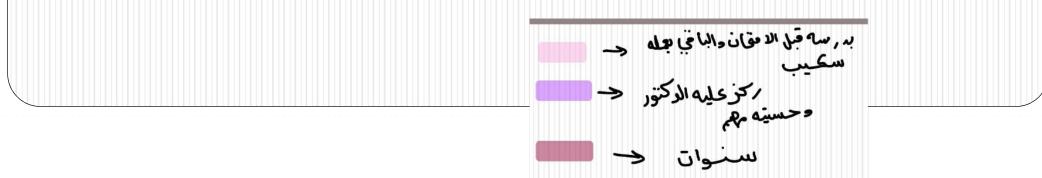
The University Of Jordan Faculty Of Medicine



Perineum

Dr.Ahmed Salman

Associate Professor of Anatomy



It is the diamond-shaped lower end of the trunk

Glossary : peri : around, ineo - discharge, evacuate

Location : it lies below the pelvic diaphragm, between the upper parts of the thighs.

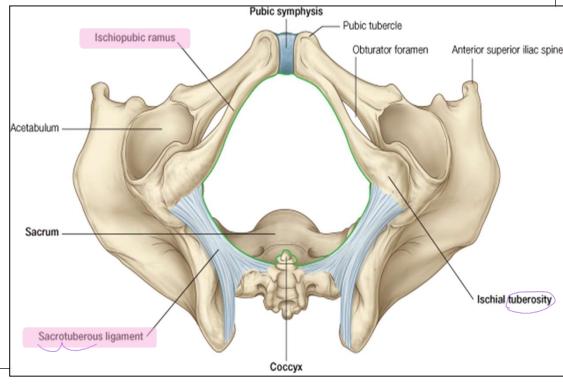
Boundaries :

Anteriorly : Inferior margin of symphysis pubis.

Posteriorly : Tip of coccyx.

Anterolateral : Fused rami of pubis and ischium and ischial tuberosity.

Posterolateral : Sacrotuberous ligaments.



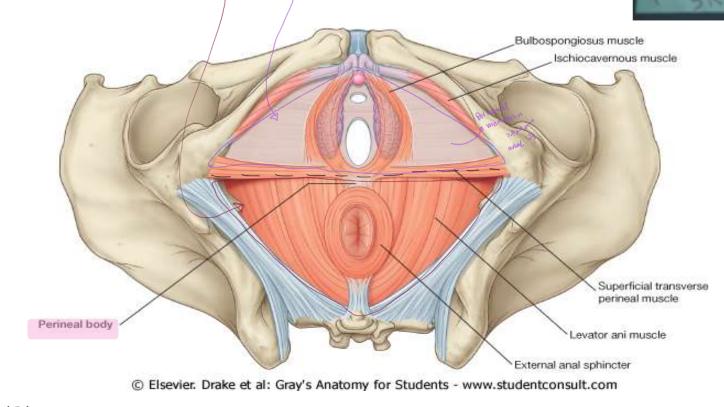
Divisions of the Perineum :

✤By a line joining the anterior parts of the ischial tuberosities, the perineum is divided into two triangles :

Anteriorly : Urogenital triangle

Posteriorly : Anal triangle





Perineum

Urogenital triangle Contains

1)External genitalia in male or female

2-Superficial perineal pouch 3-Deep perineal pouch

Anal triangle Contains

1 Anal Canal in the median plane 2 Ischiorectal fossa on either side of anal canal

3-Pudendal canal in side wall of ischiorectal fossa

Urogenital triangle:

Contains these fascial layers

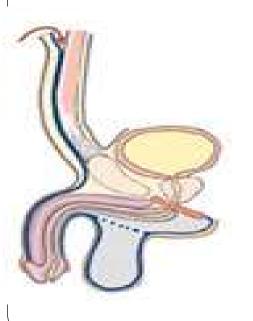
1-The membranous layer of the superficial fascia of the perineum (Colles fascia).

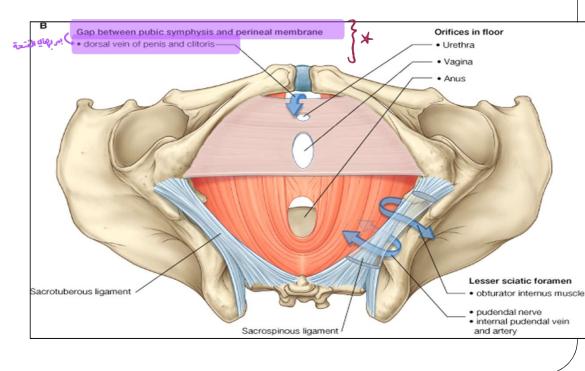
2-The perineal membrane

It is a triangular fibrous sheet which lies across the pubic arch.

The perineal membrane :

- Forms the floor of the deep perineal pouch.
- Forms the roof of the superficial perineal pouch

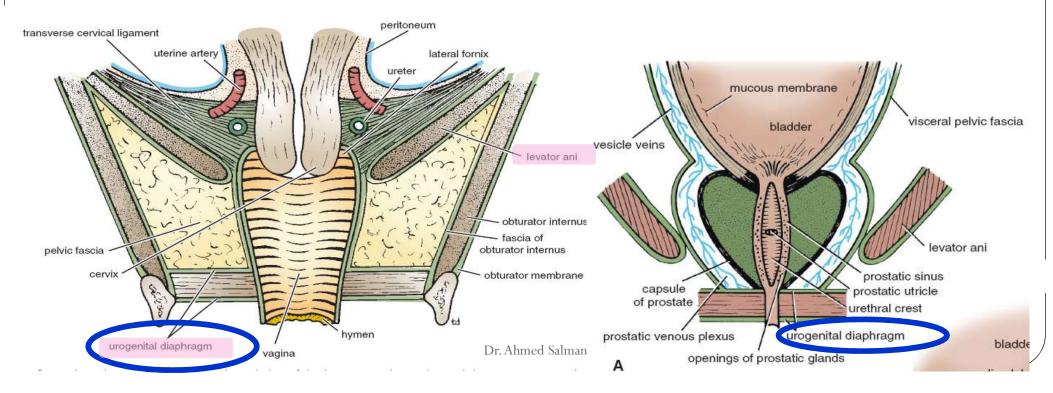






Urogenital Diaphragm

- It is a triangular musculofascial diaphragm situated in the anterior part of the perineum
- It fills the gap of the pubic arch
- It is formed by the sphincter urethrae and the deep transverse perineal muscles
- These two muscles are enclosed between a superior and an inferior layer of fascia of the urogenital diaphragm.
- The inferior layer of fascia is the perineal membrane.



Perineum contains two flbro muscular masses which are :

A- Anococcygeal raphe (and body) :

•It is a fibromuscular mass which extends from the tip of coccyx to the recto anal junction.

•It is easily stretched during defaecation and labour and recoiled by the coccygeus muscles.

•It supports the lower part of the rectum.

B- Perineal body (central tendon of the perineum) : (remnant of urorectal septum)

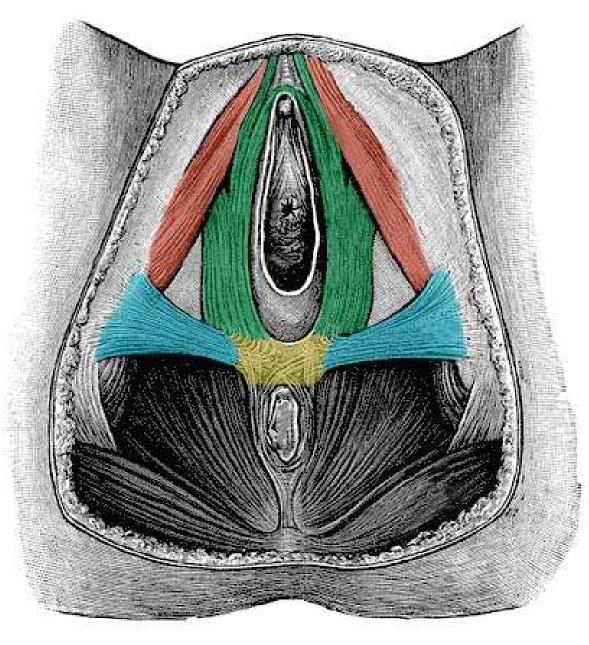
•It is a fibromuscular mass situated in the median plane, in front of anus. Relations :

•In the male : it lies between anal canal and bulb of the penis.

