

وسهلا



أهلا

يُمنع أخذ السلايدات بدون
إذن المحرر واي اجراء
يخالف ذلك يقع تحت طائلة
المسؤولية القانونية
جميع المعلومات للاستخدام
التعليمي فقط

الأستاذ الدكتور يوسف حسين

كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

اليوتيوب د. يوسف حسين
الواتس (أي استفسار)
00201224904207

Prof. Dr. Youssef Hussein Anatomy - YouTube

Development of Urinary bladder

الواتس 00201224904207

<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>

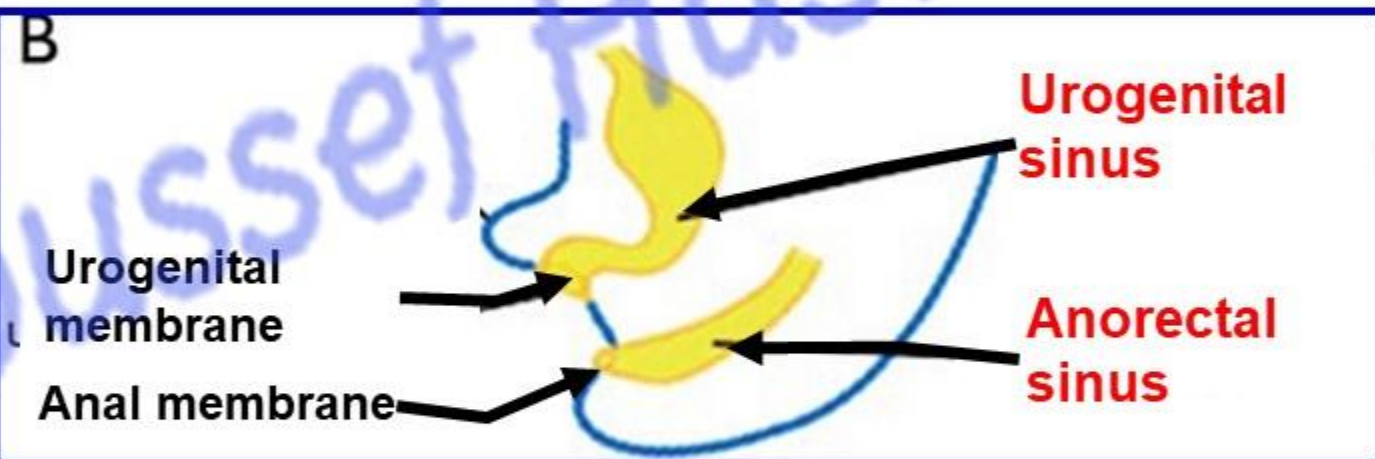
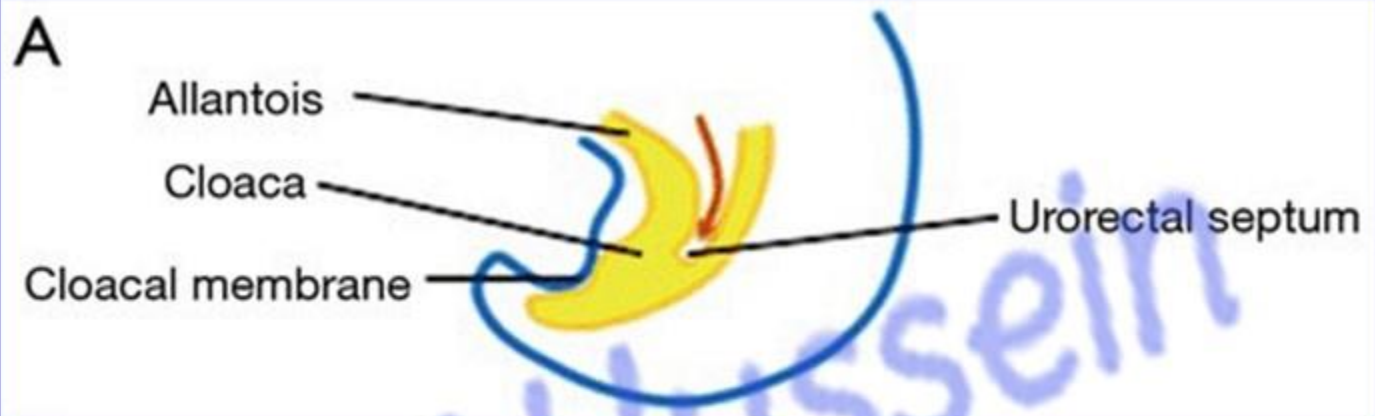
❖ Derivatives of cloaca

- The cloaca is the caudal dilated part of the **hindgut**, which is closed by the cloacal membrane and connected to umbilicus by **allantois (urachus)**.

- It is divided by **Urorectal septum** into:

1- **Ventral part** called **urogenital sinus**, closed by urogenital membrane that forms the mucosa of the urinary bladder and urethra (and the lower part of the vagina in females).

2- **Dorsal part** called **anorectal sinus**, closed by **anal membrane**. forms the mucosa of the rectum and upper part of the anal canal.



الواتس 00201224904207

dr_youssefhussein@yahoo.com

- **** Derivatives of the urogenital sinus:**

- It receives openings of allantois and 2 mesonephric ducts.

