SAGGING DOWN THROUGH VAGINA.

5) PUBOCERVICAL LIGAMENT

- CONNECT CERVIX TO POST SURFACE OF PUBIS.
- DERIVED FROM ENDOPELVIC FASCIA.

6) TRANSVERSE CERVICAL LIGAMENT

- CONNECT LAT. ASPECT OF CERVIX TO LATERAL PELVIC WALL
- DERIVED FROM ENDOPELVIC FASCIA FAN SHAPE CONDENSATION

7) UTEROSACRAL LIGAMENT

- CONNECT CERVIX TO PERIOSTEUM OF SACRUM.
- DERIVED FROM ENDOPELVIC FASCIA.
- KEEP CERVIX BACKWARD AGAINST ROUND LIGAMENT.
- 2 LIGAMENT COUPLE MAINTAIN UTERINE AXIS

8.) ROUND LIGAMENT

- 2 FIBROMUSCULAR BAND - **10 TO 12 CM LONG.**

EACH LIG. BEGIN INTO AT LAT. ANGLE OF UTERUS

↓
RUN FORWARD Laterally
↓
PASS DEEP INGUINAL RING
↓
TRAVERSE THE INGUINAL CANAL
↓
MERGE WITH AEROLAR TISSUE TO LABIUM MAJUS.



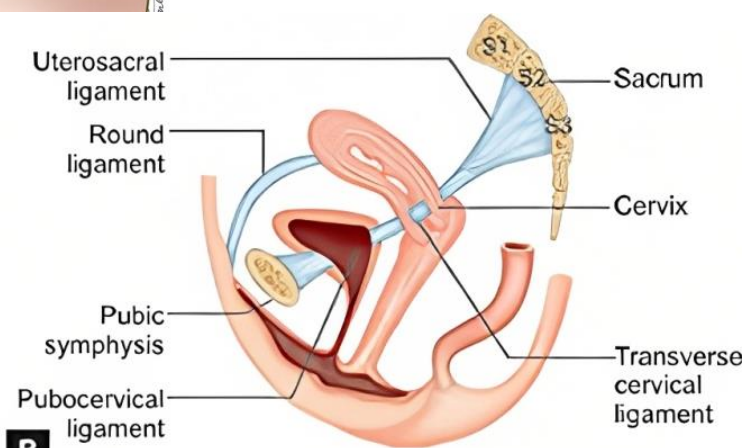
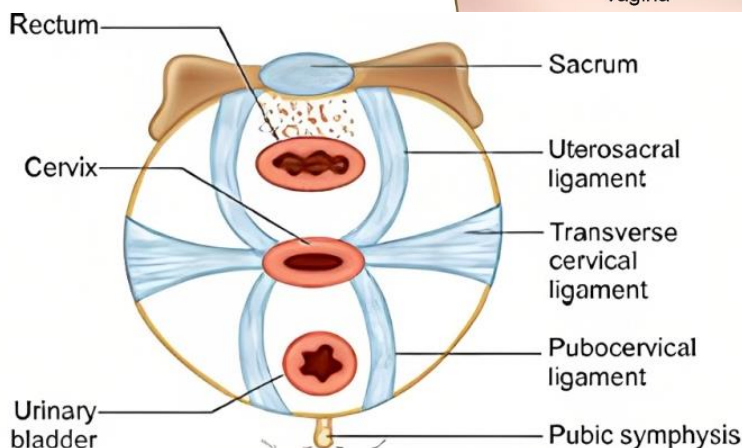
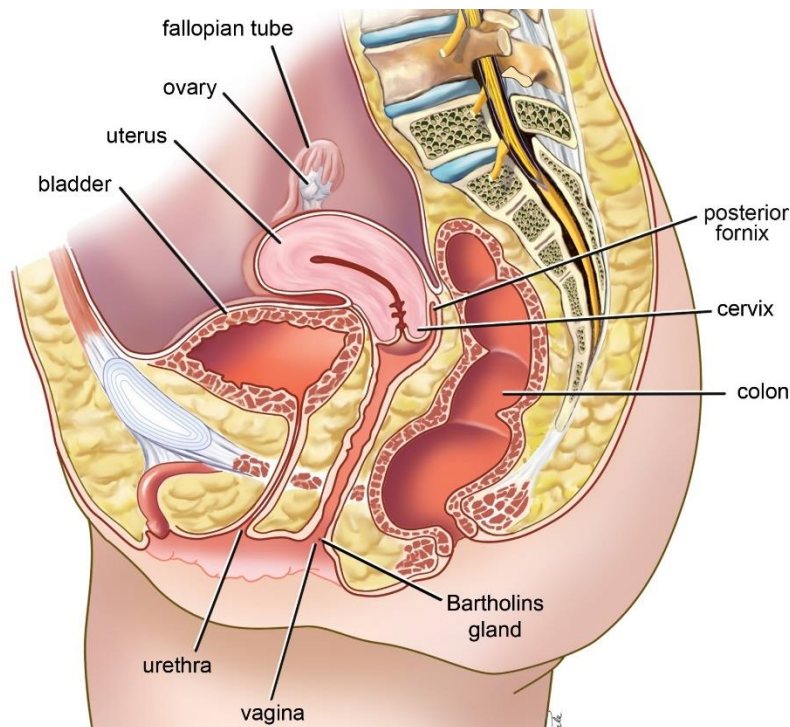
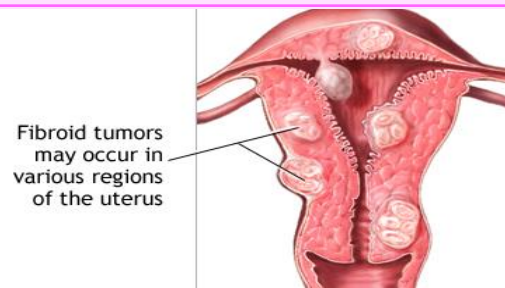
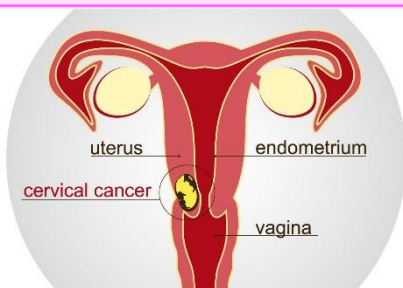
CLINICAL ANATOMY

