

THE



SYSTEM

Anatomy

Sheet

Slide

Handout

Number: **Lab-2**

Subject: **Anterior abdominal wall + hernia**

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Corrected By:

Doctor:

Date: 0/0/2016

Price:

Anterior abdominal wall:

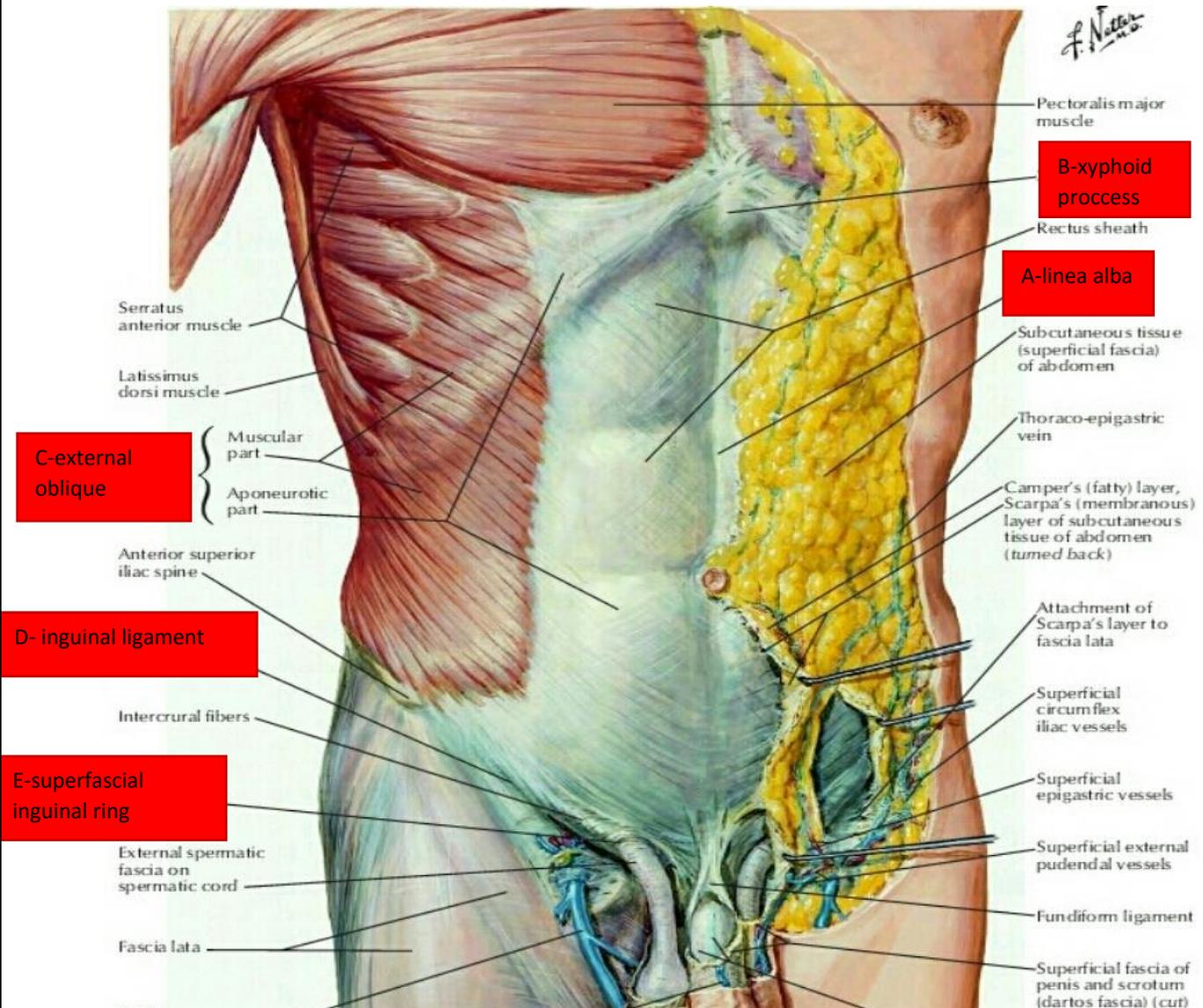


Figure 1: superficial dissection of the anterior abdominal wall, notice that:

- Umbilicus at the level at the level of IV disc (L3-L4)
- linea alba (A) , extending from xiphoid process(B) to symphysis pubis (not shown in the figure) .
- External oblique muscle (downward forward and medially) (C) . its origin is fleshy, but its insertion is an aponeurosis attached to linea alba.
- its insertion forms the inguinal ligament (D) (from anterior superior iliac spine to pubic tubercle).
- superficial inguinal ring (E) : a defect in the aponeurosis of external oblique.

