

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

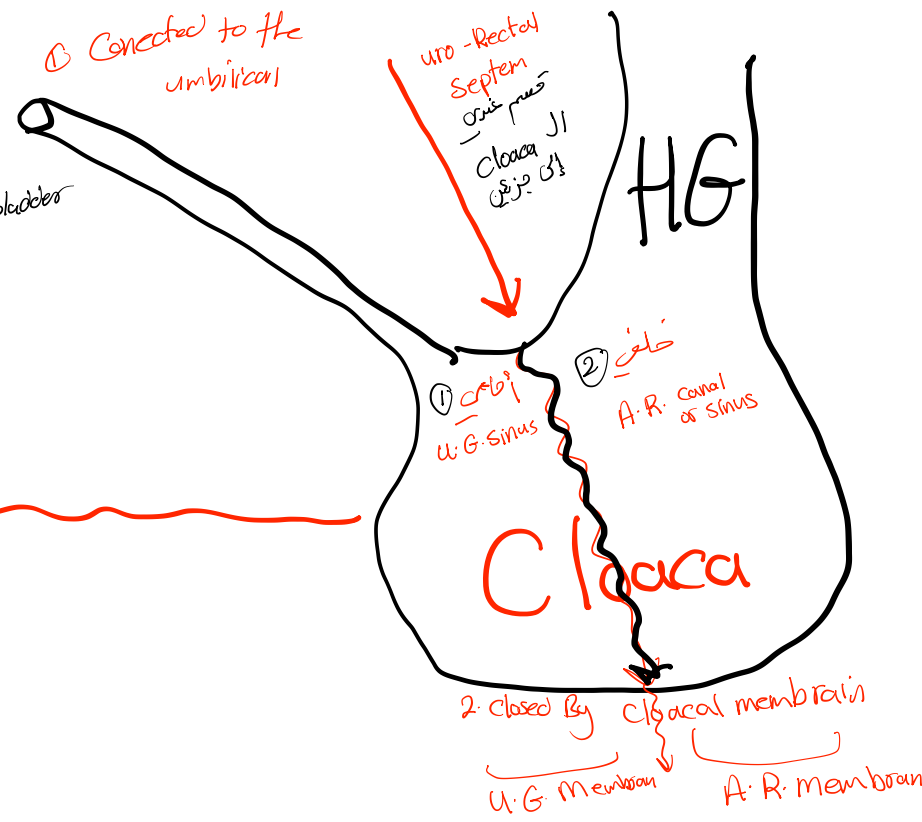
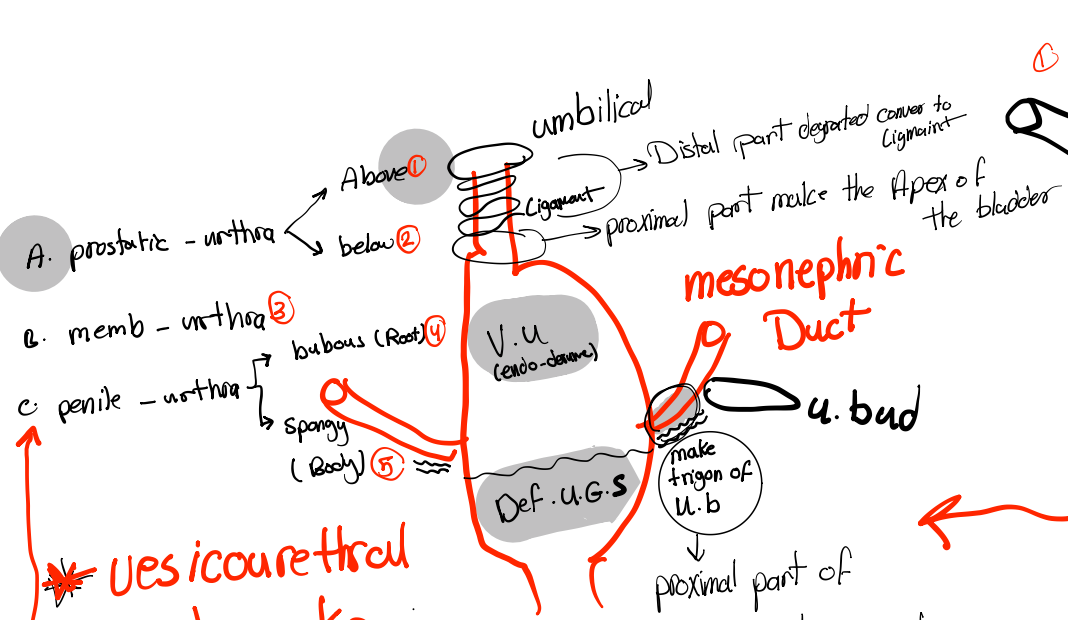
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الواتس (أي استفسار)
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Prof. Dr. Youssef Hussein Anatomy - YouTube