CERVICAL CARCINOMA -

- MOST COMMON CANCER IN FEMALE 11%
- IT SPRED DIRECTLY TO ADJACENT STRUCTURES AND METASTASIZES VIA LYMPHATICS TO PELVIC LYMPH NODES
- CLINICAL FEATURES
 - 1) ABNORMAL VAGINAL BLEDDING PARTICULARLY INTERMENSTRUAL
 - 2) POSTCOITAL BLEEDING
 - 3) PAIN, ANOREXIA AND WEIGHT LOSS

FIBROIDS

- THESE ARE BENIGN TUMORS ARISING FROM MYOMETRIAL CELL
- THEY ARE FPOUND IN ABOUT 1/5 OF WOMEN ABOVE 35 YEAR OF AGE
- THEY ARE MULTIPLE AND MAY UNDERGO DEGENERATIVE CHARGES





ANAL CANAL

- ANAL CANAL IS TERMINAL PART → GASTROINTESTINAL TRACK
- LIE - IN ANAL TRIANGLE B/W ISCHIOANAL FOSSA
- EXTEND FROM ANORECTAL JUNCTION TO ANUS
- SURROUNDING - OUTER VOLUNTARY & INNER-INVOLUNTARY SPHINCTER

RELATION

- 1) ANTERIORLY - BOTH SEX - PERINEAL BODY
 - IN MALE - MEMBRANOUS URETHRA AND BULB OF PENIS
 - IN FEMALE - LOWER END OF VAGINA
- 2) POSTERIORLY - ANOCOCCYGEAL LIGAMENT.
 - TIP OF COCCYX
- 3) LATERALLY - ISCHIOANAL FOSSA
- 4) INFERIOR OF ANAL CANAL - DIVIDE INTO 3 PART - UPPER - 15MM
 - MIDDLE - 15MM
 - LOWER - 8MM

CHARACTERISTIC EPITHELIUM

1) UPPER MUCOUS PART

- LINED BY COLUMNAR EPITHELIUM (MUCOUS MEMBRANE)
- 6-10 VERTICAL RIDGE - ANAL COLUMNS
- LOWER END OF ANAL COLUMN UNITED BY SHORT TRANSVERSE FOLD CALLED ANAL VALVE
- ABOVE VALVE DEPRESSION - ANAL SINUS
- ANAL VALVE TOGETHER FORM TRANSVERSE LINE

2) MIDDLE PART

- NON-KERATINIZING SQUAMOUS EPITHELIUM (ALSO MUCOUS)
- ANAL COLUMNS ARE NOT PRESENT
- MUCOSA BLuish APPEARANCE - BECAUSE DENSE VENOUS PLEXUS
- THIS REGION REFERRED TO PECTEN OR TRANSITIONAL ZONE
- LOWER LIMIT OF PECTEN OFTEN HAS WHITISH APPEARANCE ALSO REFERRED AS - "WHITE LINE OF HILTON"

3) LOWER PART

- LINED BY TRUE SKIN - CONTAINING SEBACEOUS GLAND (KERATINIZING SQUAMOUS EPITHELIUM)

