

The Abdominal Wall

Please refer to the slides for illustrating figures, otherwise all the information in the slides are included here ... Good Luck!! 😊😊😊

What is the abdomen??

The abdomen is the region of the trunk that lies between the diaphragm above and the inlet of the pelvis below.

Borders of the abdominal cavity:-

Superiorly:-

1) The diaphragm forms the upper boundary of the abdomen:-

- ☺ The diaphragm is a dome-shaped musculofibrous septum that separates the thoracic from the abdominal cavity.
- ☺ The diaphragm is pierced by structures that pass between the thorax and abdomen through three large openings :
 1. The aortic orifice \implies for the abdominal aorta (upon passing through this orifice the descending thoracic aorta become the descending abdominal aorta)
 2. The esophageal orifice \implies for the esophagus, the anterior and posterior vagal trunks.
 3. The caval orifice \implies for the passage of the Inferior Vena Cava.
- ☺ The diaphragm has two cupola {A cup-shaped or domelike structure.} , one on the right and one on the left side :

- ☞ The right cupola overlies the liver which in turn pushes it upwards till it settle at the level of the fifth intercostals space.
- ☞ The left cupola overlies the spleen, stomach and the left hepatic lobe.

2) Also superiorly we find the costal cartilages (7-9) anteriorly and (7-12) posteriorly, because the 11th and 12th ribs are floating ribs found only posteriorly embedded in the abdominal muscles {only the 9th rib appears anteriorly}.

3) The xiphoid process {small cartilaginous process of the lower part of the sternum}.

Inferiorly:-

- ☺ The abdomen reaches the pubic bone and iliac crest which lie at the level of the fourth lumbar vertebra inferiorly.

★ **The Umbilicus** :- the depression in the center of the surface of the abdomen indicating the point of attachment of the umbilical cord to the embryo, it is found in the midpoint of the midsagittal line at the level of the intervertebral disc between L3&L4 .

Abdominal Regions:-

For the sake of clinical examination the abdominal region has been divided into areas each contain certain organs and this helped in clinical diagnosis and description of the patient`s condition .

☺ First the abdomen has been divided into four quadrants formed by two intersecting lines: horizontal & vertical that intersect at umbilicus.

These quadrants are :

- ♣ **UPPER LEFT:** This contains mainly the stomach, spleen, pancreas
- ♣ **UPPER RIGHT:** This contains mainly the liver, gallbladder, duodenum
- ♣ **LOWER LEFT :** which contains mainly the descending colon (large intestine), part of the transverse colon , the ileum (small intestine), left ovary (in females)...
- ♣ **LOWER RIGHT :** which contains mainly the ascending colon , the cecum , appendix , right ovary (in females)

☺ After that the abdominal region was divided into nine areas by two vertical and two horizontal planes ,this way is more precise and it is the one used recently :

- ♣ **VERTICAL PLANES:** Left and right lateral midclavicular planes, they pass through the midpoint between the anterior superior iliac spine and symphysis pubis.
- ♣ **HORIZONTAL PLANES :**
 - ☞ Upper Subcostal plane: at the level of the third lumbar vertebra and on each side it joins the lower end of the costal cartilage.

- ☞ Lower Intertubercular plane: extend through the tubercles of the iliac crests on both sides at the level of the fifth lumbar vertebra.

The nine abdominal regions are:

Note that. -

we have to know the names and the organs of each abdominal region, this is essential in clinical diagnosis and description of the clinical condition of the patient.

The Upper Three regions are:-

- Right Hypochondriac region :{hypo = below , situated below the costal cartilages}
- Epigastric region :{epi = above , lying upon or over the stomach}
- Left Hypochondriac region :-{ situated below the costal cartilages}

The middle three regions are:-

- Right Lumber region :{ related to the lumber vertebrae }
- Umbilical region :{ around the umbilicus} most of the small intestine is located in this region.
- Left Lumber region : { related to the lumber vertebrae}

The Lower Three regions are:-

- Right iliac (inguinal) region :- { located near the ilium, inguinal = because it contains the right inguinal ligament and canal }
- Suprapubic region (hypogastric region): {located below the navel and above the pubic bone }
- Left iliac (inguinal) region :- { located near the ilium, inguinal = because it contains the left inguinal ligament and canal }

HERE ARE SOME OF THE ORGANS LOCATED IN THESE REGIONS:

9 Abdominal Regions		
Right Hypochondriac	Epigastric	Left Hypochondriac
Ascending Colon	Esophagus	Descending Colon
Gall Bladder	Liver	Left Kidney
Liver	Pancreas	Liver
Right Kidney	Right & Left Adrenal Glands	Pancreas
Small Intestine	Right & Left Kidneys	Small Intestine
Transverse Colon	Small Intestine	Spleen
	Spleen	Stomach
	Stomach	Transverse Colon
	Transverse Colon	
Right Lumbar	Umbilical	Left Lumbar
Ascending Colon	Cisterna chyli	Descending Colon
Gall Bladder	Pancreas	Left Kidney
Liver	Right & Left Kidneys	Small Intestine
Right Kidney	Right & Left Ureters	
Small Intestine	Small Intestine	
	Stomach	
	Transverse Colon	
Right Iliac	Hypogastric	Left Iliac
Appendix	Prostate	Left Fallopian Tube (F)
Cecum & Ascending Colon	Rectum	Left Ovary (F)
Right Fallopian Tube (F)	Right & Left Fallopian Tubes (F)	Small Intestine
Right Ovary (F)	Right & Left Ovaries (F)	Descending Colon
Small Intestine	Right & Left Ureters	Sigmoid Colon
	Seminal Vessicle (M)	
	Sigmoid Colon	
	Small Intestine	
	Urinary Bladder	
	Uterus (F)	
	Vas Deferens (M)	

Clinical applications:-

- ★ A patient with "**Intestinal colic**" suffers severe pain which is concentrated in the umbilical abdominal region.
- ★ A patient with "**Renal colic**" suffers sever pain that is concentrated in the lumber abdominal regions, right or left, according to which kidney is affected.
- ★ A patient with "**Appendicitis** " suffers sever pain in the right iliac abdominal region .If a female patient came to the clinic suffering pain in the right iliac region the doctor should ask about her menstrual cycle , because menstruation cause similar pain in females .
- ★ A patient with "**acute Cholecystitis**= inflammation of the gall bladder "or "**Liver disease** "suffers sever pain in the right hypochondriac abdominal region.
- ★ If a patient from a car accident came with fractured ribs on the left side especially the 9th, 10th ,11th ribs the doctor should be concerned about rupture **in the spleen** because it is situated there.

☞ **HERE ARE SOME CLINICAL APPLICATIONS :-**

Right		Left
Gallstones Stomach Ulcer Pancreatitis	Stomach Ulcer Heartburn/ Indigestion Pancreatitis, Gallstones Epigastric hernia	Stomach Ulcer Duodenal Ulcer Biliary Colic Pancreatitis
Kidney stones Urine Infection Constipation Lumbar hernia	Pancreatitis Early Appendicitis Stomach Ulcer Inflammatory Bowel Small bowel Umbilical hernia	Kidney Stones Diverticular Disease Constipation Inflammatory bowel disease
Appendicitis Constipation Pelvic Pain (Gynae) Groin Pain (Inguinal Hernia)	Urine infection Appendicitis Diverticular disease Inflammatory bowel Pelvic pain (Gynae)	Diverticular Disease Pelvic pain (Gynae) Groin Pain (Inguinal Hernia)

Quadrants of Abdomen and d/d of Abdominal Pains



Now let's begin with our main topic "the Abdominal Wall"

The abdominal wall is divided into:-

- ☞ Anterior Abdominal Wall
- ☞ Posterior Abdominal Wall

They enclose the Abdominal Cavity.

The Anterior Abdominal Wall:-

What are the layers of the anterior abdominal wall??

1. SKIN

2. SUPERFICIAL FASCIA:-

- ✓ The superficial fascia is divided into a superficial **fatty layer** (fascia of Camper) and a deep **membranous layer (Scarpa's fascia)** :-
 - Above the umbilicus it is composed of one fatty layer.
 - Below the umbilicus it is composed of two fatty & membranous layers.
- ✓ Inferiorly, the membranous layer passes onto the front of the thigh, where it fuses with the deep fascia of the thigh (**Fascia lata**) one fingerbreadth below the inguinal ligament.
- ✓ In the midline inferiorly, the membranous layer of fascia is not attached to the pubis but forms a tubular sheath for the penis (or clitoris).
- ✓ Below in the perineum, it enters the wall of the scrotum (or labia majora). From there, it passes to be attached on each side to the margins of the pubic arch; it is here referred to as **Colles' fascia**.
- ✓ Posteriorly, it fuses with the perineal body and the posterior margin of the perineal membrane.
- ✓ In the scrotum in males, the fatty layer of the superficial fascia is represented as a thin layer of smooth muscle, **the Dartos muscle**.
- ✓ **Colles' fascia** is important clinically because it surrounds the penis, scrotum and extends in the anterior abdominal wall. If there is rupture in the penile urethra, it will lead to extravasation of urine into the penis, perineum, scrotum, upwards in the anterior abdominal wall and some will accumulate downward below the inguinal ligament about 1 cm (most will accumulate upwards, little downwards).