Development of Urinary bladder

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*** Vesicourethral Canal make**

A.1 → prostatic urethra

Above utricle

*** Definitive urogenital canal make**

(A.2/B/C)

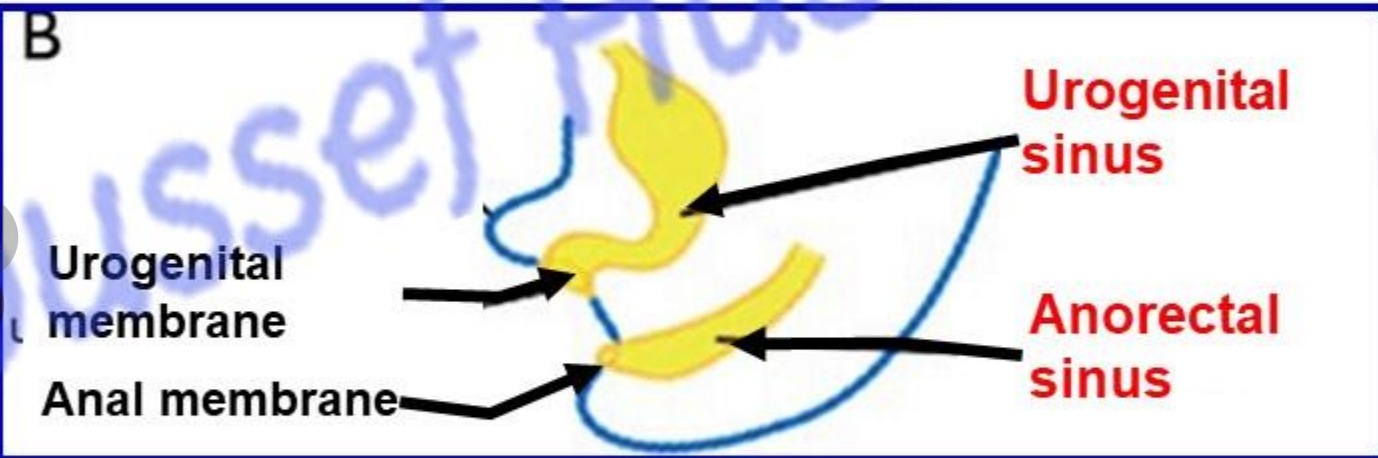
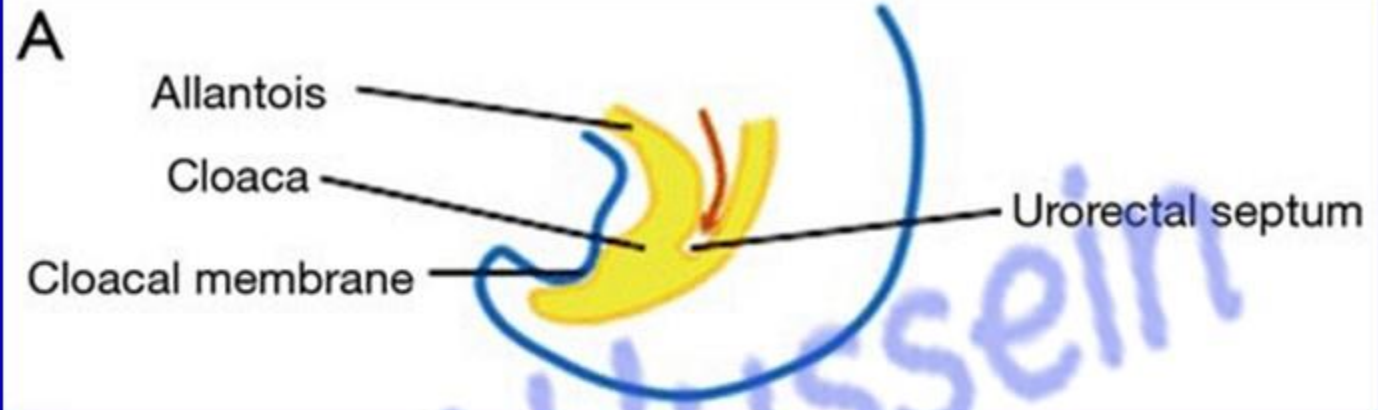
❖ Derivatives of cloaca