- In the female : it lies between anal canal and lower part of vagina.
- Importance : perineal body supports the uterus and vagina.
- Rupture of it during labour may result in prolapse of uterus

Muscles attached to the perineal body : 3 paired and 3 single muscles :

3 paired muscles	3 single muscles
1 Superficial transverse perineal.	1. Bulbospongiosus.
2 Deep transverse perineal.	2. Superficial part of external urethral
3. Levator prostate or sphincter	sphincter (sphincter urethrae).
vaginae part of levator ani.	3. Superficial part of external anal sphincter
	ind the second second
	Bulbo external onul sphincter Surethin
Dr. Ahmed Salman	







Muscles of perineum⁻

م تا نوف ال nerve supply action الع جلات

Nerve Supply : All muscles in superficial and deep perineal pouches are supplied by perineal branch of pudendal nerve (Sometric)

Muscles of Superficial Perineal Pouch :)

<u>1- Ischiocavernosus :</u>

Site : Each covers the crus penis.

Action : it compresses crus penis to maintain erection of penis.

2- Bulbospongiosus :

Site : covers bulb of penis. In female, it is splitted into two parts to cover bulbs of vestibule. Action : In Male ,Assist in erection of penis and eject last drops of urine during micturition.

In Female: act as sphincter vagina and help in **erection** of clitoris

3- Superficial transverse perineal:

Site : on posterior edge of perineal membrane in front of anus.

Action : fixation the perineal body.

Muscles of the Deep perineal Pouch : These muscles form the urogenital diaphragm.

1- Sphincter urethrae :

Site : it surrounds membranous urethra.

Attachments : it is formed of two parts :

- Inferior (or superficial) part :
- Superior (or deep) part :
- > Action : It represents the voluntary control of urethra.

2- Deep transverse perineal

Site : on deep surface of posterior border of the perineal membrane.

Action : fixation of perineal body.

Sup. transverse perineal muscle Deep transverse perineal muscle Bulbospongiosus muscle Ischiocavernosus muscle Dr. Ahmed Salma KEN HUB © www.kenhub.com © www.kenhub.com

The perineal fascia

consists of superficial and deep layers

Superficial perineal fascia, consists of a superficial fatty layer and a deep membranous layer (Colles fascia).

The superficial fatty layer

In females, It makes up the substance of the labia majora and mons pubis

It is continuous with the fatty layer of subcutaneous tissue of the abdomen *(Camper fascia)*

In males, the fatty layer is replaced with smooth (*dartos*) *muscle*.

It is continuous with the fatty layer of subcutaneous tissue of the abdomen .

In both sexes, it is continuous posteriorly with the ischio-anal fat pad in the anal region .

The membranous layer (Colles fascia).

is attached To

Posteriorly : The posterior margin of the perineal membrane and the perineal body

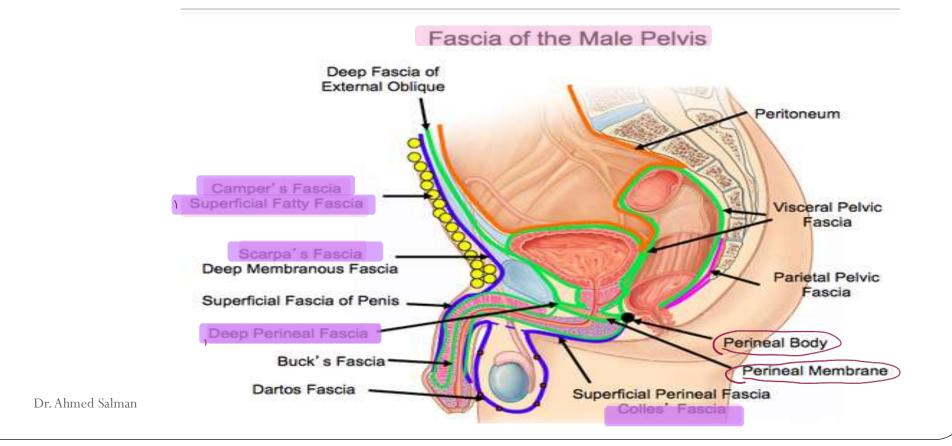
Laterally, the <u>fascia lata</u> (deep fascia) of the upper medial aspect of the thigh.

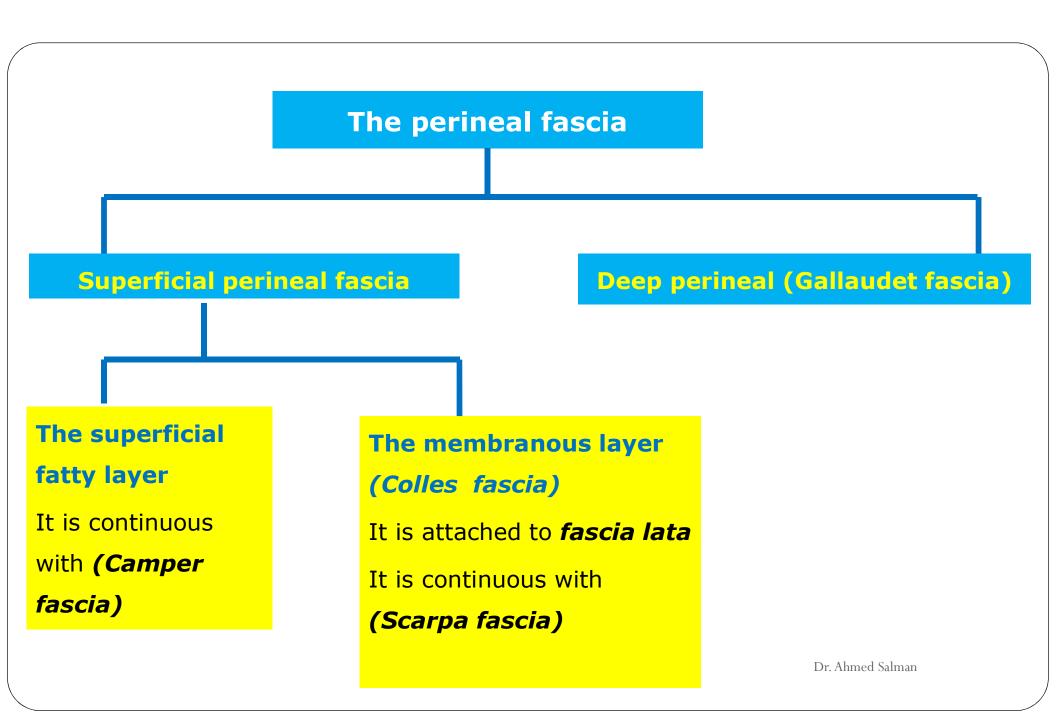
Anteriorly, in the male, the membranous layer of subcutaneous tissue is continuous with the fascia of the penis and scrotum

On each side of the scrotum, the membranous layer becomes continuous with the membranous layer of subcutaneous tissue of the abdomen *(Scarpa fascia)*.

The perineal fascia (deep perineal, investing, or Gallaudet fascia)

- Invests the ischiocavernosus, bulbospongiosus, and superficial transverse perineal muscles.
- It is also attached laterally to the ischio-pubic rami.
- Anteriorly, it is fused to the suspensory ligament of the penis