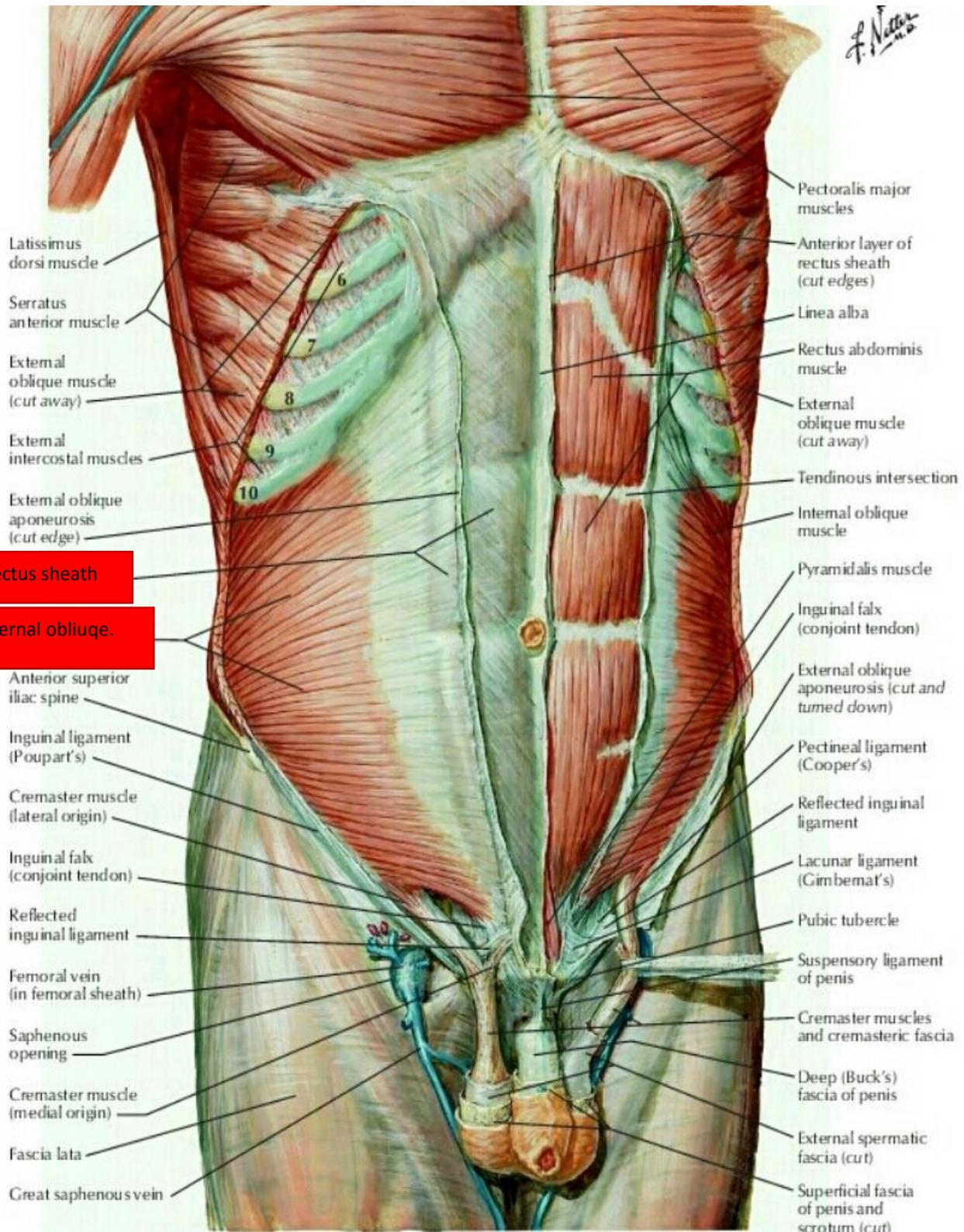


Figure 2

Notice the following :

- internal oblique muscle (figure 2 -A) : the direction of this muscle is (upward forward and medially)
- Transversus abdominis muscle (figure 4 -A) : Its fibers run in transverse manner.
- rectus sheath (figure 2-B)
- note: between internal oblique muscle and transversus abdominis muscle you can see intercostal nerves (6 from the right and 6 from the left), the last nerve is called also subcostal nerve. (Figure 3)