- The site of opening of mesonephric ducts into **urogenital sinus** dividing it into:

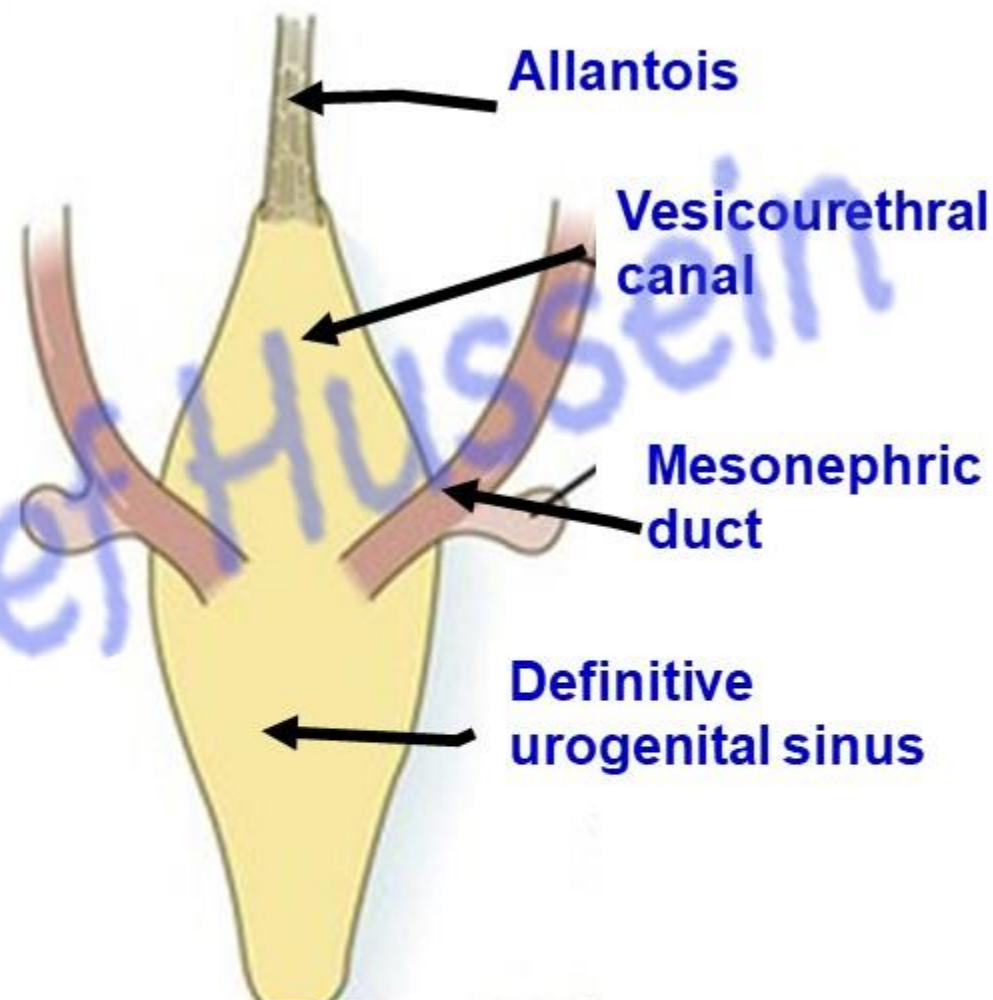
1- Cranial part called vesicourethral canal

which forms mucous membrane of:

a) Urinary bladder.

b) Prostatic part of urethra above the utricle (in male) or Upper 4/5 of the **urethra** (in female).

2- Caudal part called definitive urogenital sinus.



00201224904207 الواتس

<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>

- **Development of the Urinary Bladder**

- ** Development of the mucous membrane**

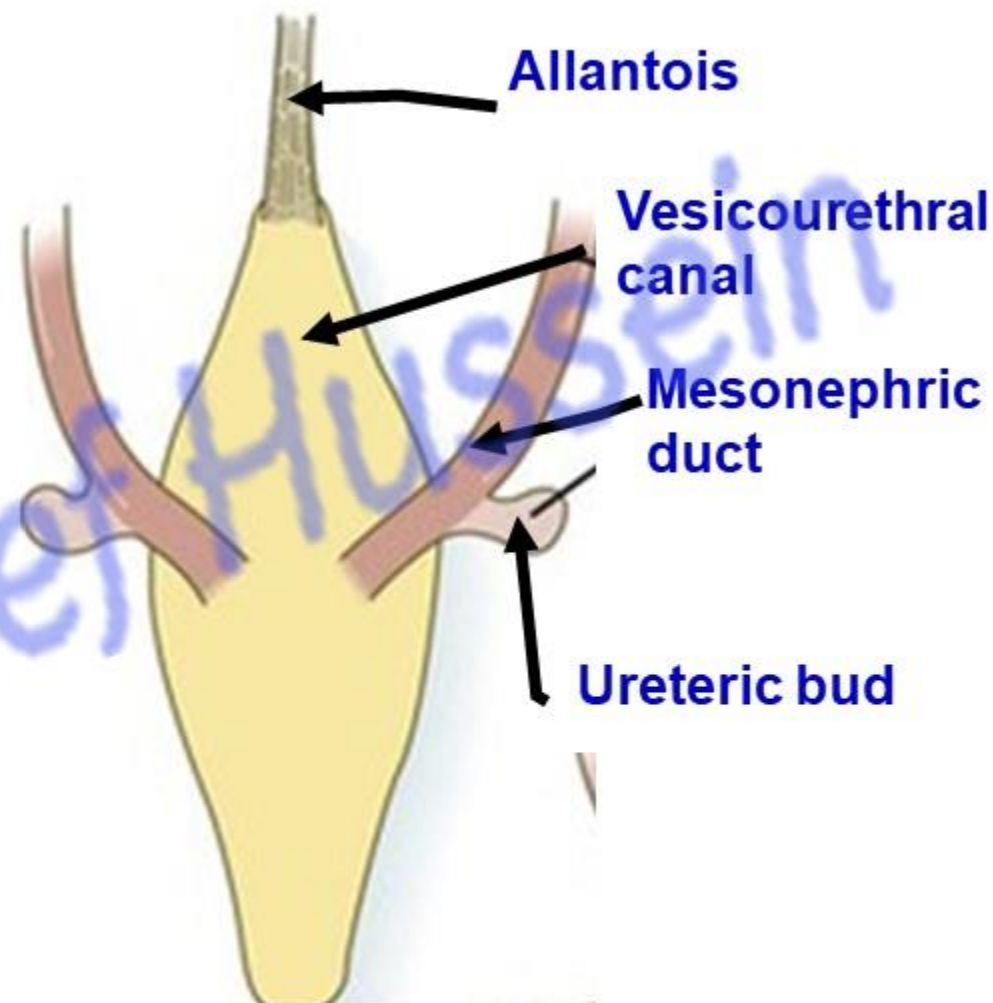
1- Proximal part of allantois (urachus), forms the apex of the urinary bladder (endodermal in origin).