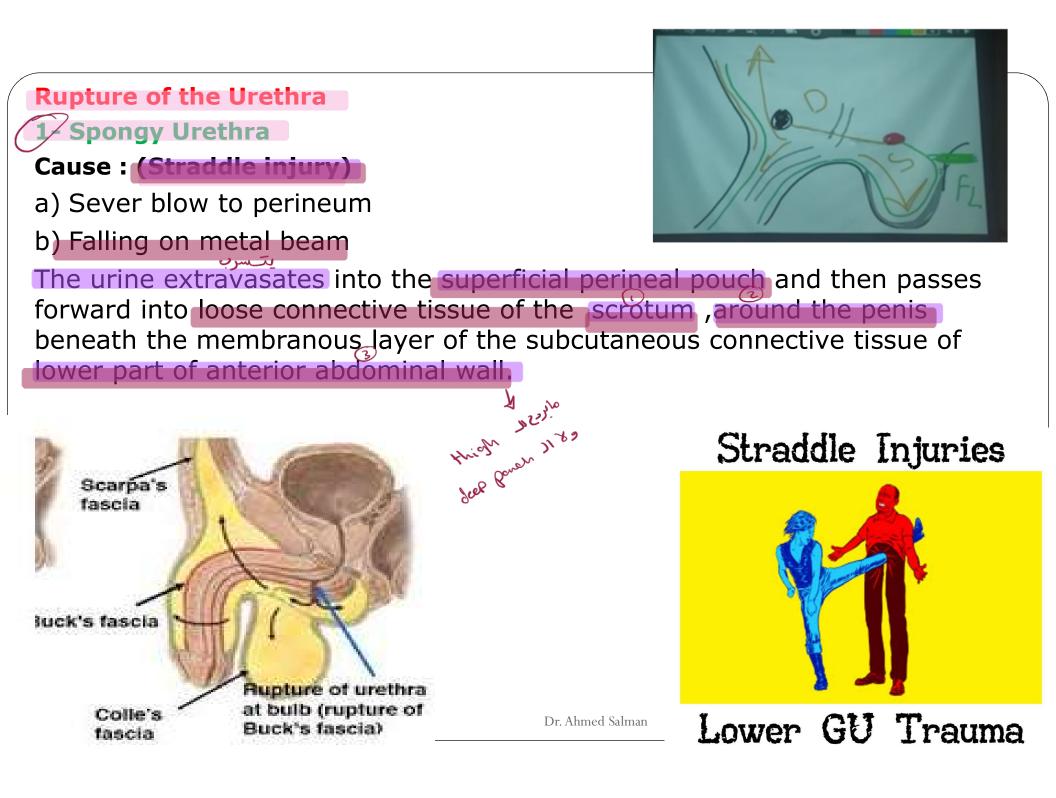


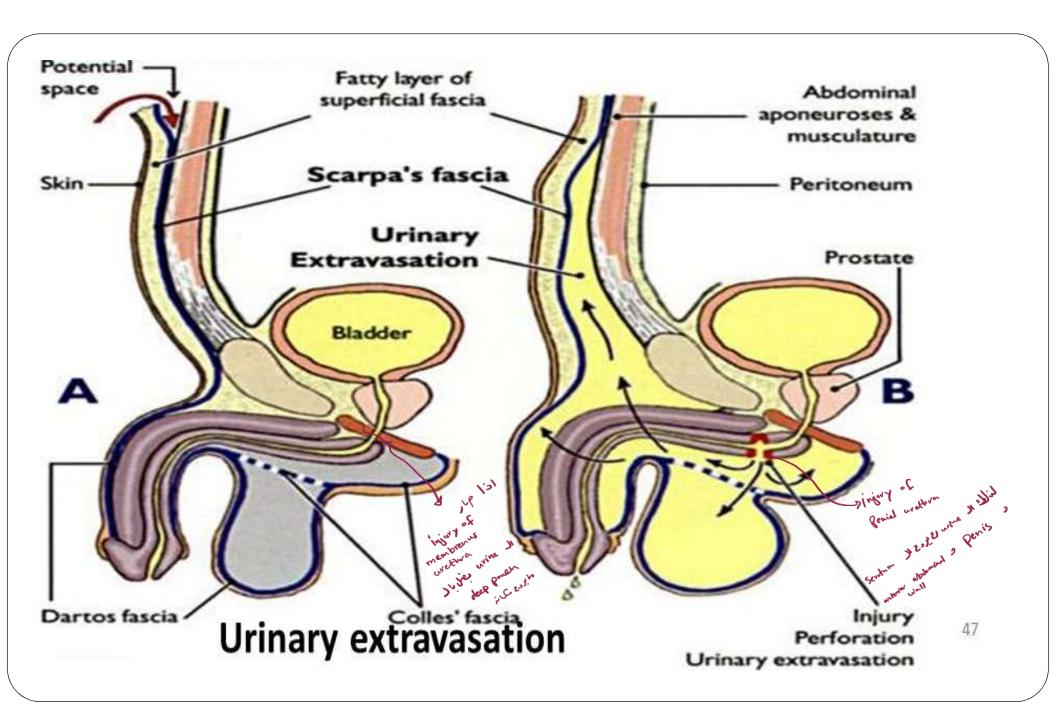


A Man during walking on street fall on cesspit. What is the possible injures? Is he able to micturate voluntary ?









Site of rupture

2) Membranous part

Cause:

a) Fracture Pelvis

b) Fault catheterisation (~~)



The urine escapes into the deep perineal pouch and may be pass upward around the prostate and bladder (extra peritoneal) through urogenital hiatus.

IN BOOTH CASES

The urine cannot passes into thigh because attachment of colles fascia with fasciae lata below inguinal ligament.

Also cannot passes posteriorly to anal triangle due to fusion of superfacial and deep layer of perineal fascia around posterior edge of perineal membrane

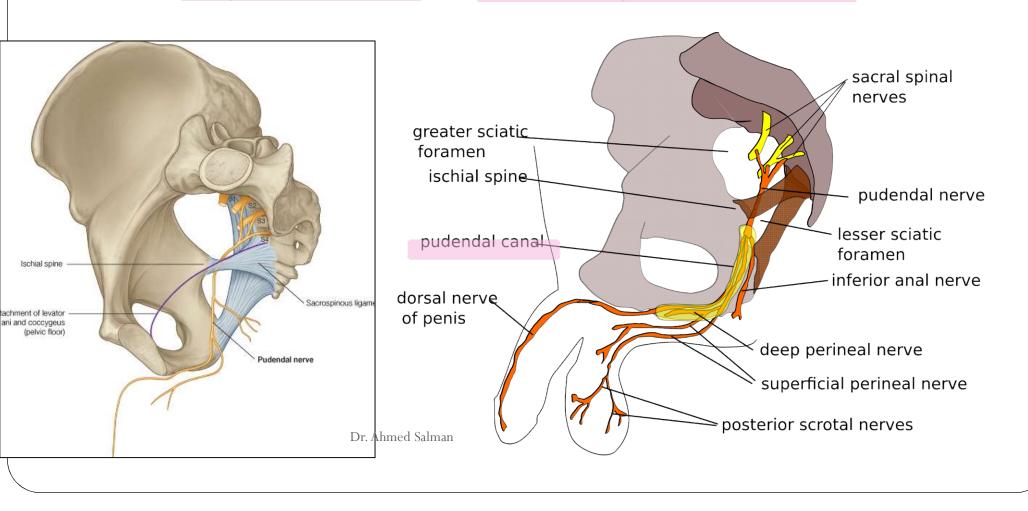
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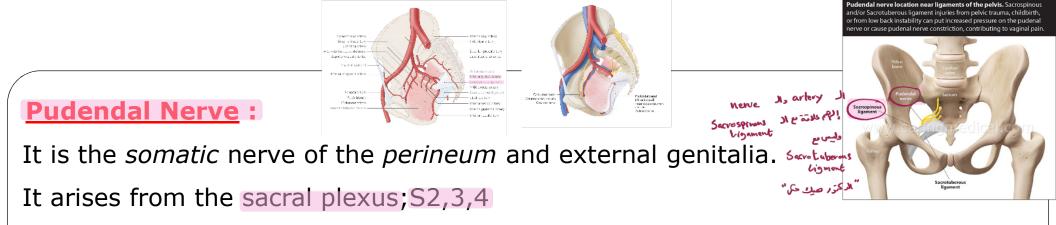
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Pudendal canal:

Location : Fascial canal in lower part of the lateral wall of ischiorectal fossa **Extend:** From the lesser sciatic foramen to the posterior border of the perineal membrane.

contents: 1- pudendal nerve 2- internal pudendal vessels

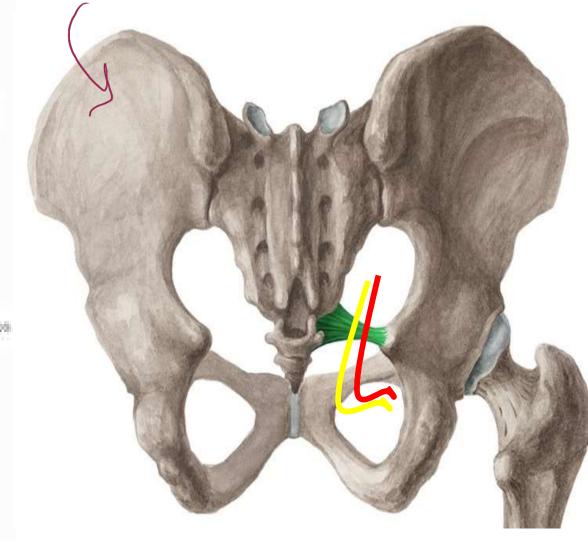




Course and Relations :

- The nerve leaves the pelvis through the greater sciatic foramen below the piriformis to enter the gluteal region.
- In the gluteal region, the nerve crosses the sacrospinous ligament medial to the internal pudendal vessels which cross the ischial spine.
- The nerve and the vessels pass through the **lesser sciatic** foramen to enter the **pudendal canal** in side wall of ischiorectal fossa.
- In the posterior part of pudendal canal, the nerve gives inferior rectal N. and then divides into 2 terminal branches which are the perineal N. and dorsal nerve of penis (or clitoris).