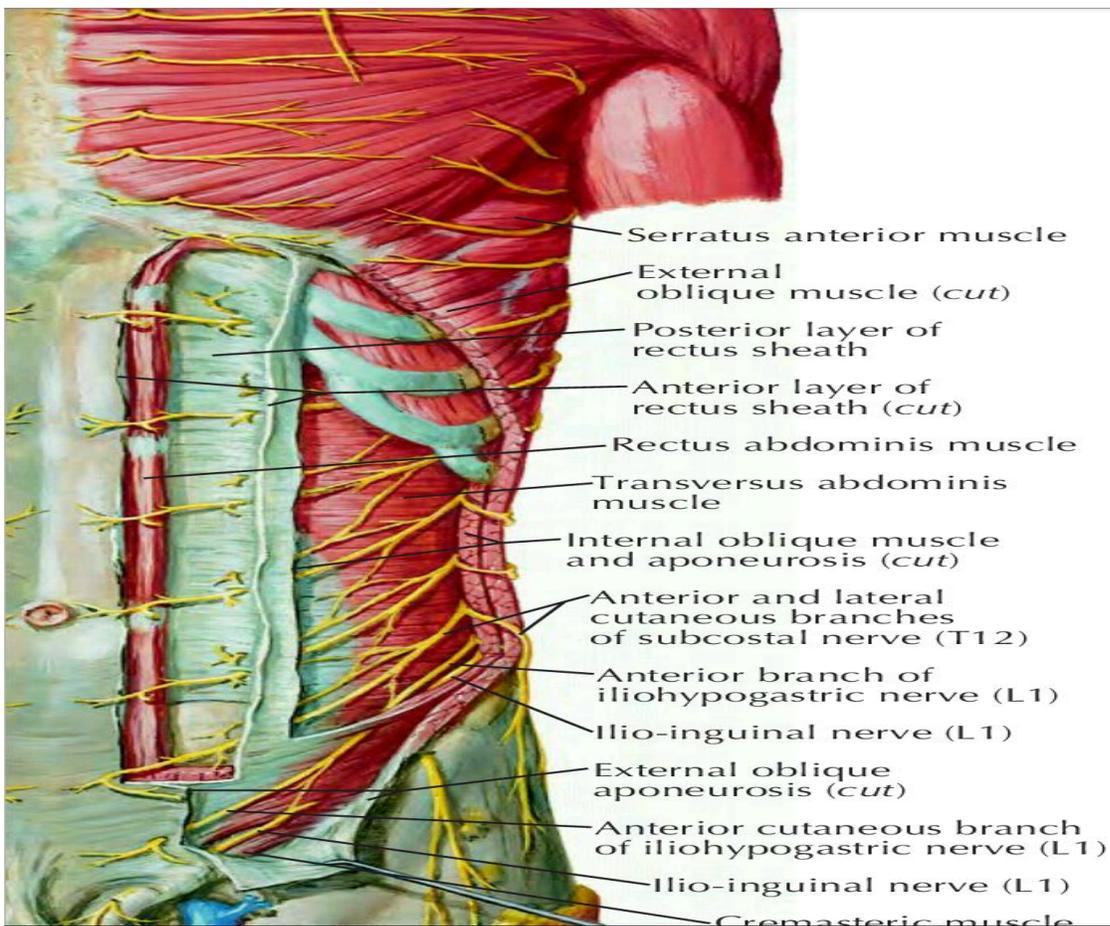


Figure 3: innervation of the anterior abdominal wall

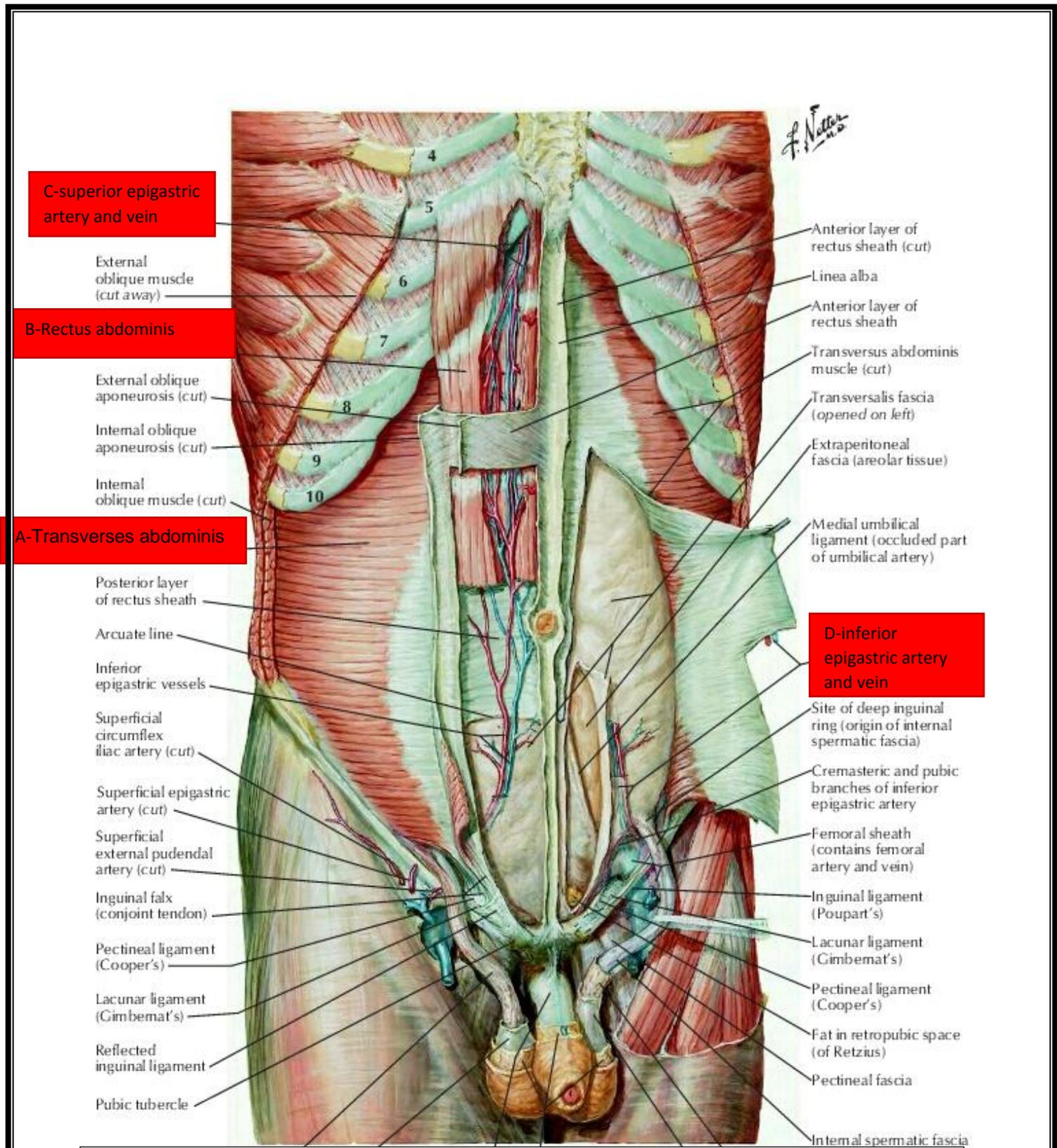


Figure 4 :

Notice in figure 4:

Inside rectus sheath we have:

- rectus abdominis (B) also see figure 5, with its tendentious intersections, this muscle is adherent to anterior wall of rectus sheath. but is separated from the posterior wall.
- pyramidalis (not seen)