3. DEEP FASCIA:

The deep fascia in the anterior abdominal wall is merely a thin layer of connective tissue covering the muscles; it lies immediately deep to the membranous layer of superficial fascia. Sometimes this layer is absent

.Why??

- ☞ In order to allow the expansion of the abdomen upwards & forwards .Especially in pregnant women to give more space to the uterus to grow in size as the embryo develops inside.

4. MUSCULAR LAYER:-

The muscles of the anterior abdominal wall consist of three broad thin sheets that are aponeurotic in front; from exterior to interior they are:-

- The external oblique muscle.
- The internal oblique muscle.
- Transversus abdominal muscle.
- On side of the midline anteriorly is, in addition, a wide vertical muscle, the rectus abdominis muscle .As the aponeurosis of the three sheets pass forward, they enclose the rectus abdominis to form the rectus sheath.
- The lower part of the rectus sheath might contain a small muscle called the Pyramidalis muscle.

☞ **Functions of the abdominal muscles include :-**

- ❖ When they are contacted, the abdominal muscles` fibers form a sort of network which is very strong providing protection to the abdominal viscera.
- ❖ Compress abdominal contents.
- ❖ Assist in flexing and rotation of trunk;
- ❖ Increase intraabdominal pressure and thus assist in forced expiration, micturition, defecation, parturition, and vomiting.

5. FASCIA TRANSVERSALIS:

The fascia transversalis is a thin layer of fascia that lines the transversus abdominis muscle and is continuous with a similar layer lining the diaphragm, the iliacus muscle and the pelvis fascia.

The femoral sheath for the femoral vessels in the lower limbs is formed from the fascia transversalis and the fascia iliaca that covers the iliacus muscle.

6. EXTRAPERITONEAL FAT:-

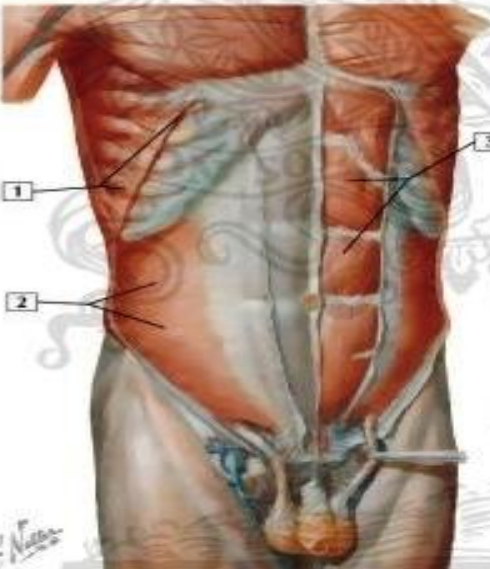
The extraperitoneal fat is a thin layer of connective tissue that contains a variable amount of adipose tissue and lies between the fascia transversalis and the parietal peritoneum.

7. PARIETAL PERITONEUM:-

The walls of the abdomen are lined with parietal peritoneum .This is a thin serous membrane and is continuous below with the parietal peritoneum lining the pelvis. {The visceral peritoneum, on the other hand, is adherent to the viscera}. Therefore, the surgeon must open this layer to reach the abdominal cavity.