in later

Branches and Distribution :

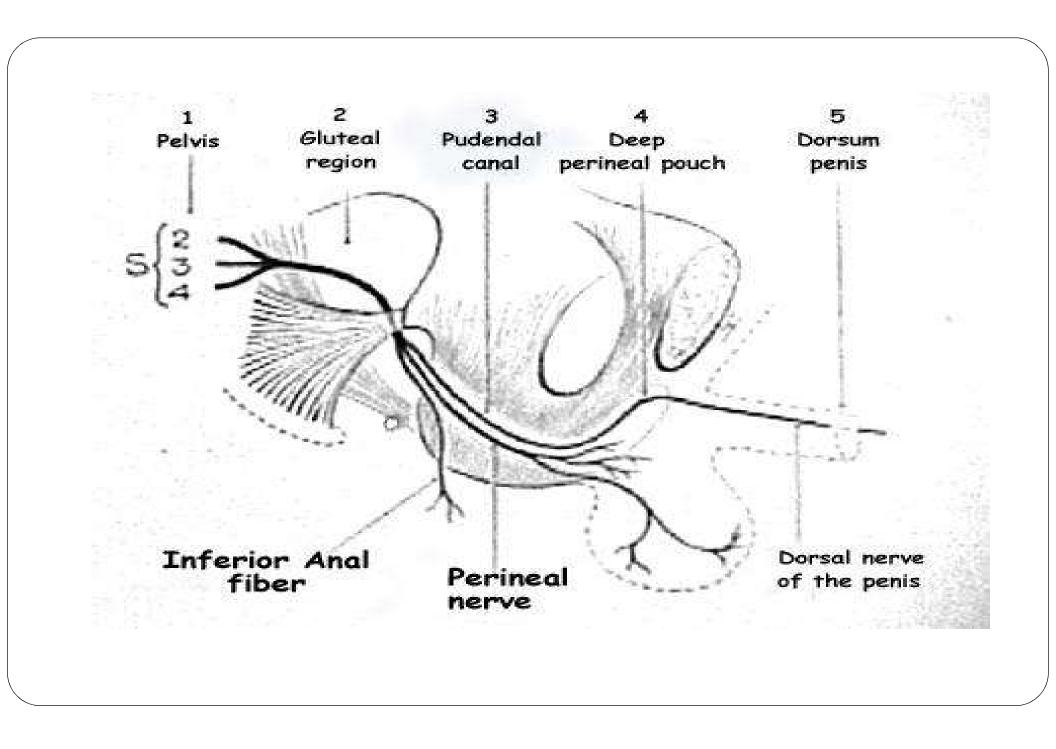
- 1 Inferior rectal N. (mixed)
 - Motor to external canal sphincter
 - Sensory to anal canal below pectinate line, skin around the anus .
- 2 Perineal nerve (mixed) : it gives :
 - Motor : to all muscles in the superficial and deep perineal pouches.
 - Sensory : It gives 2 scrotal (labial) nerves,

they pierce perineal membrane to supply posterior 2/3 of scrotum (or labium majora).

3- Dorsal nerve of penis or clitoris (sensory) :

- It enters the deep perineal pouch, then pierces the perineal membrane to enter the superficial perineal pouch.
- Then it runs on dorsum of penis, supplying its skin and glans.





Internal Pudendal Artery:

Cane I Jeer a deer Je rer It is the artery of perineum and external genital organs.

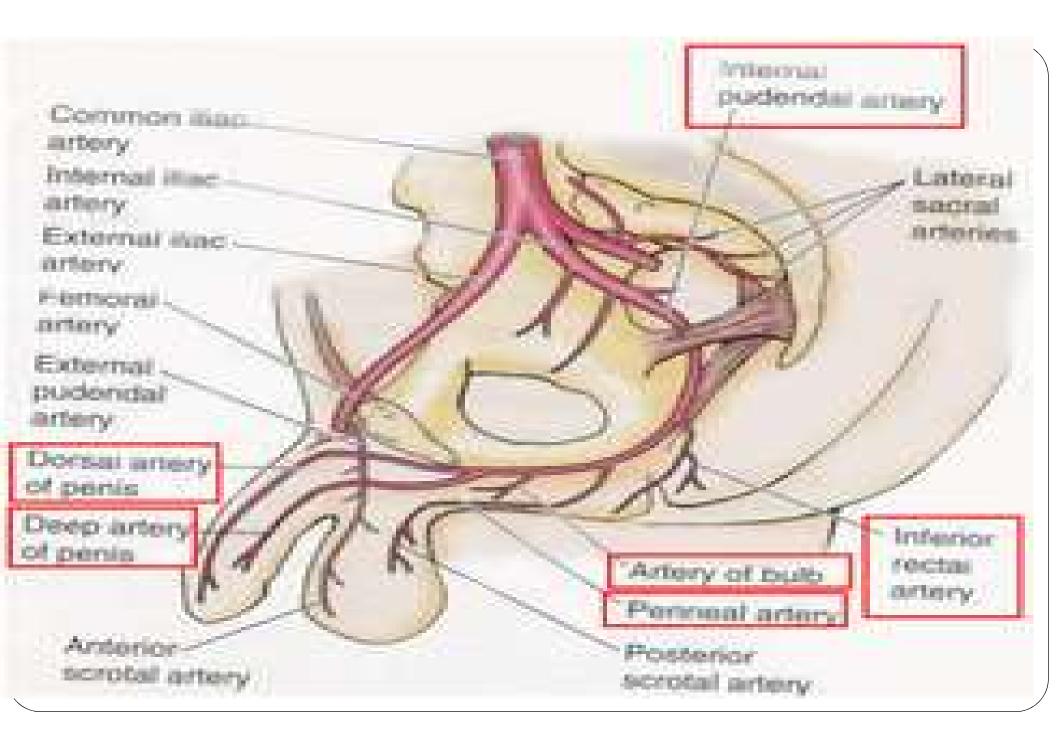
It is one of the two terminal branches of anterior division of internal iliac artery. **Course and Relations :**

- **In the pelvis :** it descends in front of sacral plexus and piriformis and leaves the pelvis (with pudendal N.) below the piriformis to enter the gluteal region.
- In **gluteal region**: The artery crosses the tip of the ischial spine and passes through the lesser sciatic foramen to enter the **pudendal canal** in side wall of ischiorectal fossa.

In the pudendal canal and perineum :

At the end of the pudendal canal, it enters the **deep perineal pouch** then pierces the perineal membrane to enter the **superficial perineal pouch** to run close to the side of pubic arch

It ends by dividing into dorsal and deep arteries of the penis





Branches and Distribution :

two in the pudendal canal, *two* in the deep perineal pouch and *two* terminal in the superficial perineal pouch.

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A.)In the pudendal canal :

1-Inferior rectal A. : It supplies anal canal below the pectinate line.

- 2-Perineal A. : it gives
- Two scrotal (or labial) arteries to scrotum (or labia majora)
- Transverse perineal A. which anastomoses with its corresponding one .

B In the deep perineal pouch :

3-Artery of bulb : supplies bulbourethral glands and pierces perineal membrane to supply bulb of root of penis (or bulb of vestibule).

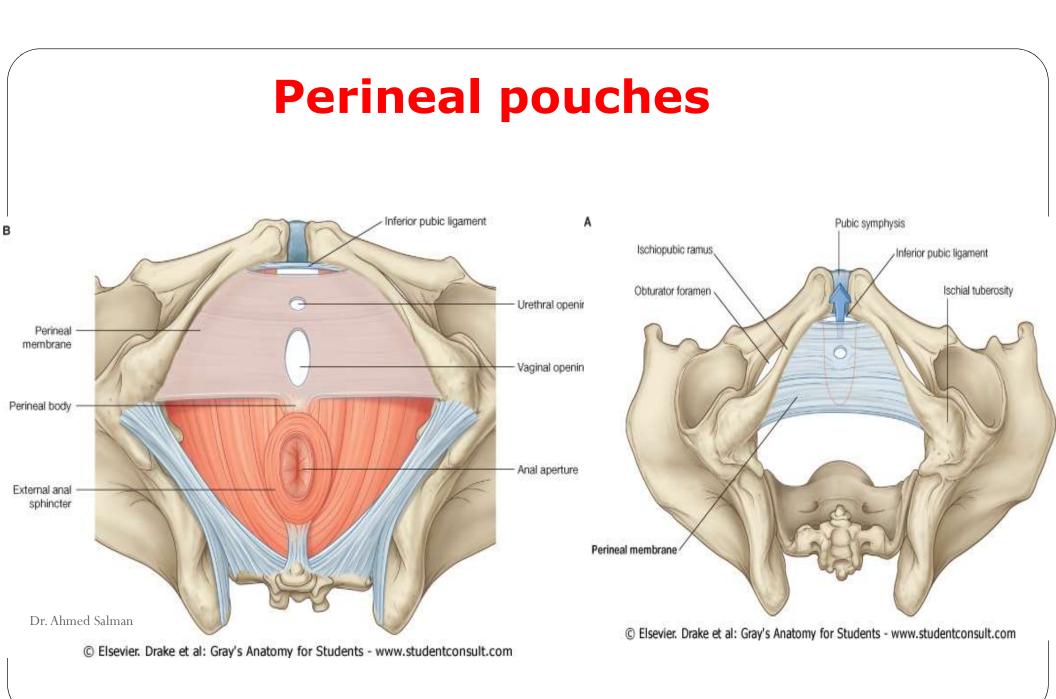
4-Urethral A. : pierces perineal membrane to enter superficial perineal pouch to supply corpus spongiosum and urethra.