- 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**.



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- **** 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:

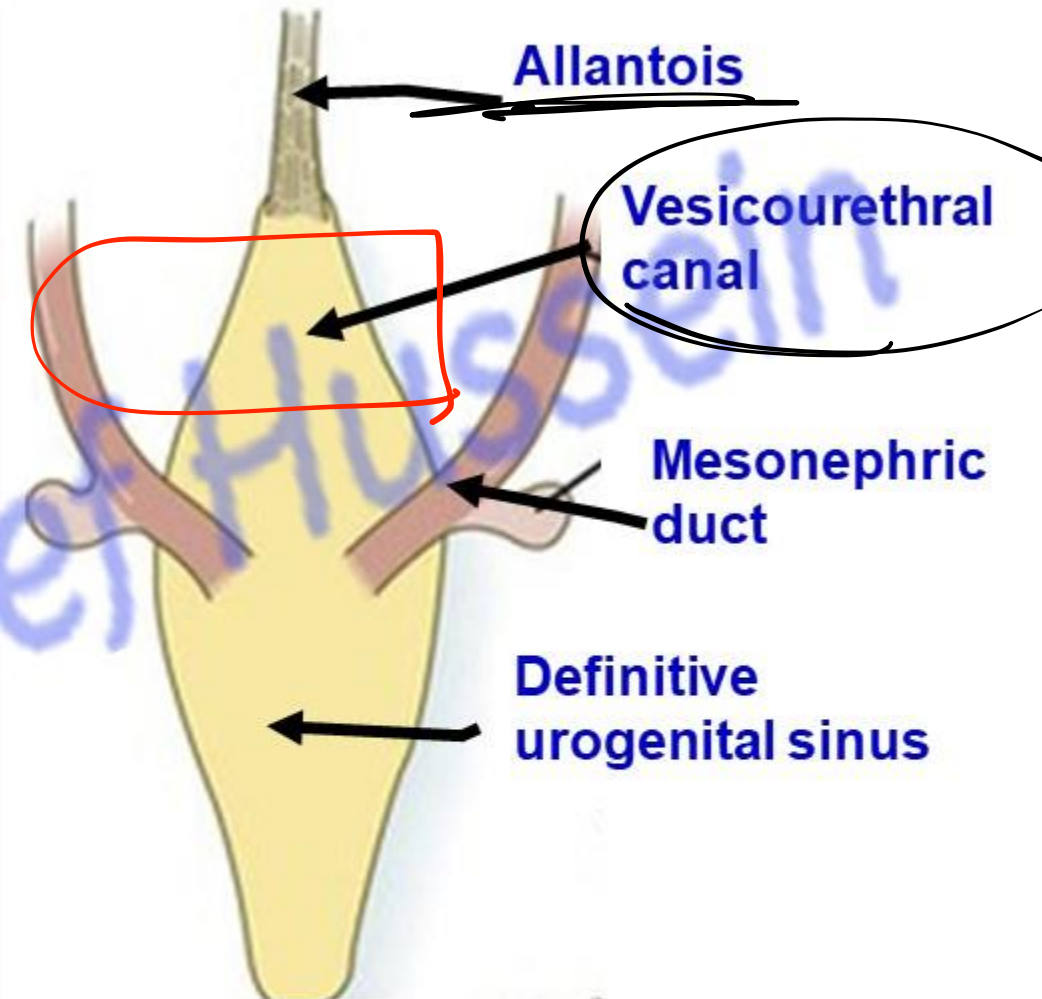
1- Cranial part called vesicourethral canal

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.