- lower 6 intercostal nerves (figure 3)
- inferior and superior epigastric arteries (C and D)

Note: you have to know origin, insertion and nerve supply for all of these muscles.

Important: Nerve supply of rectus abdominis → lower 6 intercostal without L1. others are supplied by lower 6 + L1 .

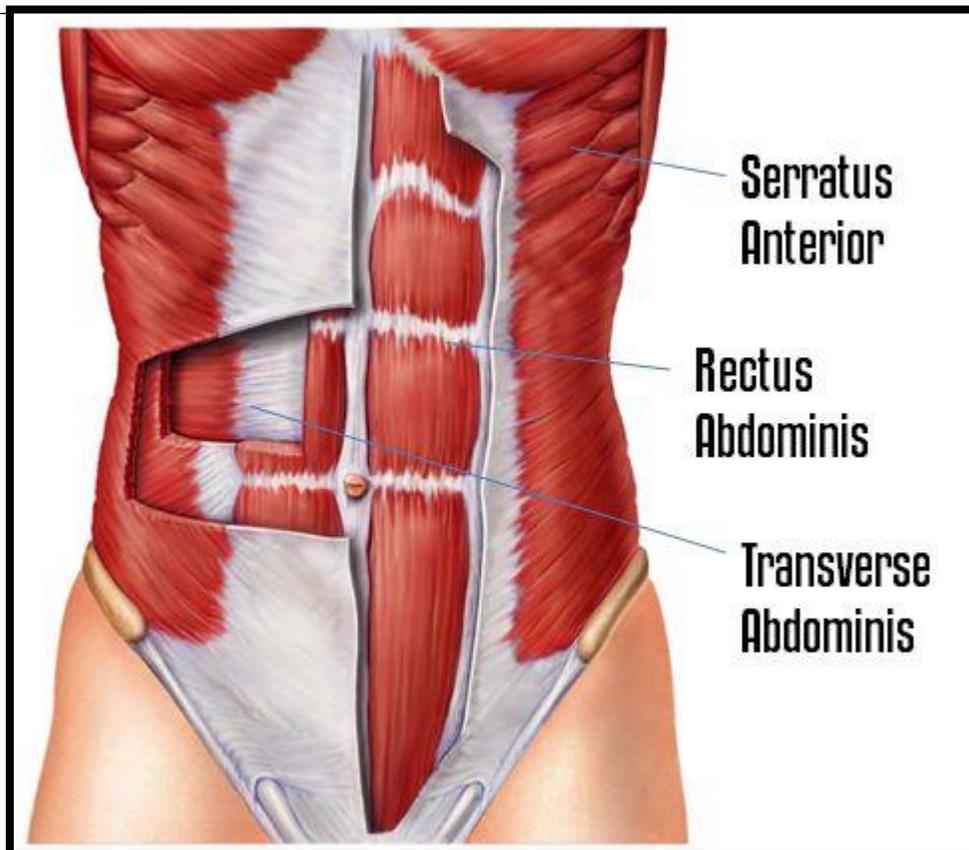


Figure 5:
anterior
abdominal wall
muscles

- Rectus sheath has different relations at different levels:

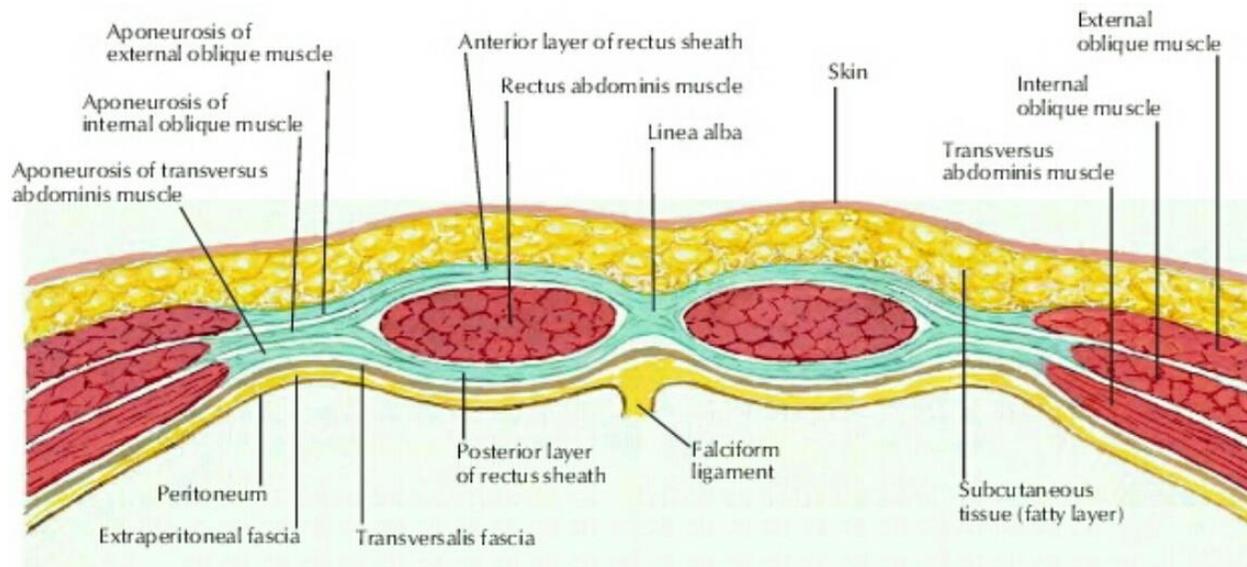


Figure 6:

1-Mid way between umbilicus and xiphoid and Mid way between umbilicus and symphysis pubis:(between the costal margin and ant. Superior iliac spine)

- Anterior Wall: the aponeurosis of external oblique and one layer of internal oblique.
- Posterior Wall: one layer of internal oblique aponeurosis and transverses abdominis aponeurosis.
- Contents: rectus abdominis muscle (notice that it is enclosed by the 2 layers of internal oblique).

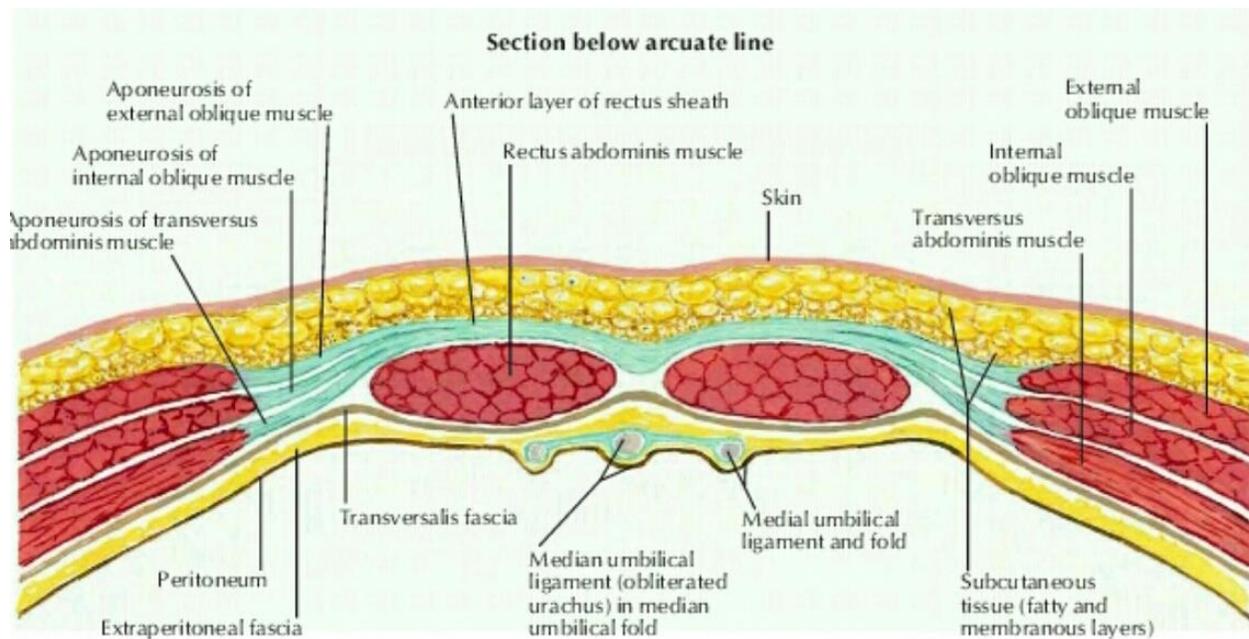


Figure 7:

2-below ant. Sup. Iliac spine (below Mid way between umbilicus and symphysis pubis or below Arcuate line) :

- Ant. Wall: the aponeurosis of all muscles (external, internal and transversus).
- Post. Wall: transversalis fascia only (that ends in the peritoneum).
- Content: rectus abdominis muscle.
- (linea semicircularis): The end of the muscles in the posterior wall where they attach to the anterior superior iliac spine.