CSuperficial perineal pouch :

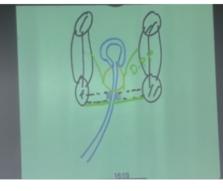
5-Dorsal A. of penis : runs on dorsum of penis, supplying its skin, fascia and glans of penis.

6-Deep A. of penis : runs in corpus cavernosum, supplying its cavernous tissue.

Internal pudendal artery	Internal pudendal nerve
Inferior rectal	Inferior rectal N
Perineal A	Perineal N
Two scrotal (or iibial)	Two scrotal (or iibial)
Transverse perineal A	
Artery of the bulb Urethral artery	
Dorsal artery of the penis Deep artery of the penis	Dorsal nerve of penis or clitoris بیشما ال deep nerve بیشما ال مستحد می الامتحان الدکتور می
	المحتجانة الركتور حكي



UG OJA



Floor : Perineal membrane (inferior fascia of urogenital diaphragm)

Roof: Inferior fascia of pelvic diaphragm (levator ani)

On either side : Obturator fascia.

Deep Perineal pouch :

Boundaries :

Posteriorly : The pouch is closed by union of roof and floor.

Anteriorly : The pouch is closed by union of roof and floor below symphysis

pubis to form the transverse perineal ligament.

The transverse perineal ligament

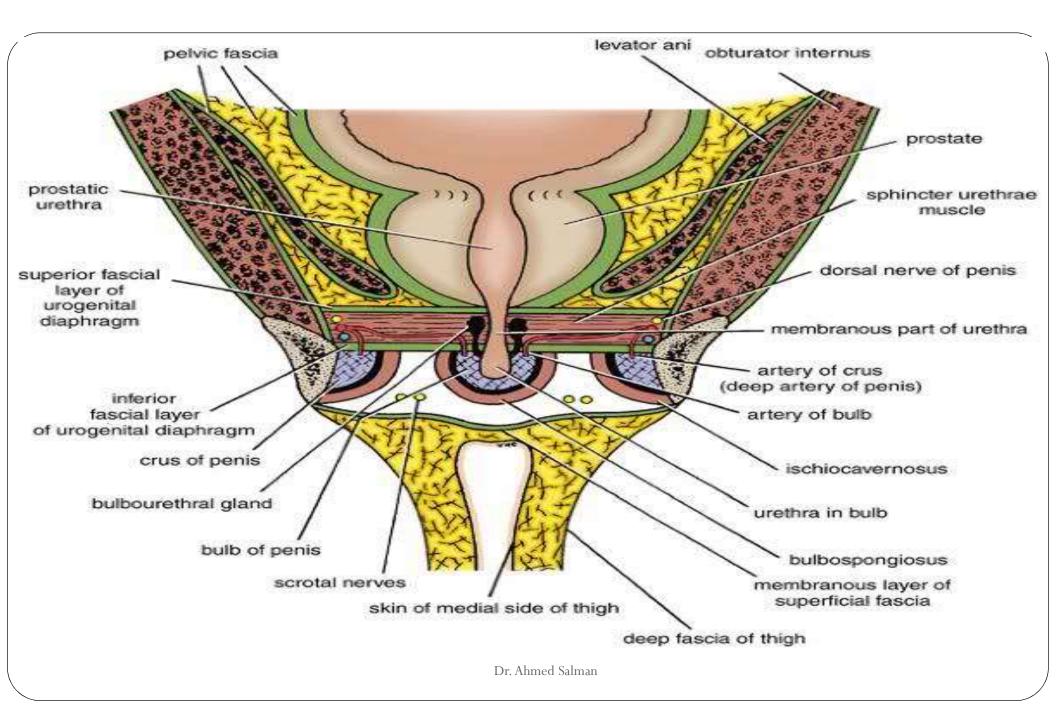
Is separated from the symphysis pubis by an oval opening. Through this opening

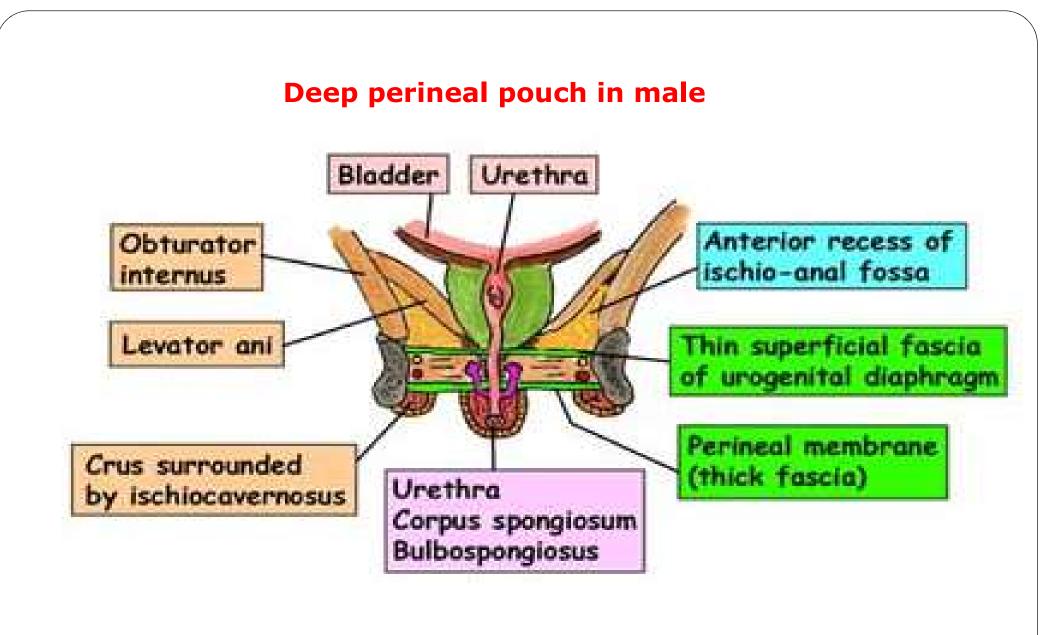
In male the deep dorsal vein of penis enters the pelvis to join the prostatic venous plexus.

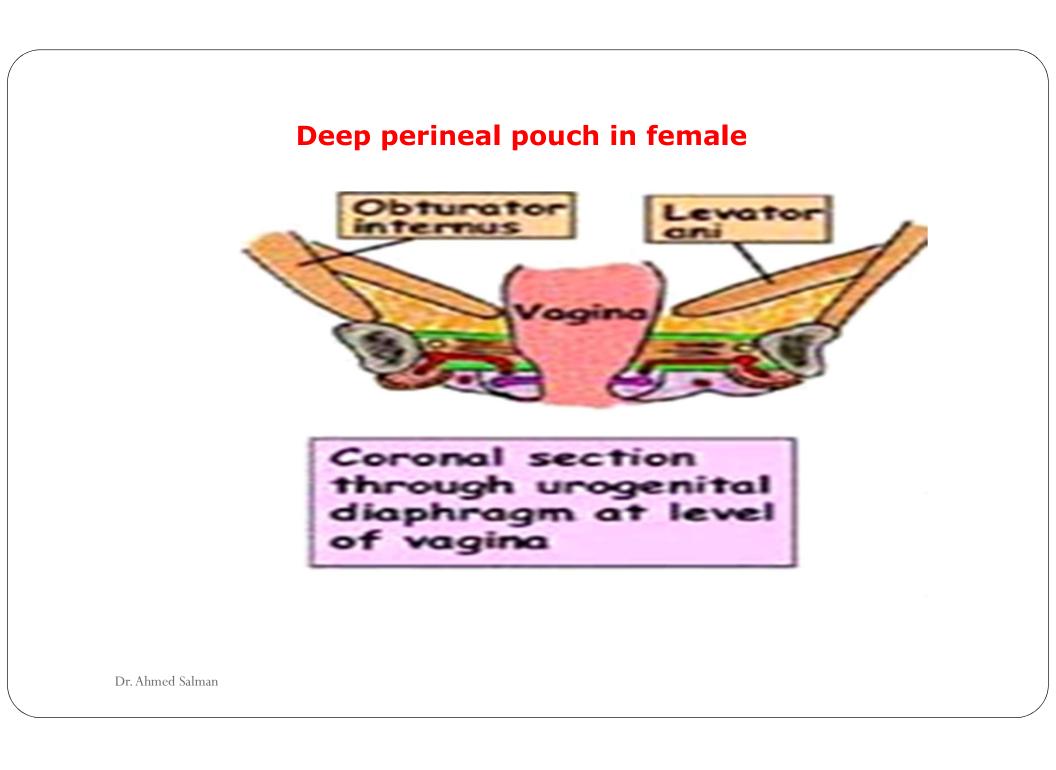
In female, the deep dorsal vein of clitoris joins the vesical venous plexus