2- Vesicourethral canal, forms most of the urinary bladder (endodermal in origin).

3- Proximal parts of mesonephric ducts till the opening of ureteric buds form **trigone** (mesodermal in origin).

- ** Development of muscles** (from the mesoderm surrounding the vesicourethral canal).

- Distal part of allantois (urachus) obliterated, fibrosed and formed **median umbilical ligament**.



00201224904207 الواتس

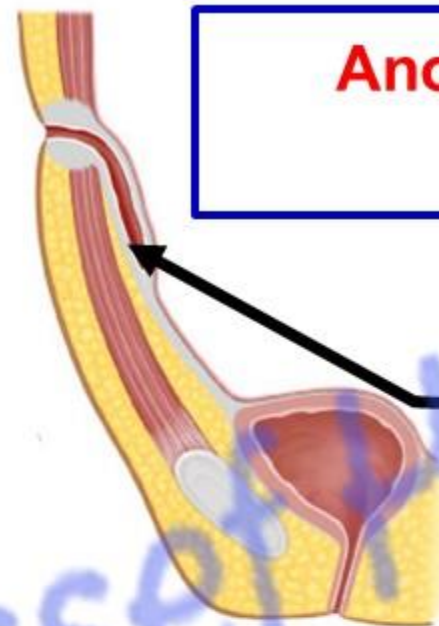
<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>

Urachal fistula: failure of obliteration of **urachus**. This will lead to discharge of urine from umbilicus.



Anomalies of urachus (allantois):

Urachal sinus: failure of obliteration of **distal** part of urachus.



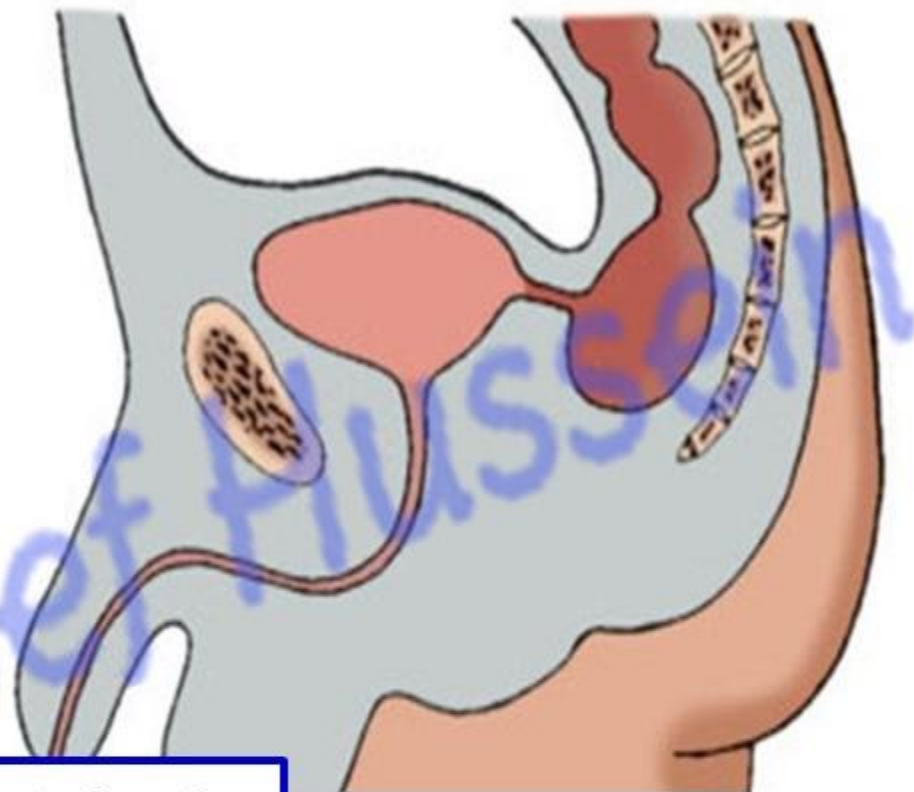
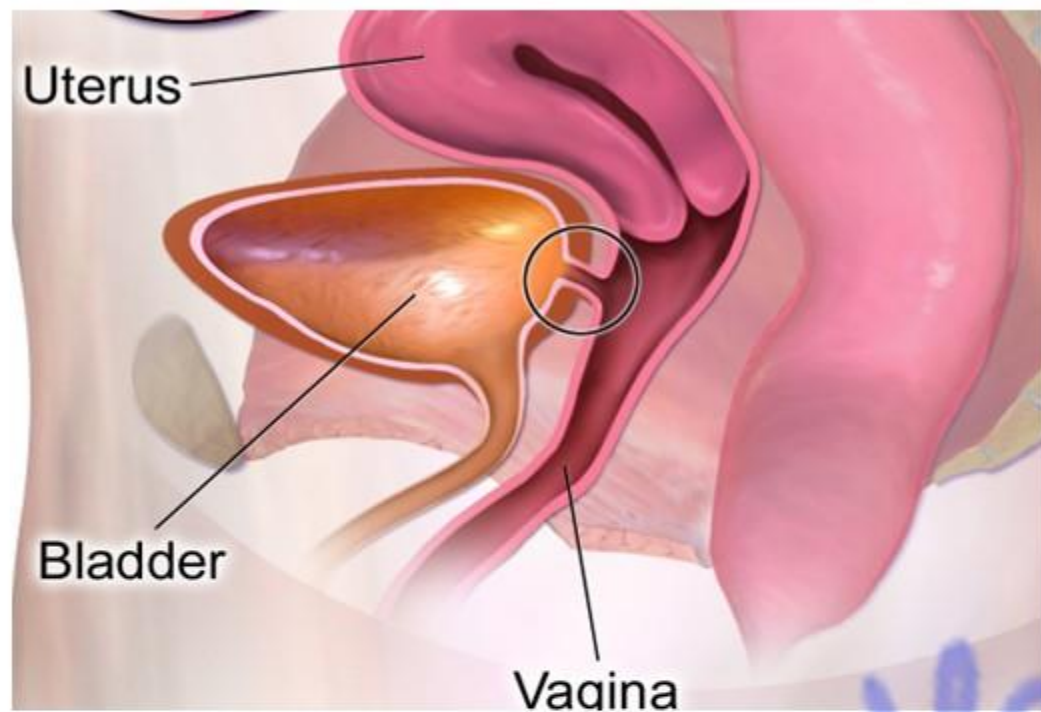
Bladder diverticulum:
Pouch in the apex