Now Let's Start talking about the Muscular Layer:

Muscles: Anterior Abdominal Wall



1. External oblique muscle
2. Internal oblique muscle
3. Rectus abdominis muscle

	External Oblique Muscle	Internal Oblique Muscle	Rectus Abdominis Muscle
Origin	Inferior border of ribs 5-12	Lateral part of the inguinal ligament, iliac crest, and thoracolumbar fascia	Pubic crest (lateral tendon), pubic symphysis (medial tendon)
Insertion	Anterior iliac crest inferiorly and via its broad aponeurosis to the linea alba medially	Inferior aspect of last 4 ribs, linea alba, pubic crest, and pedicular line	Costal cartilage of ribs 5-7 and xiphoid process
Actions	Compression of the abdomen, forward flexion of the spine, and lateral flexion and rotation of the spine	Compression of the abdomen, forward flexion of the spine, and lateral flexion and rotation of the spine	Compression of abdomen, depression of ribs, flexion of spine
Innervation	Intercostal nerves (T7-11) and subcostal nerve (T12)	Intercostal nerves (T7-11), subcostal nerve (T12), and iliohypogastric and ilioinguinal nerves (L1)	Intercostal nerves (T7-11) and subcostal nerve (T12)

EXTERNAL OBLIQUE MUSCLE:

The external oblique muscle is a broad, thin, muscular sheet.

✿ **Origin:** - arises from the outer surfaces of the lower eight ribs.

✿ **Insertion:** it fans out to be inserted into the xiphoid process, the Linea Alba, the pubic crest, the pubic tubercle, and the anterior half of the iliac crest. Most of the fibers are inserted by means of a broad aponeurosis. Note that the most posterior fibers passing down to the iliac crest form a posterior free border.

✿ **Direction of fibers:** - they come from above and are directed downwards, Forwards and medially to be inserted in the linea Alba. (Interdigitating with **serratus anterior fibers**).

✿ **Nerve Supply :-**

☞ Lower six thoracic nerves {Lower five intercostal nerves and the subcostal nerve}.

☞ First Lumbar Spinal nerve which is represented by two nerves to the abdomen: - Iliohypogastric nerve, Ilioinguinal nerve.

★ The cutaneous nerve supply to the anterior abdominal wall is derived from the anterior rami of the lower six thoracic and the 1st lumbar nerves.

★ The motor nerve supply to the muscles is derived from the lower six thoracic nerves.

Aponeurosis of the external oblique:-

☺ **Superficial inguinal ring:** -a triangular-shaped defect in the external oblique aponeurosis lies immediately above and medial to the pubic tubercle.

⇒ The spermatic cord{ which contains arteries , veins , nerves, the vas deferens and structures passing from or going to the testis } or round ligament of the uterus, passes through the **superficial inguinal ring** and

carries the **External spermatic fascia** (or the external covering of the round ligament of the uterus) from the margins of the ring.

⇒ This ring forms an opening from which the inguinal hernia arises.

- ☺ **Inguinal ligament:** Between the anterior superior iliac spine and the pubic tubercle, the lower border of the aponeurosis is folded backward on itself, forming the **inguinal ligament**.
- ☺ **Lacunar ligament:** (extension of external oblique muscle aponeurosis) reflection from the medial end of the inguinal ligament, which extends backward and upward to the pectineal line on the superior ramus of the pubis). Its sharp, free crescentic edge forms the medial margin of the **femoral ring**.
- ☺ **Pectineal ligament:** -On reaching the pectineal line, the lacunar ligament becomes continuous with a thickening of the periosteum called the **pectineal ligament (continuation of the lacunar ligament at the pectenial line)**.
- ☺ The lateral part of the posterior edge of the inguinal ligament gives origin to part of the internal oblique and transversus abdominis muscles. To the inferior rounded border of the inguinal ligament is attached the deep fascia of the thigh, the **fascia lata**.
- ☺ The external oblique aponeurosis participate also in the formation of the inguinal canal` s boundaries and formation of the rectus sheath.
- ☺ **External spermatic fascia:** It is derived from the aponeurosis of the muscle, the outer fascial covering of the spermatic cord; it is continuous at the superficial inguinal ring with the fascia covering the external oblique muscle.

INTERNAL OBLIQUE MUSCLE:-

The internal oblique muscle is also a broad, thin, muscular sheet that lies deep to the external oblique; most of its fibers run at right angles to those of the external oblique (opposite to fibers of external oblique in direction).

- ✿ **Origin:** - It arises from the lumbar fascia, the anterior two thirds of the iliac crest, and the lateral two thirds of the inguinal ligament.
- ✿ **Direction of fibers:** It comes from below and the muscle fibers radiate as they pass upward, forward and medially.
- ✿ **Insertion:** The muscle is inserted into the lower borders of the lower three ribs and their costal cartilages, the xiphoid process, the linea alba, and the symphysis pubis.
- ✿ **Nerve supply :**
 - ☞ Lower six thoracic nerves {Lower five intercostal nerves and the subcostal nerve}.
 - ☞ First Lumber Spinal nerve which is represented by two nerves to the abdomen: - Iliohypogastric nerve, Ilioinguinal nerve.