Contents of Deep Perineal pouch			
	Male	Female	
Urogenital Structures	 Membranous urethra Bulbourethral glands 	Part of the urethraPart of vagina	
Muscles	 Sphincter urethrae Deep transverse perineal muscles (These two muscles form the urogenital diaphragm.) 		
Vessels	 Internal pudendal A. Artery of bulb. Urethral A. Perineal A. 	 Internal pudendal A. Artery of bulb of vestibule. Perineal A. 	
Nerves	Dorsal N. of penis.Perineal N.	Dorsal N. of clitoris.Perineal N.	

N.B. : the greater vestibular glands of the female lie in the *superficial* perineal pouch, the bulbourethral glands of the male lie in the *deep* perineal pouch









Superficial Perineal Pouch:

Boundaries :

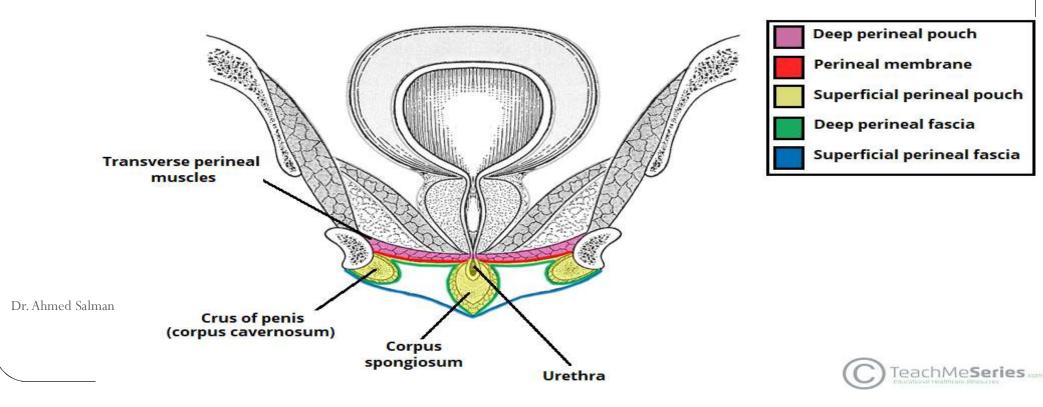
Floor : Membranous layer of the superficial fascia of the perineum (Colles fascia).

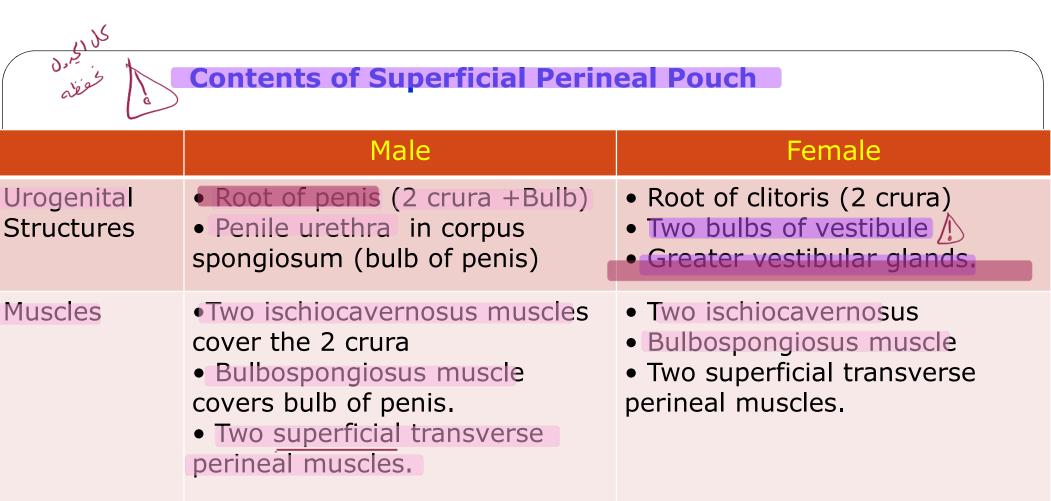
Roof : Perineal membrane.

On either side : both roof and floor are attached to the side of the pubic arch .

Posteriorly : The pouch is closed by union of the roof and floor.

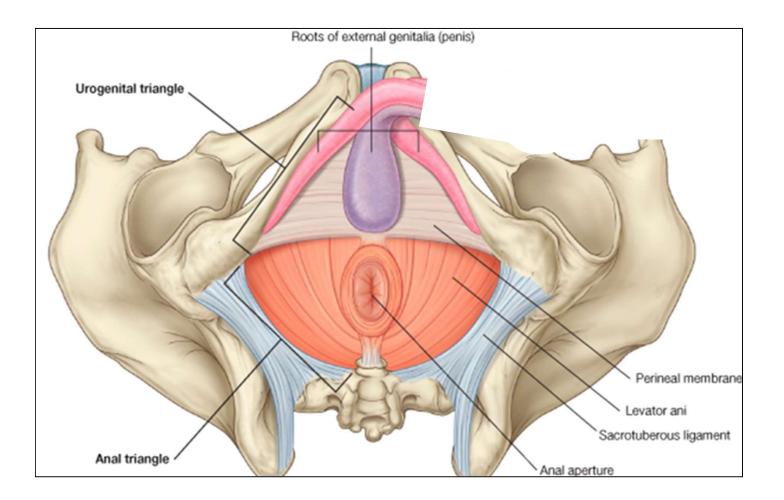
Anteriorly : The pouch is opened and continuous with the interval between the membranous layer of anterior abdominal wall and the external oblique aponeurosis





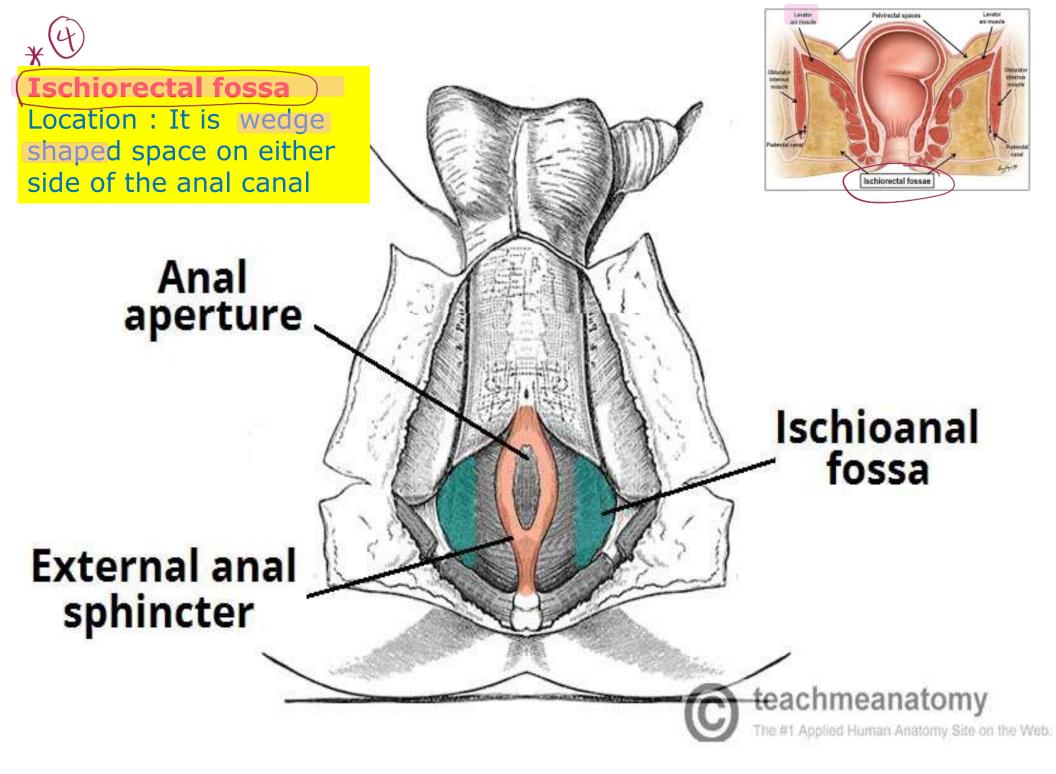
Vessels	 Dorsal A. of penis. Deep A. of penis. Two scrotal arteries 	 Dorsal A. of clitoris. Deep A. of clitoris. Two labial arteries.
Nerves	Dorsal N. of penis.Two scrotal nerves	Dorsal N. of clitoris.Two labial nerves