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• Development of the Urinary Bladder

** Development of the mucous membrane

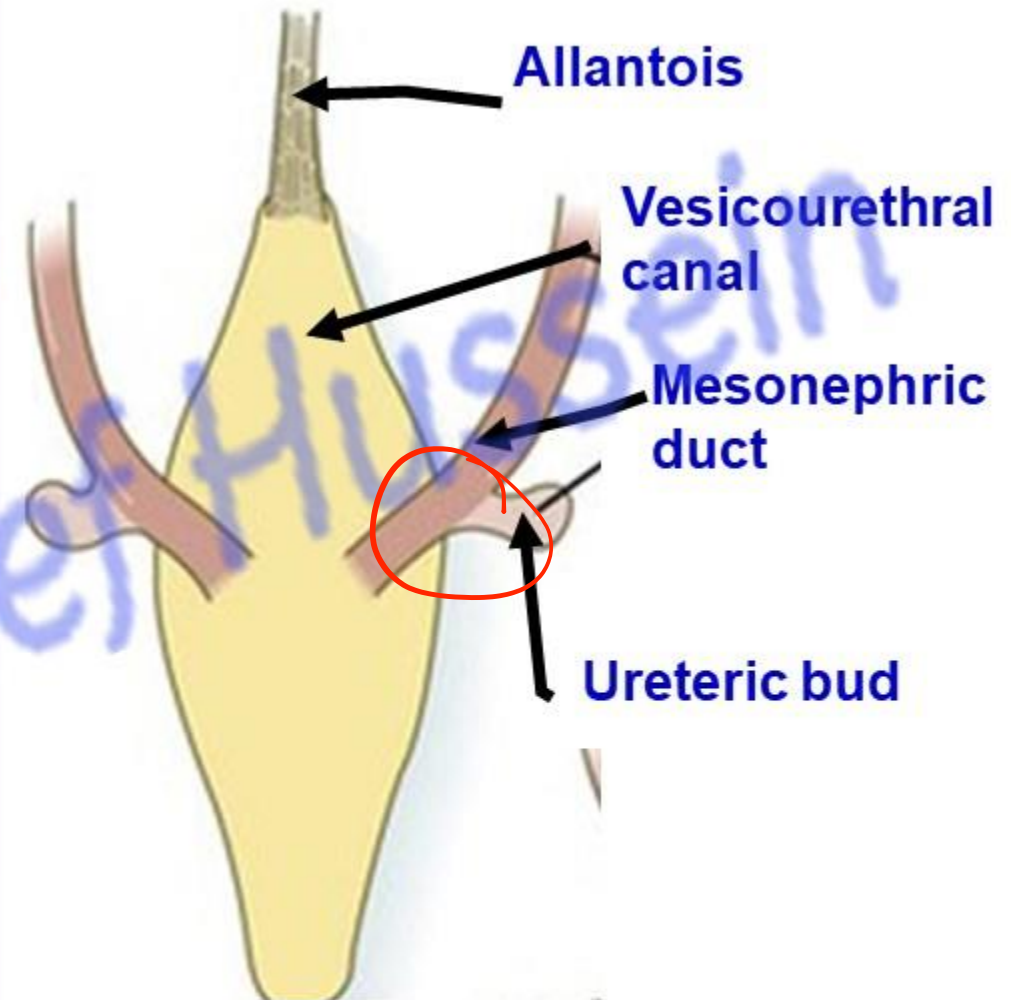
1- Proximal part of allantois (urachus), forms the apex of the urinary bladder (endodermal in origin).

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.**



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

* مع دخول الـ bladder فاتحه
عندي على الـ umbilical
بالقاي مع دهر يخرج البول
مندها.