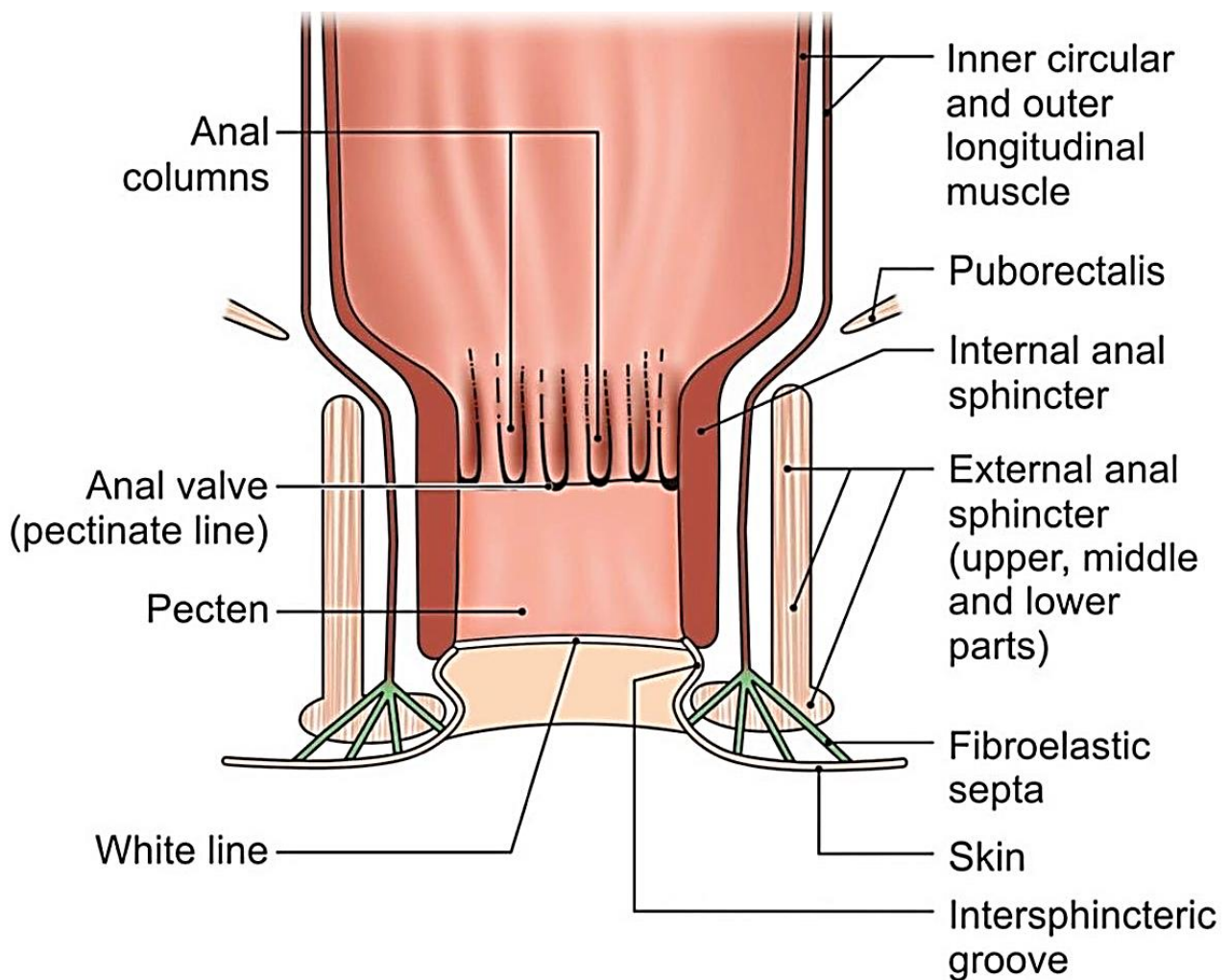
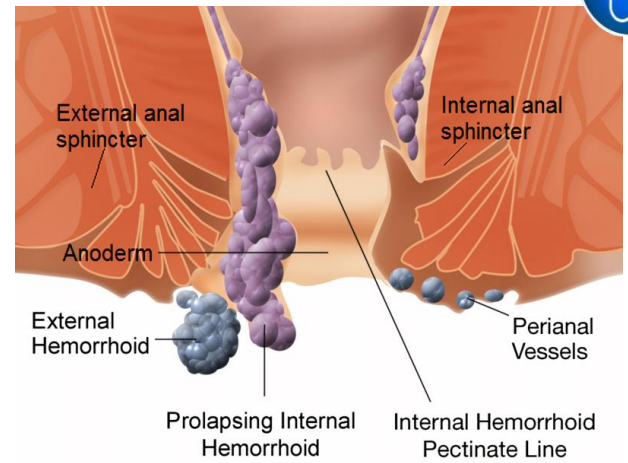
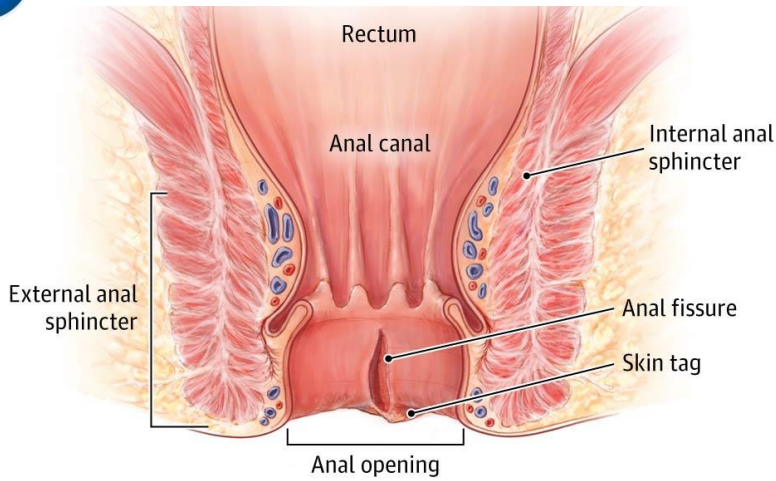
CLINICAL ANATOMY