Superficial perineal pouch in male

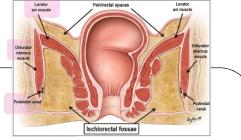


Urethral orifice -Vaginal orifice -Urogenital triangle Perineal membrane Levator ani -Roots of external genitalia Anal triangle Anal aperture -

Superficial perineal pouch in female



Boundaries : It has



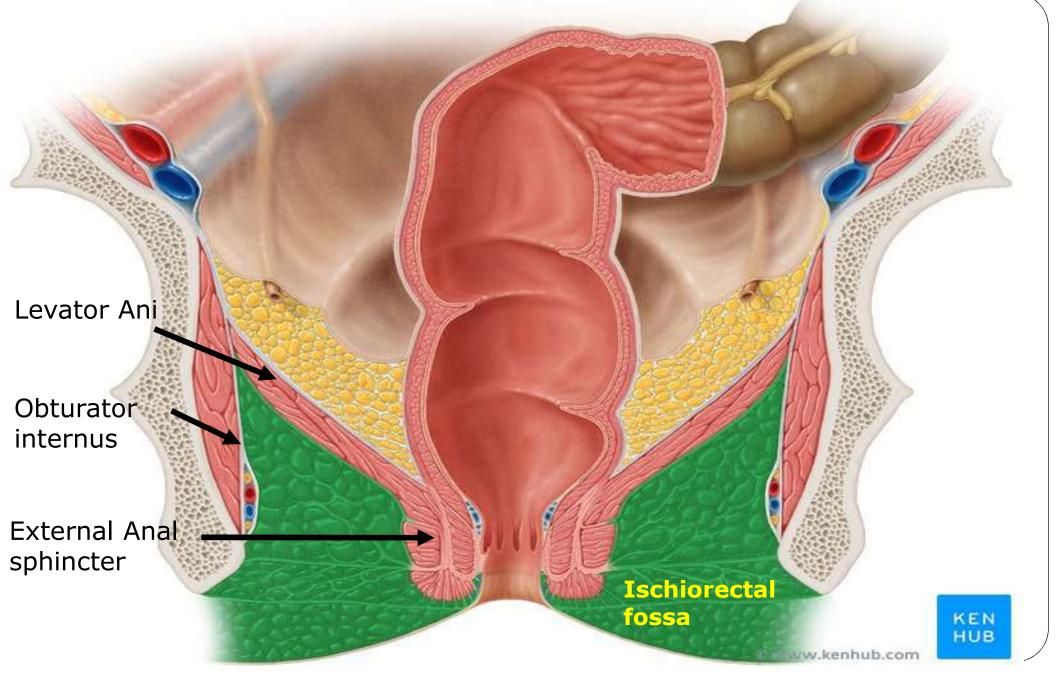
- **1.** Apex : it is the origin of levator ani from the lateral pelvic wall (White line)
- 2. Base : skin on either side of the anal orifice (skin of the base is supplied by inferior rectal N.).
- 3. Anteriorly : the posterior border of the perineal membrane
- **4. Posteriorly :** sacrotuberous ligament covered by lower border of gluteus maximus muscle.
- 5. Lateral wall : is vertical formed by :

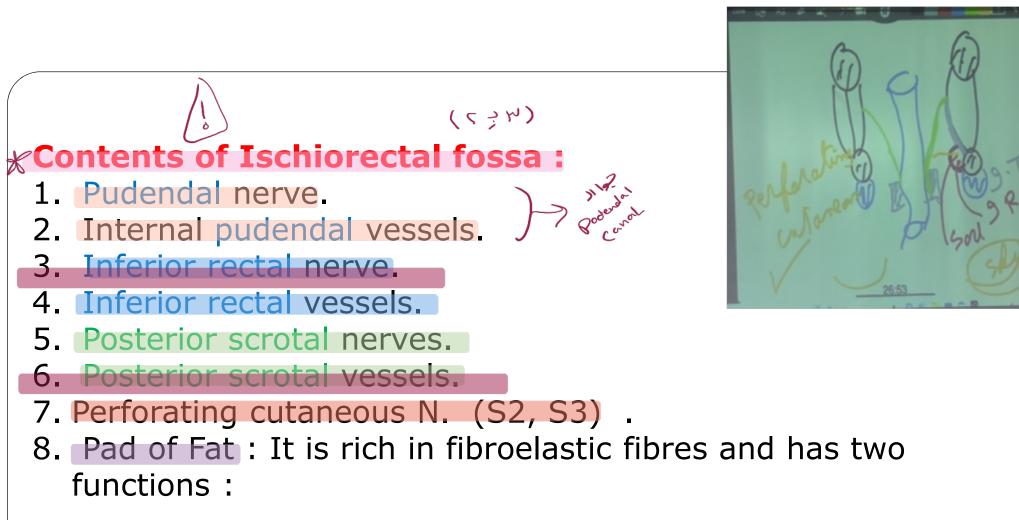


- Lower part of obturator internus muscle and lower part of obturator fascia splitting to form pudendal canal.
- Medial surface of ischial tuberosity.
- 6. Medial wall : formed by :
- Levator ani muscle (lower surface).
- External anal sphincter.

& Posterior Part of obtavator Fasia

Latral wall of ischirectul JU Lav





- It acts as a cushion support for rectum and anal canal.
- It allows distention of the rectum and anal canal during defaecation,

Then compress them after termination of the act.

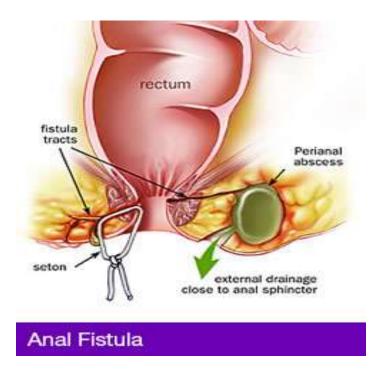
A 32 years old male patient , he was complaining of fever and swelling around the anus. On examination his temperature was 39 and has a red hot tender swelling near the anus . The doctor prescribed Augmentin 1 gram twice daily , Brufen 200 mg / three times daily with hot fomentation. Unfortunately the patient neglected the treatment . Two months later he came to the doctor complaining from fecal discharge discharge in his underwear . What is your provisional diagnosis ?

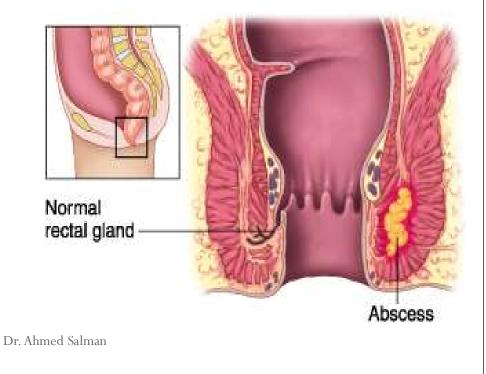
35 :00	
Sinfection -> pus -> fistula	لازم على مراحل ما يدل
وہو ڈیلی	strong antibiotic

Applied Anatomy:

Infections in the ischiorectal pad of fat is common and lead to abscess formation.