Urachal cyst: failure of obliteration of the **middle** part of urachus.



00201224904207 الواتس



Fistulae of the urinary bladder: due to defect in the urorectal septum.

(a) **Vesicovaginal fistula:** communication between urinary bladder and vagina (**female**).

(b) **Rectovesical fistula:** communication between urinary bladder and rectum (**male**).

dr_youssefhusseini@yahoo.com

00201224904207 الواتس



- **Ectopia vesica:**

- The inner aspect of the urinary bladder is exposed below the umbilicus.
- This occurs due to failure of the formation of the anterior abdominal wall and anterior wall of the urinary bladder.

dr_youssefhussein@yahoo.com

الواتس 00201224904207

<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>

dr_youssefhussein@yahoo.com

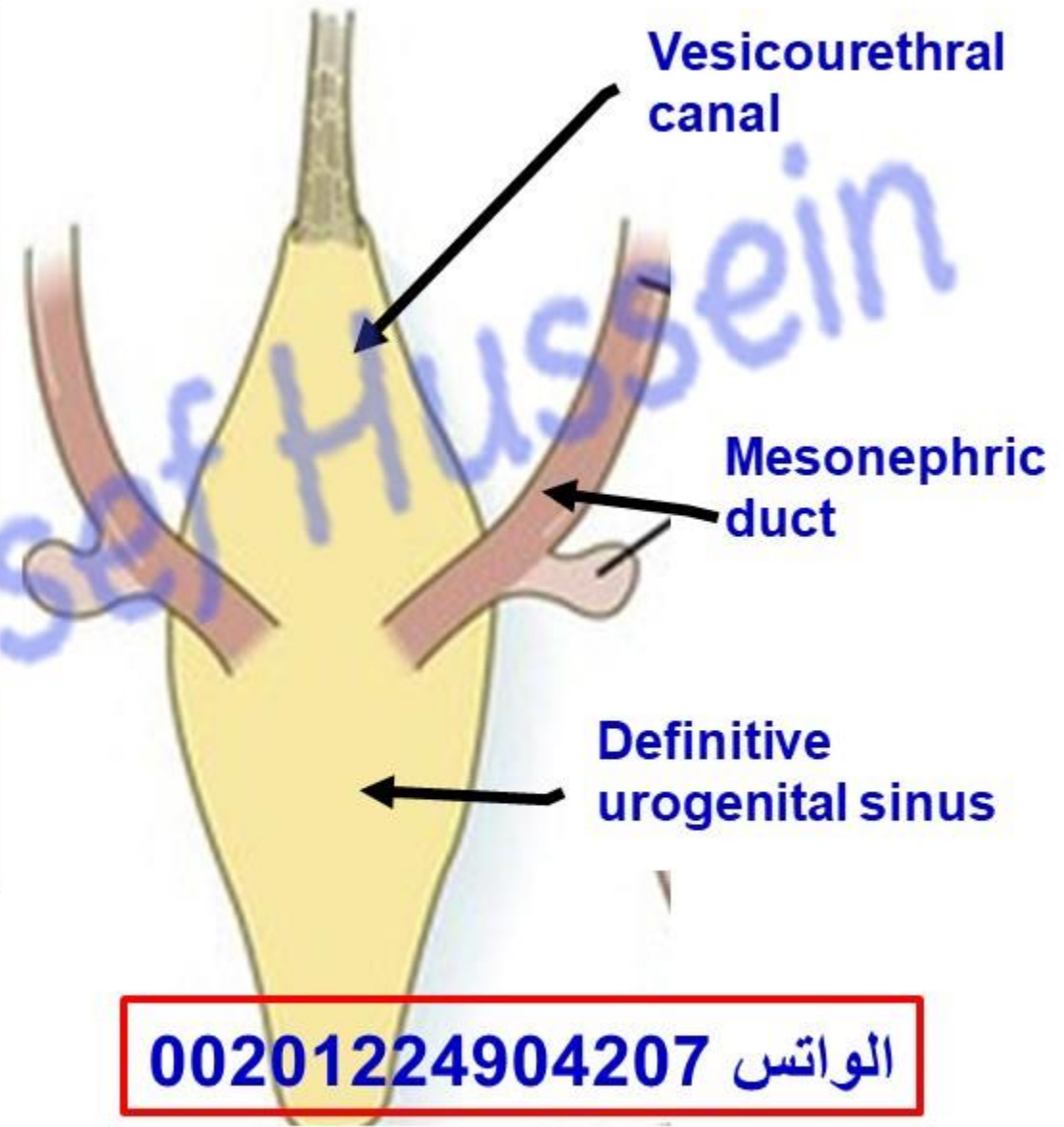
Development of urethra

00201224904207 الواتس