Internal Oblique Aponeurosis:-

- ☺ The internal oblique has a lower free border that arches over the spermatic cord (or round ligament of the uterus) and then descends behind it to be attached to the pubic crest and the pectineal line thus assisting in the formation of the roof of the inguinal canal.
- ☺ **The Conjoint Tendon:** Near their insertion, the lowest tendinous fibers are joined by similar fibers from the transversus abdominis to form the conjoint tendon that is attached medially to the linea alba, but it has a lateral free border. **The conjoint tendon** provides support to the inguinal canal especially the medial half. (Because it is a tough structure, usually in surgeries they take stitches in it).
- ☺ As the spermatic cord (or round ligament of the uterus) passes under the lower border of the internal oblique, it carries with it some of the muscle fibers that are called the **Cremaster muscle**. The cremasteric **fascia** is the term used to describe the cremaster muscle and its fascia (cremasteric fascia forms the middle spermatic fascia).



TRANSVERSUS ABDOMINIS:-

The transversus muscle is a thin sheet of muscle that lies deep to the internal oblique.

- ✿ **Direction of fibers** :-fibers run horizontally forward (hence the name)
- ✿ **Origin**: It arises from the deep surface of the lower six costal cartilages (interdigitating with the diaphragm), the lumbar fascia, the anterior two thirds of the iliac crest, and the lateral third of the inguinal ligament.
- ✿ **Insertion**: into the xiphoid process, the linea alba, and the symphysis pubis.
- ✿ **Nerve supply** :-
 - ☞ Lower six thoracic nerves {Lower five intercostal nerves and the subcostal nerve}.
 - ☞ First Lumbar Spinal nerve which is represented by two nerves to the abdomen: - Iliohypogastric nerve, Ilioinguinal nerve.

- ☺ The lowest tendinous fibers join similar fibers from the internal oblique to form the conjoint tendon, which is fixed to the pubic crest and the pectineal line.
- ☺ The aponeurosis of the transversus abdominis muscle assist in the formation of :
 - Rectus sheath
 - Conjoint tendon

RECTUS ABDOMINIS MUSCLE:-

The rectus abdominis is a long strap muscle that extends along the whole length of the anterior abdominal wall. It is broader above and lies close to the midline, being separated from its fellow by the linea alba.

- ☼ **Origin:** it arises by two heads, from the front of the symphysis pubis and from the pubic crest (lower part).
- ☼ **Insertion:** It is inserted into the 5th, 6th, and 7th costal cartilages and the xiphoid process.
- ☼ **Nerve supply:** - Lower six thoracic nerves (not L1).
- ☺ This muscle is important in bending of the trunk (flexion of the vertebral column) and compression of the abdominal contents .All the muscles together assist in lateral side bending of the trunk to the right or left.
- ☺ The rectus abdominis muscle is divided into distinct segments by three transverse **tendinous intersections(linea transverses)** :
 - * one at the level of the xiphoid process,
 - * one at the level of the umbilicus,
 - * One halfway between these two.

⇒ These intersections are three transverse fibrous bands which are strongly attached to the anterior wall of the **rectus sheath** and they can be palpated as transverse depressions.

⇒ Embryologically, they arise from the myotome {from wiki: In vertebrate embryonic development, a **myotome** is a group of tissues formed from somites. These somites develop into the body wall muscle.} , and they might be three or four in number.

- ☺ When it contracts, its lateral margin forms a curved ridge that can be palpated and often seen and is termed the **linea semilunaris** that extends from the tip of the ninth costal cartilage to the pubic tubercle.
- ☺ The rectus abdominis is enclosed between the aponeurosis of the external oblique, internal oblique, and transversus, which form the rectus sheath.

Linea Alba:

- ☺ The **linea alba** is a fibrous structure that runs down the midline of the abdomen.
- ☺ Linea alba runs between the **xiphoid process to the pubic symphysis**. The name means white line and the linea alba is indeed white, being composed mostly of collagen connective tissue.
- ☺ It is formed by the fusion of the aponeuroses of the three abdominal muscles, (external oblique, internal oblique & transversus abdominis muscle) and it separates the left and right rectus abdominis muscles.
- ☺ It is important in surgery and a *median incision* through the linea alba is a common surgical approach.
- ☺ Because it consists of mostly connective tissue, and doesn't contain any primary nerves or vessels, median incisions are preferred due to minimal bleeding.