Inguinal hernia : (figures 8, 9 and 10)

● Inguinal canal lies between The superficial inguinal ring and The deep inguinal ring (4cm) :

- The superficial inguinal ring :defect in the aponeurosis of external oblique ,lies above the pubic tubercle, reinforced medially by the conjoint tendon.
- The deep inguinal ring: defect in the transversalis fascia muscle, in the middle of the inguinal ligament.

● In males, Inguinal canal contains the spermatic cord:

● inside the spermatic cord, we have:

- 3 veins
- 3 arteries (artery to the vas deferens, the testicular artery, the cremasteric artery).
- 2 nerves.
- pampiniform plexus of veins
- vas deferens.

● Vas deferens: a 45cm-long cord originates from the tail of the epididymis and terminates in the seminal vesicles behind the urinary bladder.

● you have to identify the testis and epididymis (body and tail).

● testes are surrounded by two layers:

- Tunica albuginea → spermatogenesis.
- Tunica vaginalis → derived from the process vaginalis.
- Accumulation of fluids between these two layers is called hydrocele.

● We have two types of inguinal hernia:

- Direct: in the inguinal triangle, aka Hesselbach's triangle (you must know its relations: laterally: inferior epigastric vessels, medially: the rectus abdominis, inferiorly: the inguinal ligament), it's most common in old ages because of the weakness of the muscles.

- Indirect: in the inguinal canal (along with the spermatic cord, lateral to the inferior epigastric vessels) and protrudes through the superficial ring and may reach the scrotum. Its common in young ages, due to unobliterated process vaginalis.