<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>

**** Development of the female urethra**

- The site of opening of mesonephric ducts into **urogenital sinus** dividing it into:
 - 1- Cranial part called vesicourethral canal** which forms mucous membrane of Upper 4/5 of the **urethra**.
 - 2- Caudal part called definitive urogenital sinus** forms Lower 1/5 of the urethra.
- The urethral sphincters are developed from the surrounding mesoderm.



dr_youssefhussein@yahoo.com

Male Urinary Bladder and Urethra

Trigone

Prostatic urethra

Membranous urethra

Penile urethra

External urethral orifice

Ureter

Urinary bladder

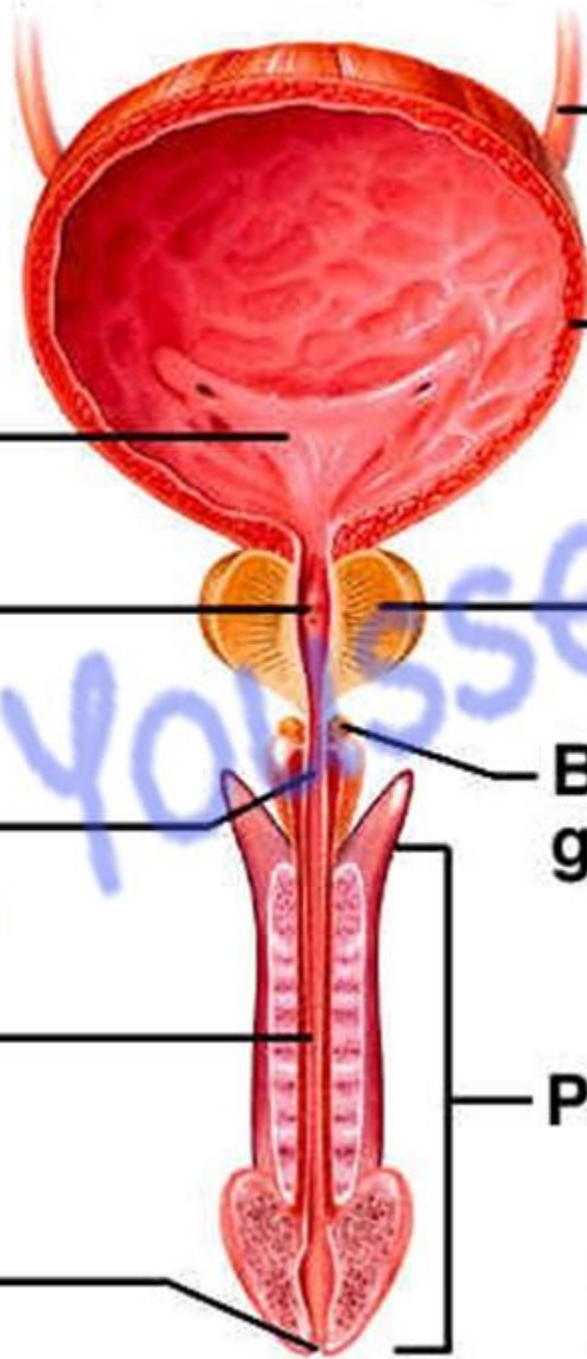
Prostate gland

Bulbourethral gland

Penis

الواتس 00201224904207

dr_youssefhussein@yahoo.com



**** Development of male urethra**

A- Vesicourethral canal forms Prostatic part of the urethra above the utricle .