- ☺ On the other hand, due to poor blood supply, healing at this site takes a long time.
- ☺ Another advantage of this structure is that it gives a wide field for surgeons, so if a patient has a large tumor in the stomach or small intestine the surgeon opens a midline incision in the linea alba to give him wider area to work on.

PYRAMIDALIS MUSCLE:-

The pyramidalis muscle is often absent.

- 🌸 **Origin:** It arises by its base from the anterior surface of the pubis and passes medially.
- 🌸 **Insertion:** it is inserted into the linea alba. It lays in front of the lower part of the rectus abdominis in the rectus sheath above the symphysis pubis.
- ☞ This muscle Tenses the linea alba.
- 🌸 **Nerve supply:** 12th subcostal nerve.

Rectus Sheath:-

- 🌸 The rectus sheath is a long fibrous sheath that extends from the linea semilunaris and ends in the linea alba.
- 🌸 It is formed mainly by the aponeurosis of the three lateral abdominal muscles. (Ex., Int., Tran).

Contents: -

it encloses:-

- The rectus abdominis muscle.
- Pyramidalis muscle (if present).

- Contains the anterior rami of the lower six thoracic nerves (intercostals)
 - The superior and inferior epigastric vessels { the inferior epigastric artery is a branch from the external iliac artery & the superior epigastric artery is a branch from the internal mammary (thoracic) artery which in turn arises from the subclavian artery near its origin }.
 - Lymphatic vessels
- ✿ The rectus sheath is composed of two layers: anterior and posterior walls.
 - ✿ For ease of description, the rectus sheath is considered at three levels
 - * Above the costal margin:-
 - The anterior wall is formed by the aponeurosis of the external oblique.
 - The posterior wall is formed by the thoracic wall—that is, the 5th, 6th and 7th costal cartilages and the intercostal spaces.
 - * Between the costal margin and the level of the anterior superior iliac spine :{ in the midway of this distance is the umbilicus}.
 - The aponeurosis of the internal oblique splits to enclose the rectus muscle (anterior layer of the aponeurosis)
 - The external oblique aponeurosis is directed in front of the muscle.
 - The transversus aponeurosis is directed behind the muscle as well as the posterior layer of the internal oblique aponeurosis.
 - * Between the level of the anterior superior iliac spine and the pubis:[suprapubic level]
 - The aponeuroses of all three muscles form the anterior wall.
 - The posterior wall is absent, and the rectus muscle lies in contact with the fascia transversalis and the arcuate line separates them.
- ✿ It should be noted that where the aponeuroses forming the posterior wall pass in front of the rectus at the level of the anterior superior iliac spine, the posterior wall has a free, curved lower border called the **Arcuate line** and at this site, the inferior epigastric vessels enter the

rectus sheath and pass upward to anastomose with the superior epigastric vessels (cross from lateral to medial).

⇒ The arcuate line is also called Linea semicircularis { crescent- shaped line marking the inferior limit of the posterior layer of the rectus sheath just below the level of the iliac crest }, It marks the end of the abdominal muscles where they become continuous with the fascia transversalis posteriorly .

✿ The rectus sheath is separated from its fellow on the opposite side by a fibrous band called the **linea alba**. This extends from the xiphoid process down to the symphysis pubis, it is wider above the umbilicus; it narrows down below the umbilicus to be attached to the symphysis pubis.

✿ The posterior wall of the rectus sheath is not attached to the rectus abdominis muscle it is separated from the muscle by blood vessels such as the superior and inferior epigastric vessels .Whereas the anterior wall is firmly attached to it by the muscle's tendinous intersections.

Again, here are the layers forming the anterior abdominal wall:

From deep to superficial:-

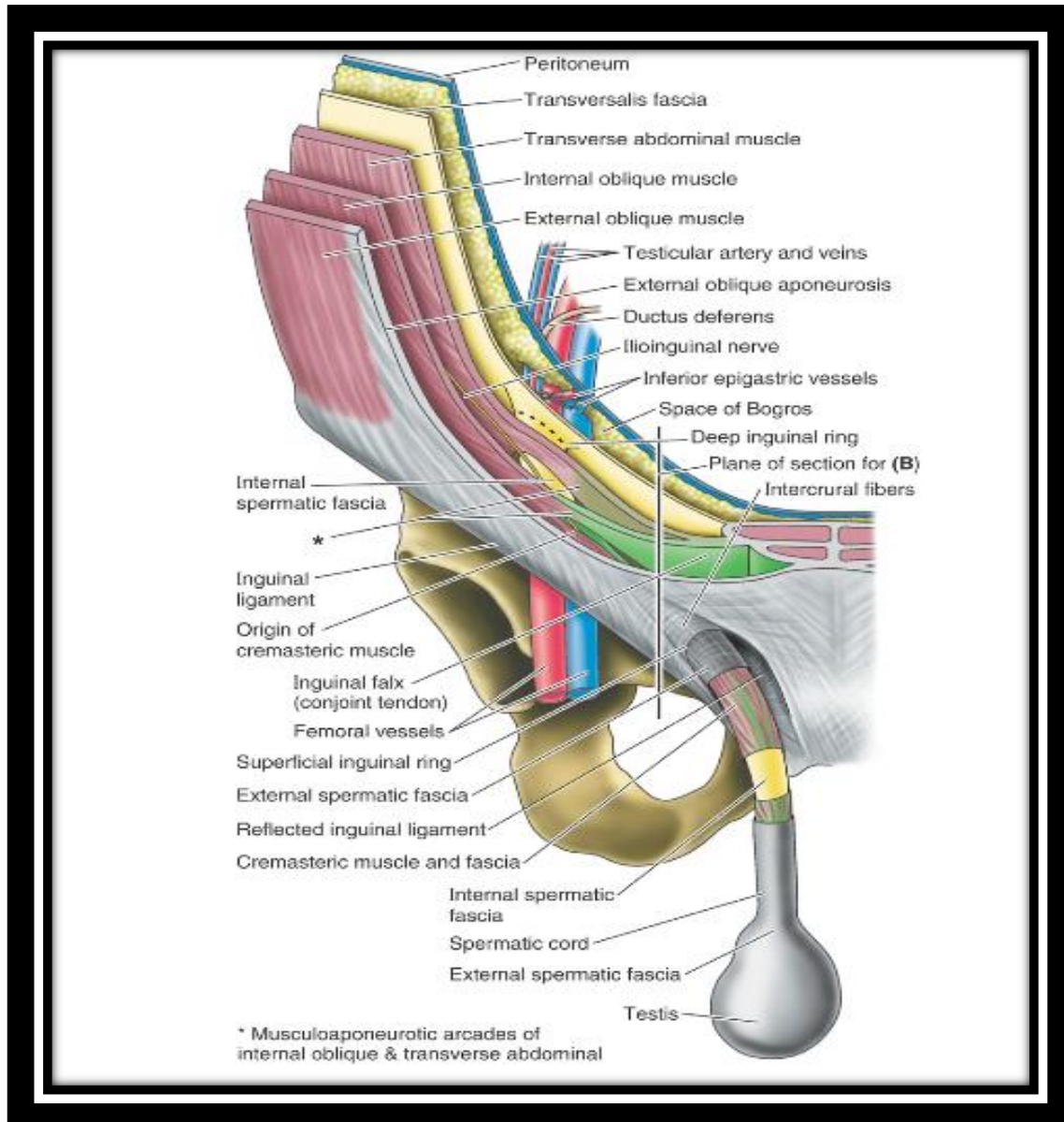
Peritoneum ⇒ Extraperitoneal fat ⇒ Fascia transversalis ⇒
 Rectus sheath and its contents ⇒ Transversus abdominis muscle ⇒
 Internal oblique muscle ⇒ External oblique muscle ⇒ Deep fascia ⇒
 Superficial fascia ⇒ Skin.

Note that:

1-Around the spermatic cord we find the following layers:-

- ☞ Internal spermatic fascia.
- ☞ Cremasteric muscle & fascia (middle spermatic fascia).
- ☞ External spermatic fascia
- ★ Usually in operations of hernia when the surgeon opens the spermatic cord he asks his assistant to retract the vas deferens to avoid ligation of the vas deferens and subsequent sterility of the patient.

2- McBurney`s point: the point over the right side of the abdomen that is one-third of the distance from the anterior superior iliac spine to the umbilicus (between the lower two thirds and the upper third of the abdomen). This point is related to an important incision of the appendix called “McBurney`s incision” which is made parallel to the inguinal ligament and pass through this point.



終わり (The end)

Done By: Rowa2 Lahaseh ☺

Forgive me for my mistakes!!



Apr. 10

Anatomy, Lecture 3