Bladder diverticulum:

Pouch in the apex

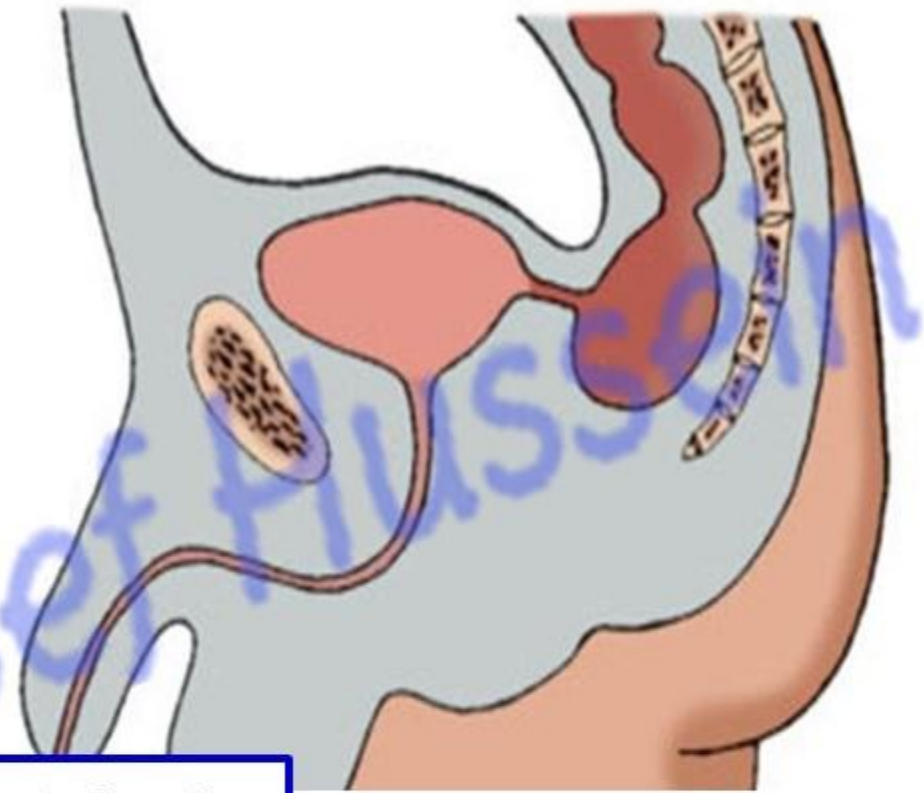
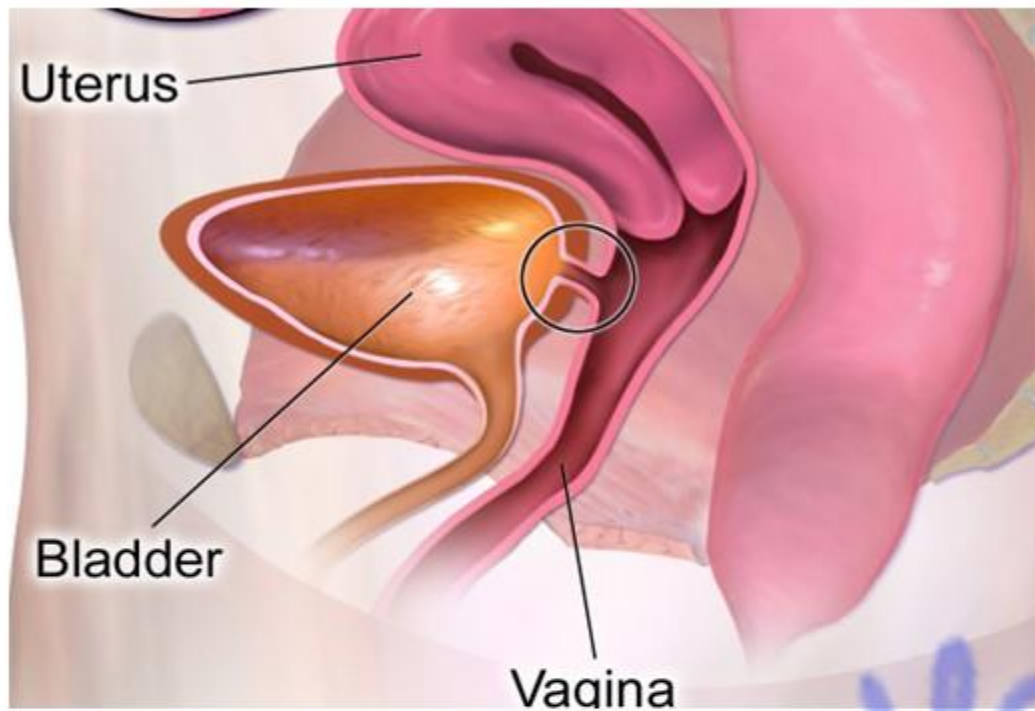
**Anomalies of urachus
(allantois):**

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

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

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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).