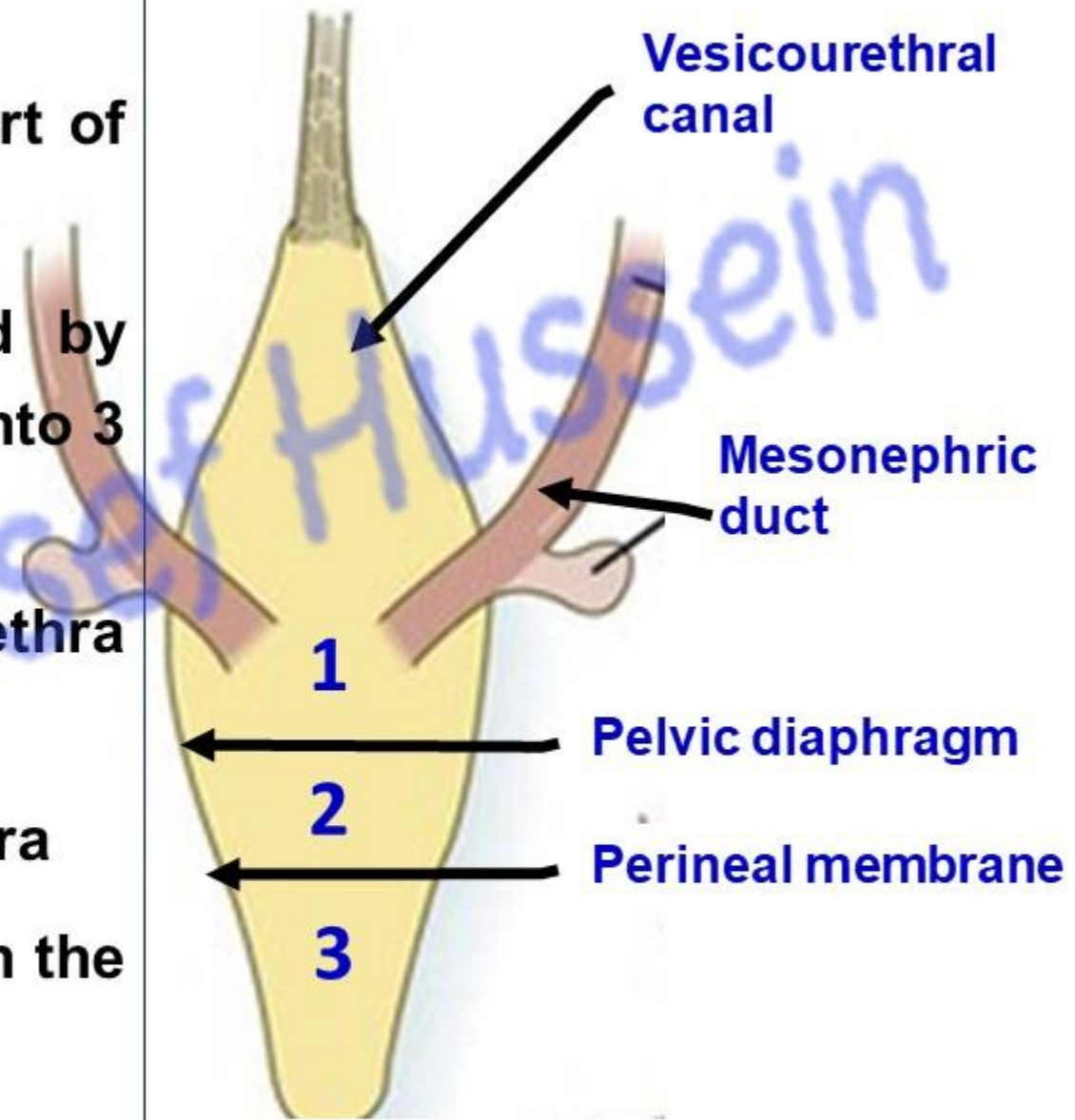
A- Definitive urogenital sinus is divided by **pelvic diaphragm** and **perineal membrane** into 3 parts:

1- Cranial part form **Prostatic** part of the urethra **below** the utricle

2- Middle part forms the **membranous** urethra

3- Caudal part forms forms **penile urethra** in the root of the penis

- The urethral sphincters around membranous are developed from the surrounding mesoderm.



- **Steps of development of penile (spongy) urethra**

- 2 folds develop on each side of the urogenital membrane

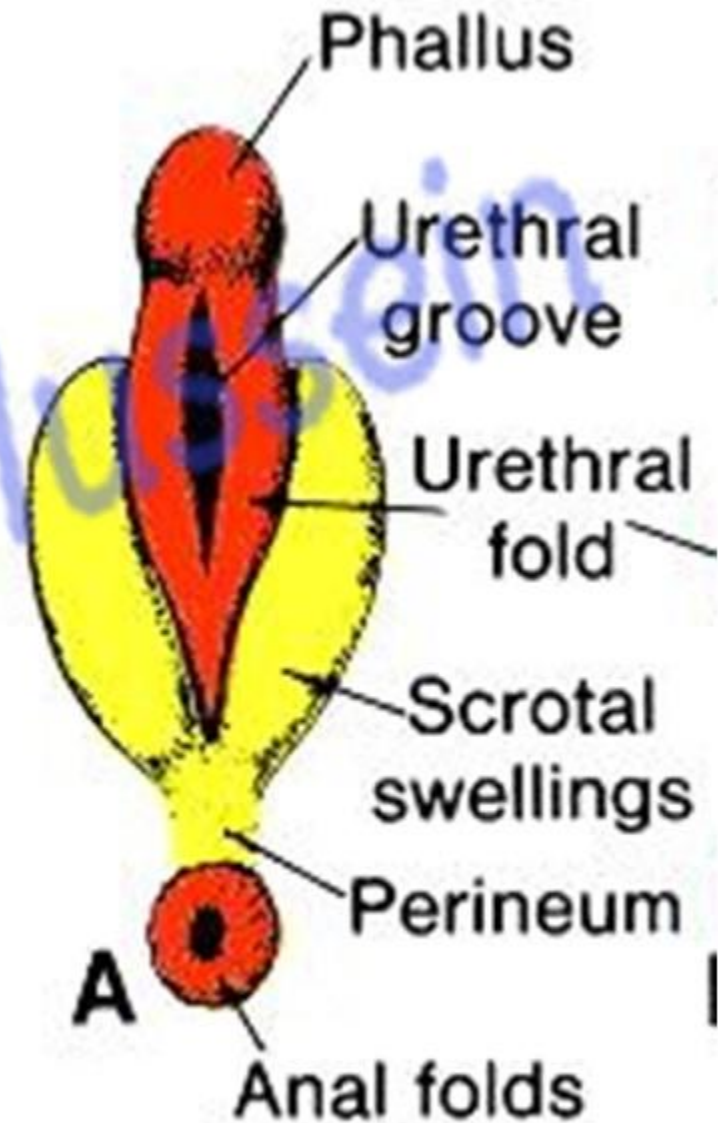
a. Inner fold called urethral fold.