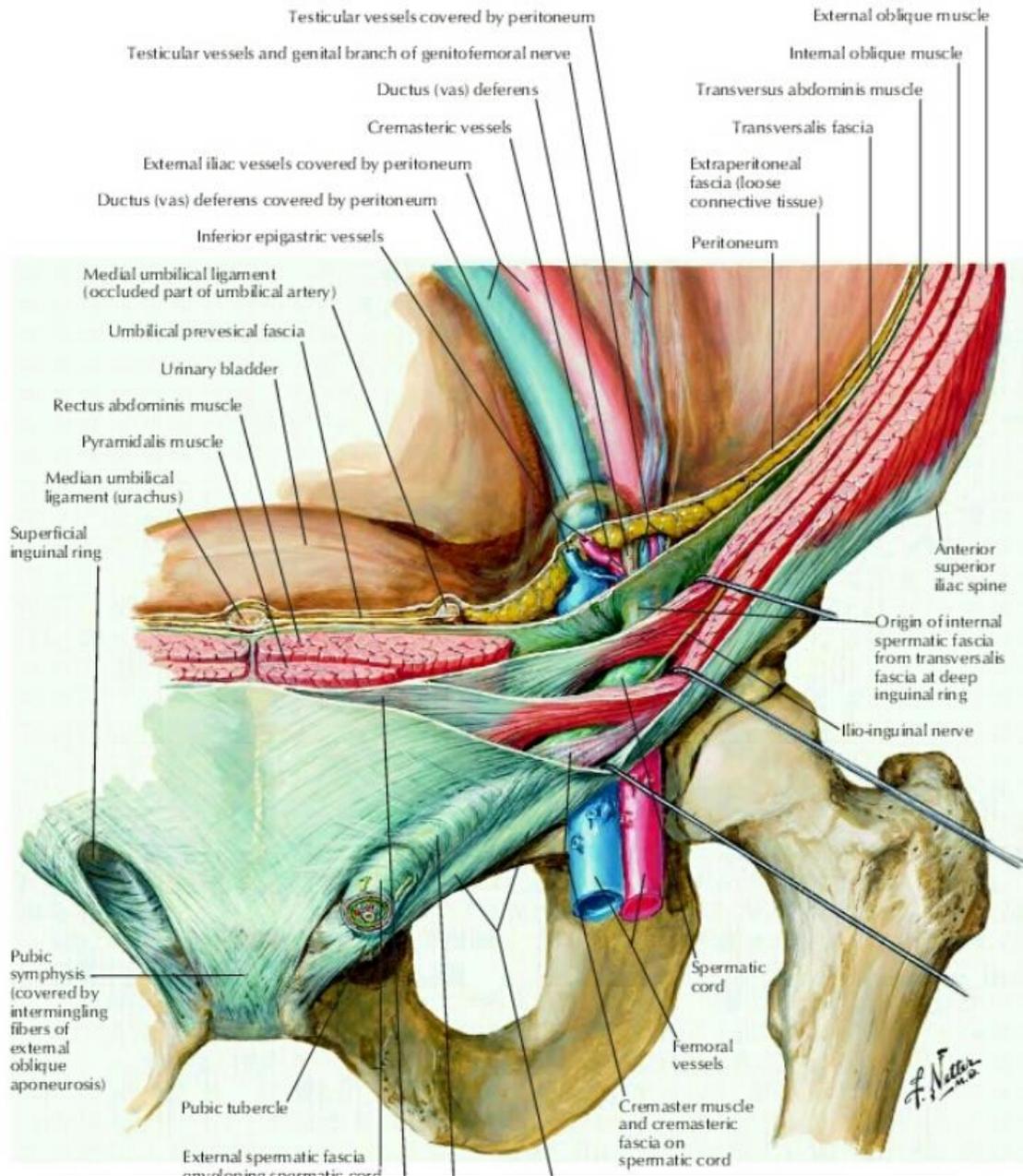
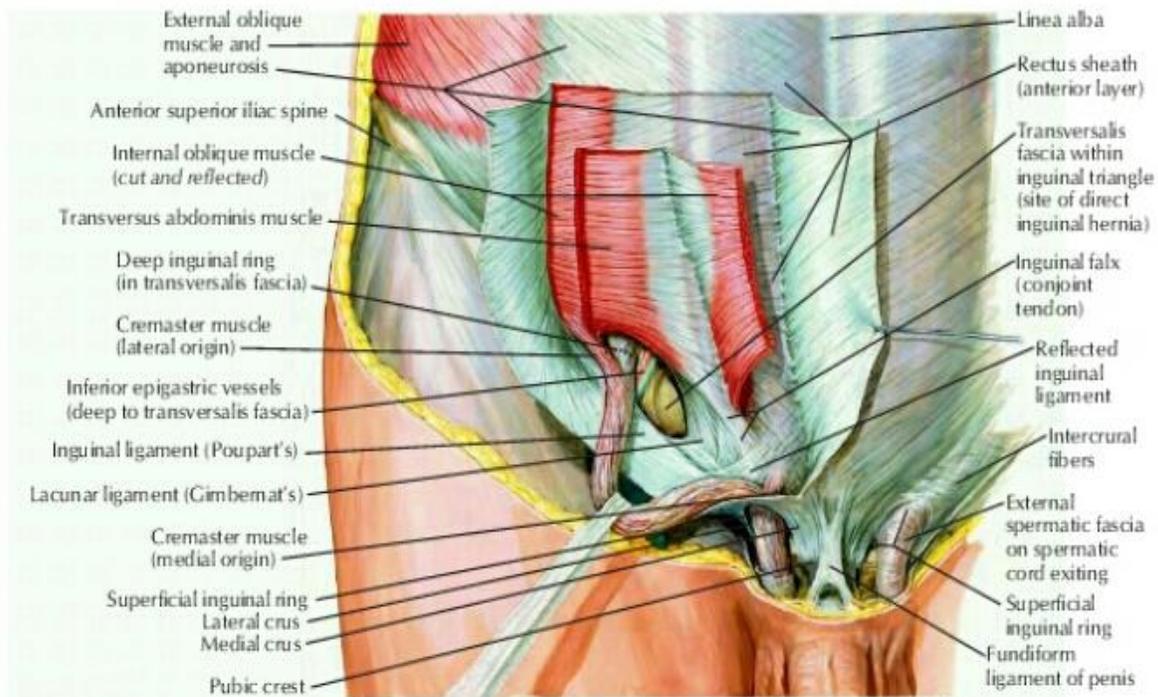
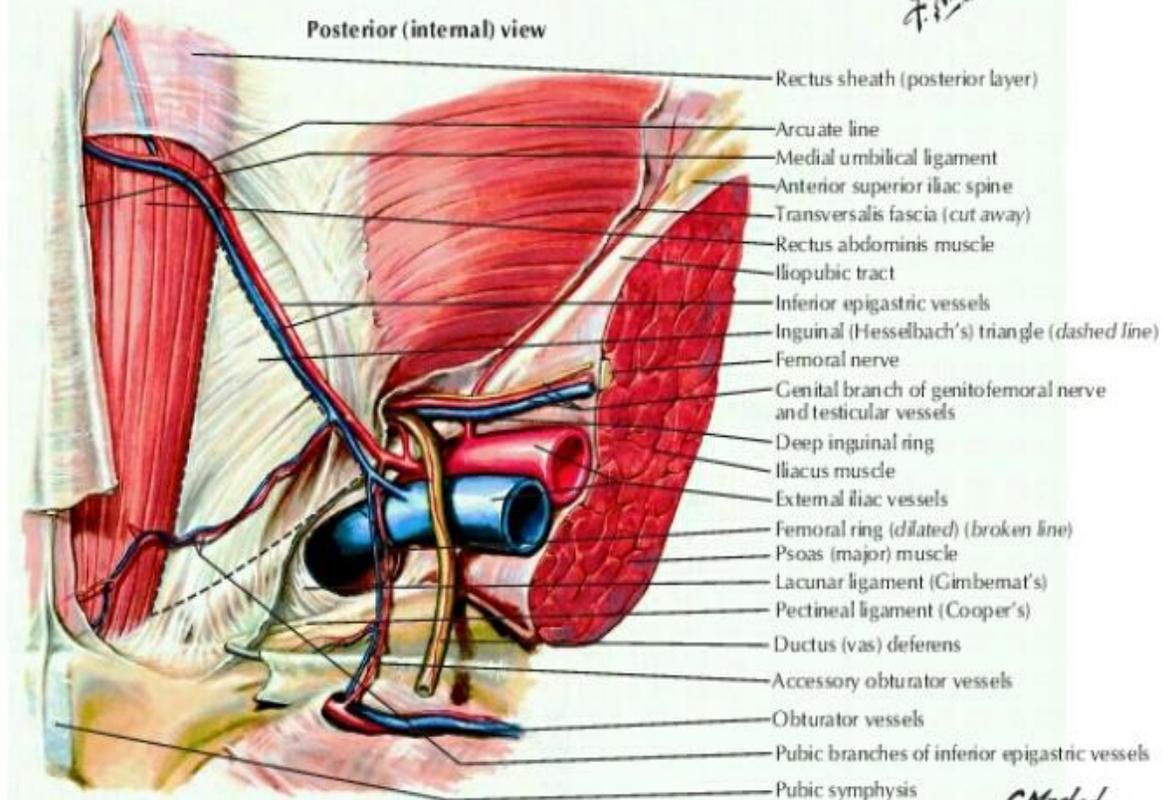