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- **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.

* يتم اغلاقها بالجراحه التجميلية
لكن يبقى
الشخص عقياً.
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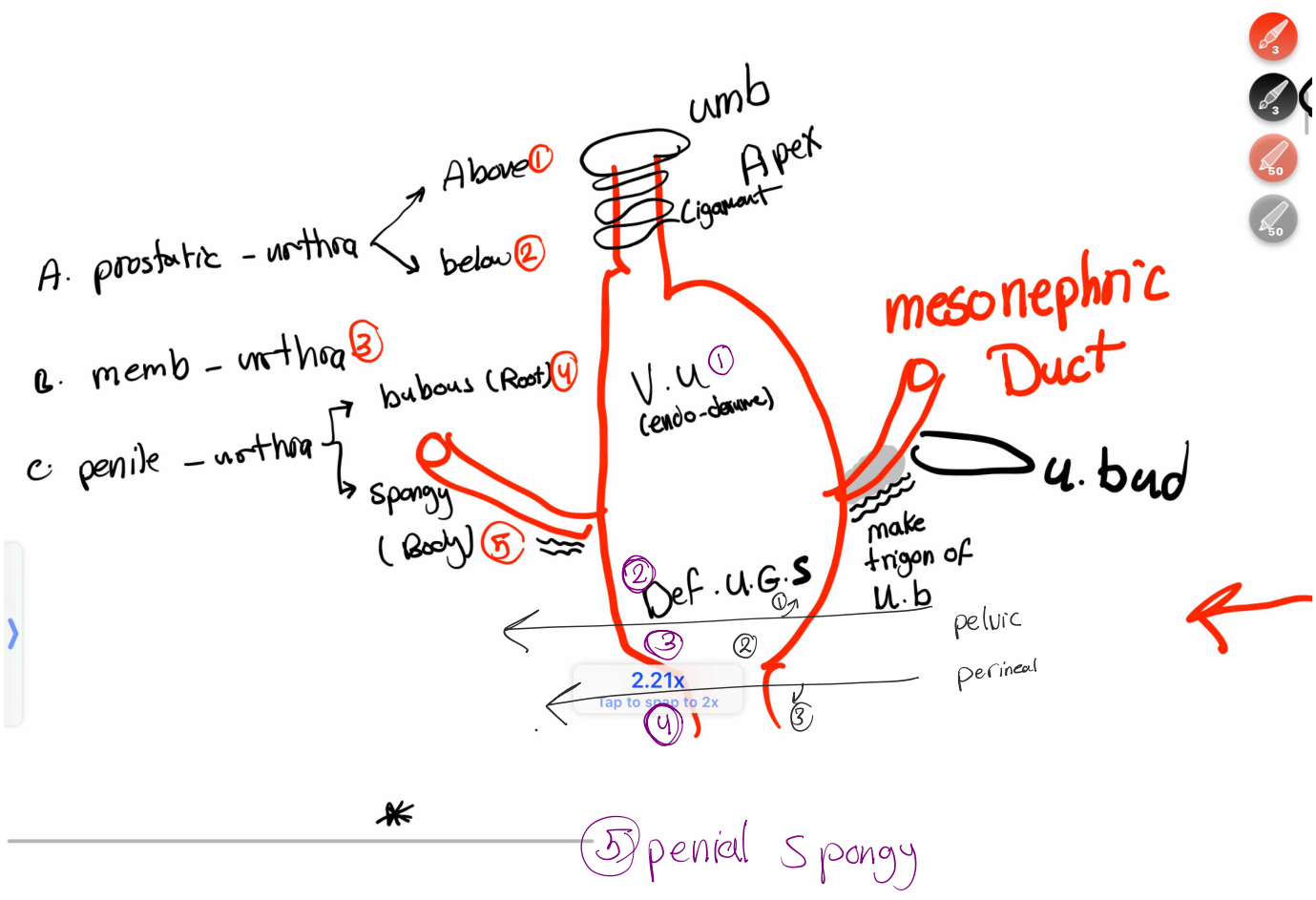
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Development of urethra