FISSURE IN ANORECTAL CANAL -

- IT IS CAUSED BY RUPTURE OF ONE OF THE ANAL VALVES BY PASSAGE OF HARD FECAL MASS
- THEY OCCUR POSTERIORLY IN MIDLINE AND ARE VERY PAINFUL BECAUSE THE INFERIOR ASPECT OF VALVE IS LINED BY MUCOUS MEMBRANE/SKIN OF LOWER HALF OF ANAL CANAL SUPPLIED BY SOMATIC NERVE

HAEMORRHOIDS

- THESE ARE VARICEAL DILATATION OF SUBMUCOSAL ANAL AND PERIANAL VENOUS PLEXUES





STUDY TIPS FOR MAXIMUM MARKS



HOW TO WRITE IN UNIVERSITY EXAM AND HOW TO DRAW DIAGRAMS
ALREADY MENTION IN UPPER LIMB



PREVIOUS YEAR UNIVERSITY QUESTIONS

LONG QUESTION - 20MARKS

- 1) DESCRIBE INGUINAL CANAL UNDER FOLLOWING HEADINGS -
1.LOCATION & EXTEND 2.BOUNDARY & CONTENT 3.PROTECTIVE MECHANISM
4.APPLIED(HERNIA) 5.SPERMATIC CORD
- 2) DESCRIBE STOMACH UNDER FOLLOWING HEADINGS -
1.POSTERIOR RELATION 2.ARTERY SUPPLY 3.APPLIED ANATOMY
- 3) DESCRIBE VERMIFORM APPENDIX UNDER FOLLOWING HEADINGS -
1.POSITION 2.BLOOD SUPPLY & LYPHATIC DRAINAGE 3.APPLIED
- 4) DESCRIBE EXTERNAL FEATURE, RELATION, LIGAMENT, BLOOD SUPPLY &
DEVELOPMENT OF URINARY BLADDER ?
- 5) DESCRIBE PARTS, RELATION, LIGAMENT, BLOOD SUPPLY & SUPPORT OF UTERUS?
- 6) DESCRIBE SECOND PART OF DEUDENUM - UNDER FOLLOWING HEADING -
1.RELATION 2.DEVELOPMENT 3.APPLIED 4.ARTERY SUPPLY

SHORT NOTES - 5MARKS

- 1) RECTUS SHEATH
- 2) DESCEND OF TESTIS
- 3) LIGAMENT OF LIVER & VISCERAL RELATION
- 4) PANCREAS
- 5) DEVELOPMENT OF KIDNEY
- 6) KIDNEY RELATION
- 7) EXTRA HAPATIS BILIARY APPARATUS
- 8) PORTAL VEIN & ITS CLINICAL ANATOMY
- 9) EPIPLOIC FORAMEN
- 10) GREATER & LESSER OENTUM
- 11) ISCHIONAL FOSSA 12) DEVELOPMENT OF ANAL CAN



ABDOMEN ANATOMY IS COMPLETED !!

**YOUR POSITIVE ACTION COMBINED
WITH POSITIVE THINKING RESULTS IN SUCCESS**

ALL THE BEST FOR YOUR EXAMS

DR.JOHARI

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