b. Outer fold called genital fold (scrotal).

- The 2 genital fold meet each other **cranial** to the urogenital membrane to form **genital tubercle (phallus)** that forms **body of the penis and glans penis**.

- The 2 urethral folds fuse with each other to form **urethral tube --- solidified --- urethral plate --- canalized --- urethral groove** -- edges of the urethral groove fuse with each other --- **penile urethra in body of the penis and glans penis**.

- Mesoderm around the urethra forms erectile tissues and blood vessels of the penis.



• Hypospadias

- External meatus is found on the lower surface of the penis.
- It is caused by failure in fusion of the urethral groove.

A- Complete: groove extends from the head of the penis till the scrotum (resembles labia majora).

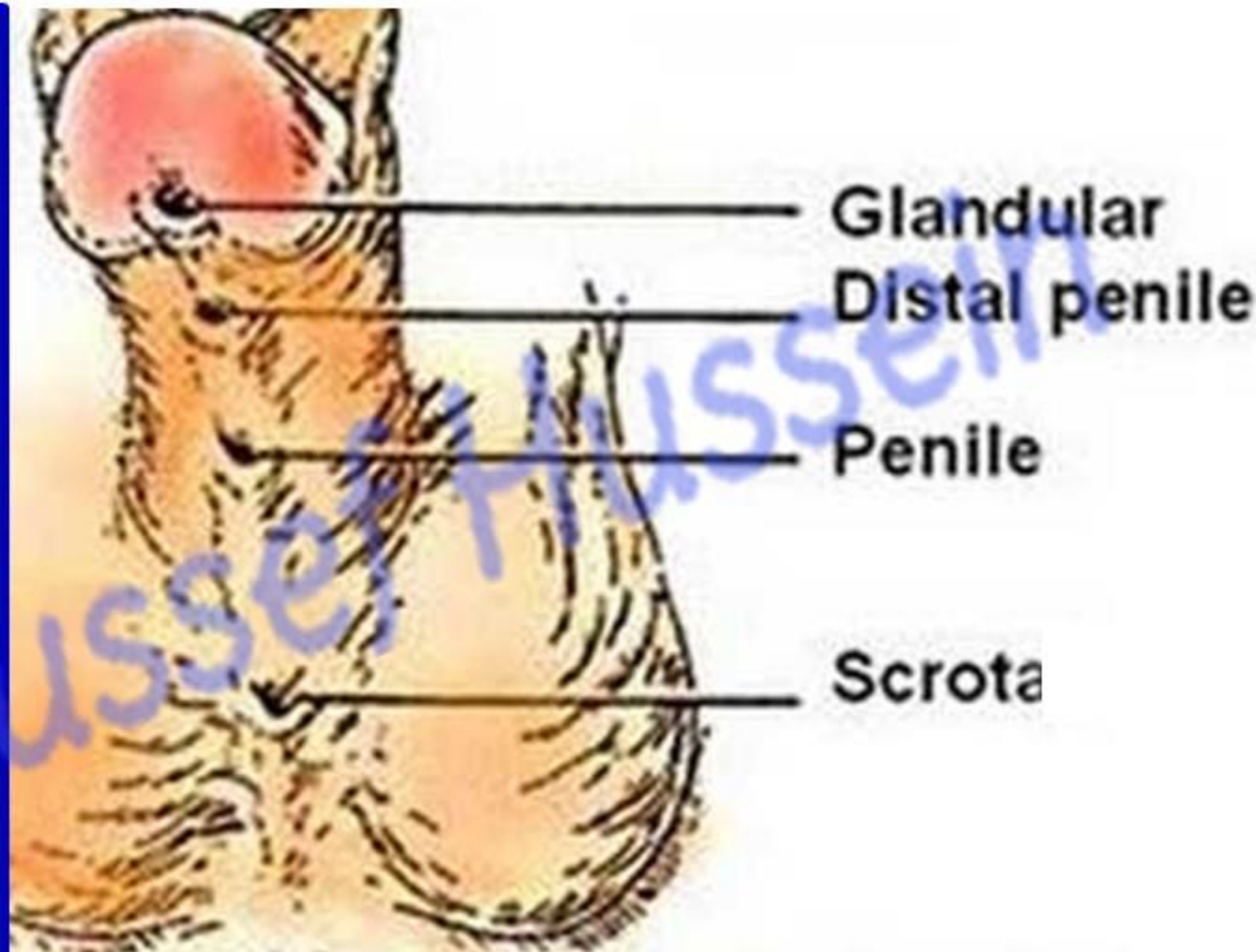
B- Incomplete:

a- Perineal (Scrotal): at the root of the penis.

b- Penile: at any site along the inferior surface of the penis

c- Distal at the terminal of body

d- Glanular: at glans penis (The best one for man, can not be repair).