The abscess may rupture medially into the anal canal or downwards into the skin at the fossa. This may leads to anal fistula

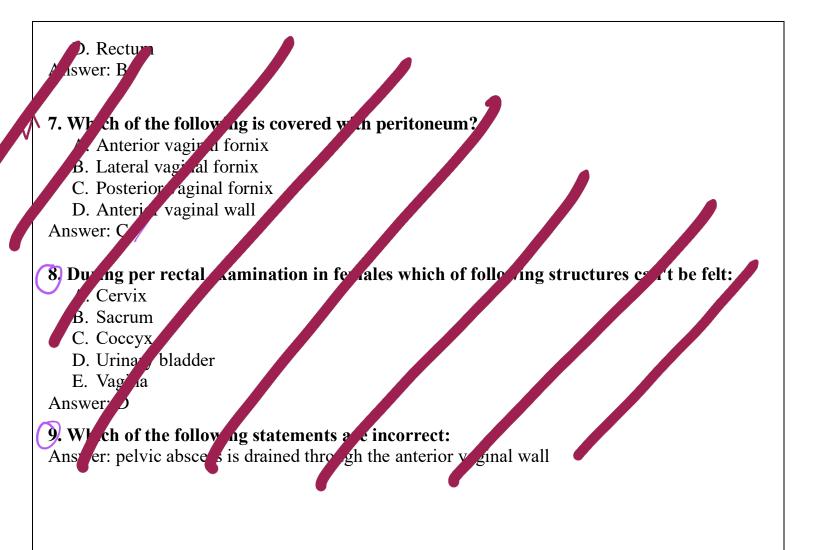






Membranous urethra Dorsal A. of penis. Part of vagina Internal pudendal artery Bulbospongiosus muscle Superficial transversus perinel muscles. Dorsal N. of penis. Artery of bulb. Two ischlocavernosus muscles Sphincter urethrae Bulburetheral gland Deep A. of penis Dorsal N. of clitoris Urethral A. Inferior rectal nerve and vessels Penile urethra Perforating cutaneous N. Greater vestibular gland	Four		
Part of vagina Internal pudendal artery Bulbospongiosus muscle Superficial transversus perinel muscles. Dorsal N. of penis. Artery of bulb. Two ischiocavernosus muscles Sphincter urethrae Root of penis Deep A. of penis Bulburetheral gland Posterior scrotal nerves and vessels. Dorsal N. of clitoris Urethral A. Perforating cutaneous N. Greater vestibular gland	Pudendal nerve	, Deep transversus perinei muscles	
Bulbospongiosus muscle Superficial transversus perinel Dorsal N. of penis. Artery of bulb. Two ischiocavernosus muscles Sphincter urethrae Root of penis Deep A. of penis Bulburetheral gland Posterior scrotal nerves and vessels. Dorsal N. of clitoris Urethral A. Perforating cutaneous N. Greater vestibular gland	Membranous urethra	Dorsal A. of penis.	1000
muscles. Dorsal N. of penis. Two ischiocavernosus muscles Sphincter urethrae Root of penis Deep A. of penis Bulburetheral gland Posterior scrotal nerves and vessels. Urethral A. Inferior rectal nerve and vessels Penile urethra Penile urethra Penile urethra	Part of vagina	Internal pudendal artery	
Two ischiocavernosus muscles Sphincter urethrae Root of penis Deep A. of penis Bulburetheral gland Posterior scrotal nerves and vessels. Dorsal N. of clitoris Urethral A. Inferior rectal nerve and vessels Penile urethra Perforating cutaneous N. Greater vestibular gland	Bulbospongiosus muscle		
Root of penis Deep A. of penis Bulburetheral gland Posterior scrotal nerves and vessels. Dorsal N. of clitoris Urethral A. Inferior rectal nerve and vessels Penile urethra Perforating cutaneous N. Greater vestibular gland	Dorsal N. of penis.	Artery of bulb.	
Bulburetheral gland Posterior scrotal nerves and vessels. Dorsal N. of clitoris Urethral A. Inferior rectal nerve and vessels Penile urethra Perforating cutaneous N. Greater vestibular gland	Two ischiocavernosus muscles	Sphincter urethrae	
Dorsal N. of clitoris Urethral A. Inferior rectal nerve and vessels Penile urethra Perforating cutaneous N. Greater vestibular gland	Root of penis	Deep A. of penis	
Inferior rectal nerve and vessels Penile urethra e Perforating cutaneous N. Greater vestibular gland	Bulburetheral gland	Posterior scrotal nerves and vessels.	
Perforating cutaneous N. Greater vestibular gland	Dorsal N. of clitoris	Urethral A.	
Perforating Cotoneous II.	Inferior rectal nerve and vessels	Penile urethra	
Declared N	Perforating cutaneous N.	Greater vestibular gland	
	Decised A	Decisional N	

	POULI		
Pudendal nerve	IRF, DPP ,	Deep transversus perinei muscles	DPP
Membranous urethra	DPP	Dorsal A. of penis.	
Part of vagina	DPP	Internal pudendal artery	IRF, DPP , SPP
Bulbospongiosus muscle	SPP	Superficial transversus perinel muscles.	
Dorsal N. of penis.	SPP, DPP	Artery of bulb.	DPP
Two ischiocavernosus muscles	SPP	Sphincter urethree	DPP
Root of penis	SPP	Deep A. of penis	
Bulburetheral gland	DPP	Posterior scrotal nerves and vessels.	
Dorsal N. of clitoris	DPP , SPP	Urethral A.	DPP
Inferior rectal nerve and vessels		Penile urethra	SPP .
Perforating cutaneous N.		Greater vestibular gland	
Particul I		Designed M	



Perineum

1. True about internal pudendal artery?

Answer: found in lateral wall of ischiorectal fossa

2. Choose the WRONG MATCH of the following combinations:

- A. deep nerve of penis - pudendul nerve
- B. inferior rectal nerve - ischorectal fossa
- C. greater vestibular glands - Superficial perineul pouch
- D. sphincter urethra - deep perineul pouch

Answer: A

3. Regarding the ischiorectal fossa, choose the WRONG statement

- A. Anterior wall is formed by posterior border of the perineal membrane
- B. It contains posterior scrotal nerve
- C. It is apex is formed by origin of levator ani from the lateral pelvic wall
- D. Posterior wall is formed by sacrotuberous ligament and gluteus maximus muscle
- E. Pudendal canal is located on its medial wall

Answer: E

4. Which of the following is a wrong combination?

- A. Root of penis superficial perineal pouch
- B. Internal pudendal artery superficial perineal pouch
- C. greater vestibular gland deep perineal pouch
- D. Perineal nerve deep perineal pouch

Answer: C

5. The pouch which is floored by perineal membrane is.....and it contains

- A. Ischiorectal fossa, Scrotal nerves
- B. Superficial perineal pouch, Ischiocavernosus muscles
- C. Deep perineal pouch, Bulbourethral glands
- D. Deep perineal pouch, Deep artery of clitoris
- E. Superficial perineal pouch, Greater vestibular glands.

Answer: C

6. The pudendal nerve is related to.....inside the ischiorectal fossa

- A. Skin on either side of the anal orifice
- B. Puborectalis muscle
- C. External anal sphincter
- D. Lower part of obturator internus muscle and obturator fascia
- E. lliolumbar ligament

Answer: D

7. A male patient has a rupture membranous urethra due to faulty catheterization, the urine will be found in:

- A. Superficial perineal pouch.
- B. Around the scrotum.
- C. Deep to fascia lata.
- D. Deep perineal pouch.

E. Deep to Scarpa's fascia.

Answer: D

8. Wrong combination?

Answer: greater vestibular gland - deep perineal pouch

9. After extravasation of urine due to traumatic tear of penial bulb, urine may accumulate in all of the following sites except:

- A. ischiorectal fossa
- B. body of the penis
- C. anterior side of the scrotum
- D. lateral side of the scrotum
- E. anterior abdominal wall

Answer: A

10. A child with ruptured penile urethra, urine extravasation won't reach:

- A. Loose connective tissue of the scrotum
- B. Thigh
- C. Around the penis
- D. Anterior abdominal wall

Answer:B

11. The muscle that eject last drops of urine during micturition is supplied by?

- A. Scrotal nerve
- B. Dorsal nerve of penis
- C. Perineal nerve
- D. Pelvic splanchnic nerve
- E. Inferior hypogastric plexus

Answer: C

12. A male patient Fell on metal beam which leads to a rapture of the penile urethra, the urine could be found in following areas EXCEPT:

- A. Deep to Scarpa's fascia
- B. Superficial perineal pouch
- C. Loose connective tissue of the scrotum
- D. Deep perineal pouch
- E. Around the penis

Answer: D

Kahoot

1. The apex of ischorectal fossa is formed by the origin of -----?

- A. Levator ani
- B. Obterator internus
- C. Piriformis
- D. Coccygeus

Answer: A

2. The superficial perineal pouch is superior to the perineal membrane.

- A. True
- B. False

Answer: B