Figure 8



Anterior view

F. Netto



Posterior (internal) view

C. Machado
-H.S.

Hesselbach's triangle by Carlos Machado after Frank Netter

Figure 9

Scrotum and Contents

See also Plates 321, 344

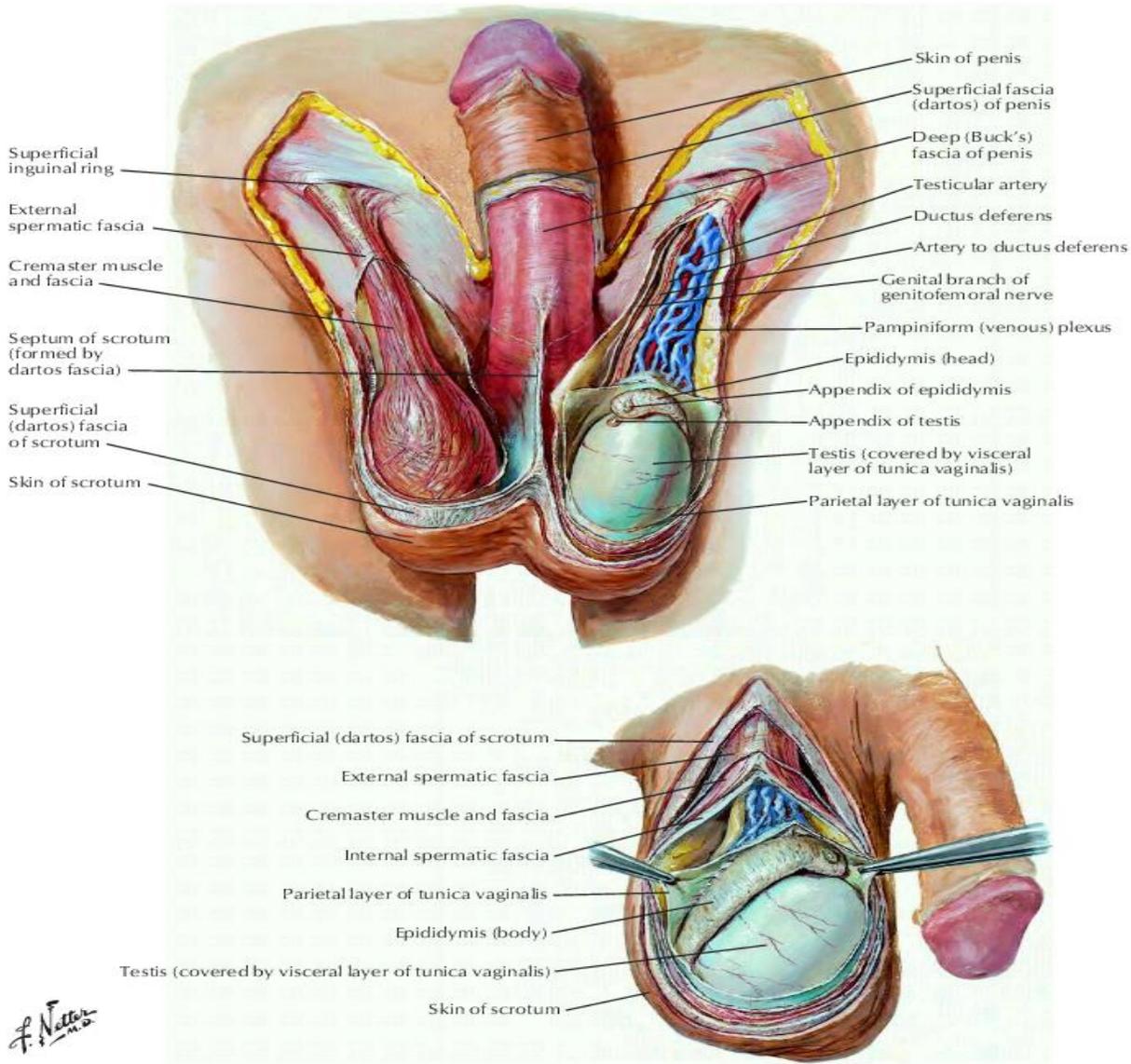


Figure 10