00201224904207 الواتس

dr_youssefhussein@yahoo.com

- **Epispadias**

- The opening of urethra lies on the upper surface of the penis.

- It is either occurred alone or with ectopia vesica.

- **Glandular:** at glans penis.

- **Penile:** at any site along the superior surface of the penis

- **Penopubic:** at the base of the penis.

- **Urethral fistula**

- **(defect in urorectal septum)**

- **Recto-urethral fistula:** communication between rectum and urethra.

- **Urethrovaginal fistula:** communication between vagina and urethra.



Epispadias

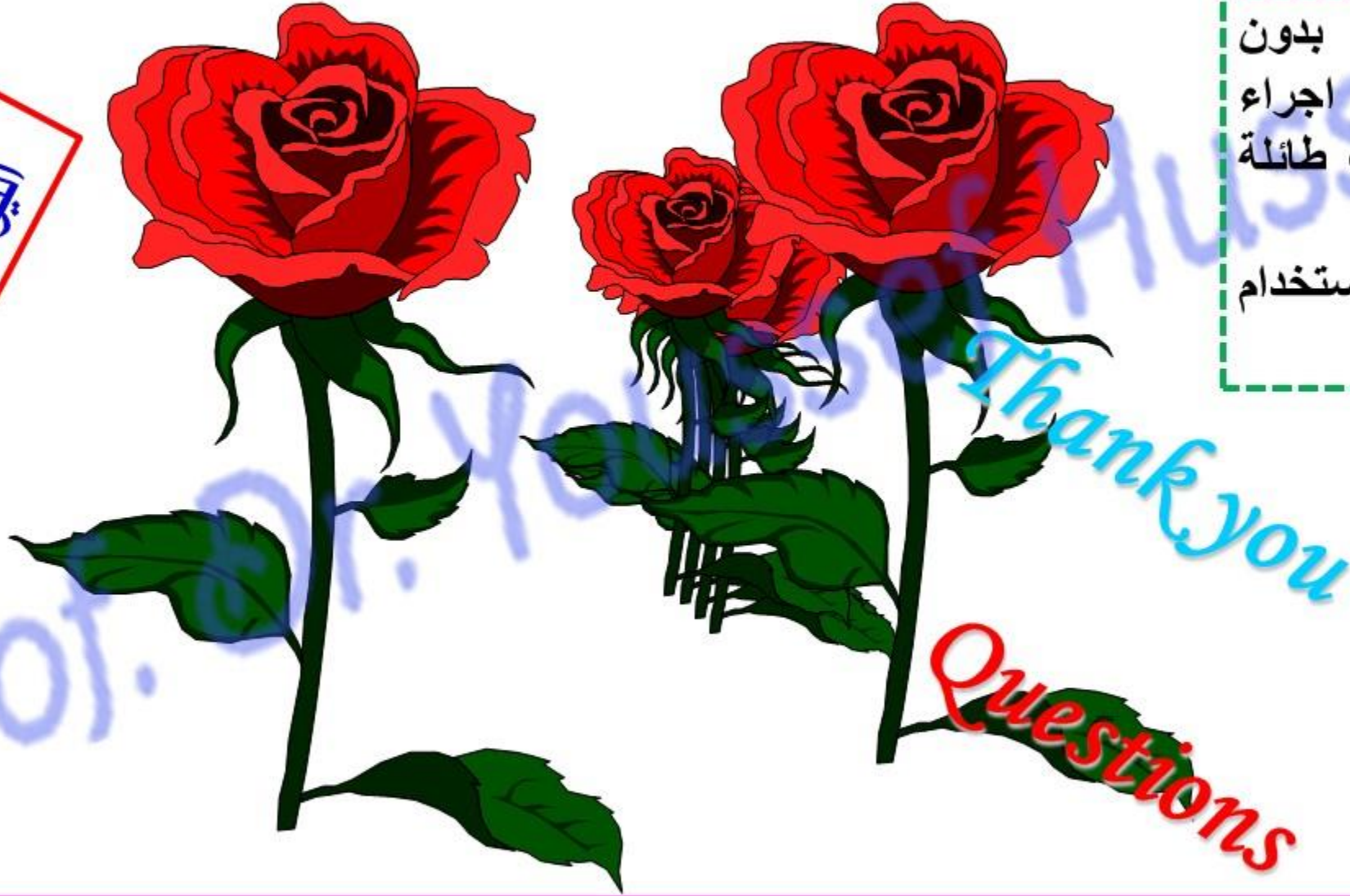
00201224904207 الواتس

<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>

https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd_cn0PQ

يُمنع أخذ السلايدات بدون
إذن المحرر واي اجراء
يخالف ذلك يقع تحت طائلة
المسؤولية القانونية
جميع المعلومات للاستخدام
التعليمي فقط

الـيوتيوب د. يوسف حسين



<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>