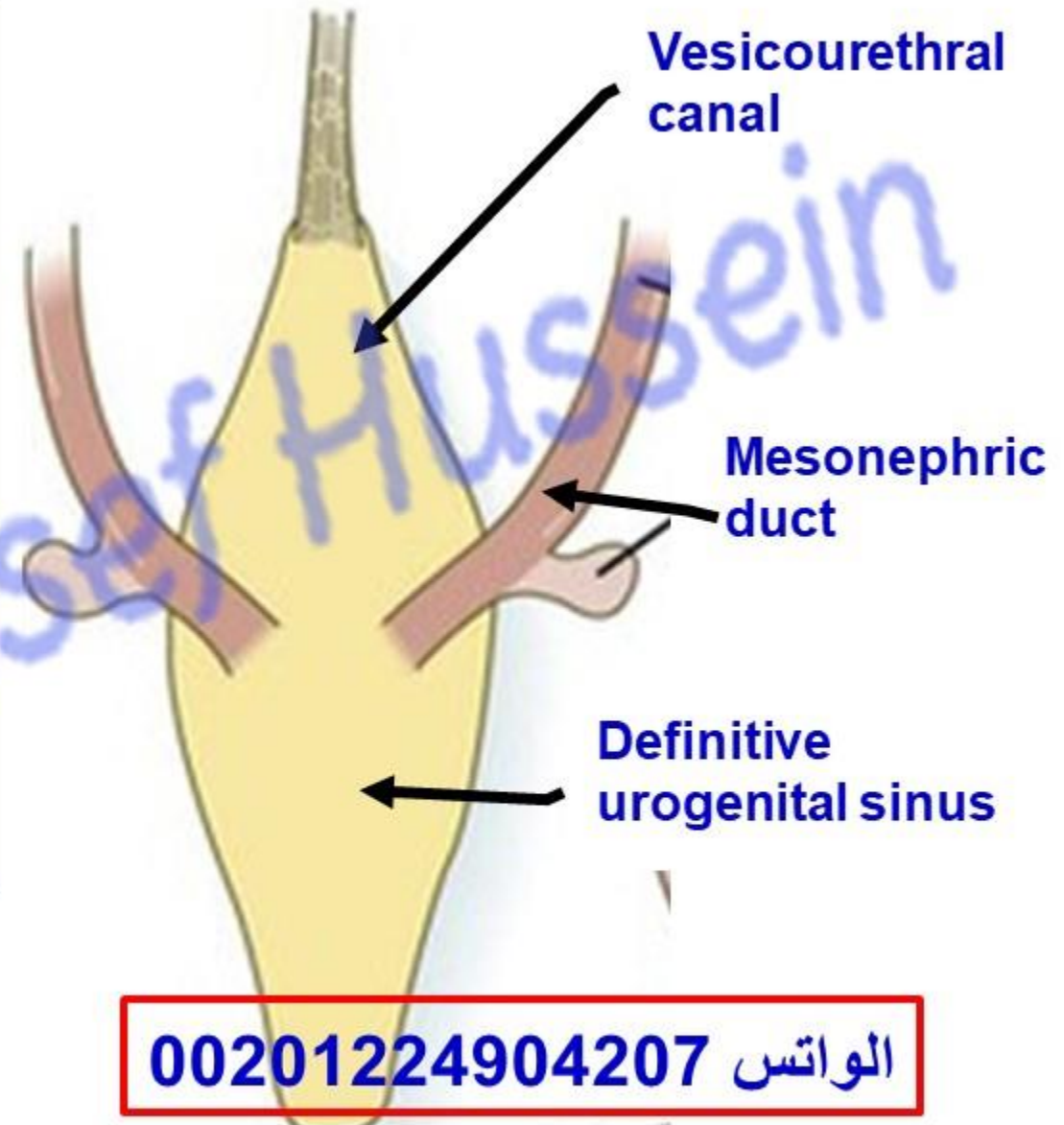
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**** Development of the female urethra**

- 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.

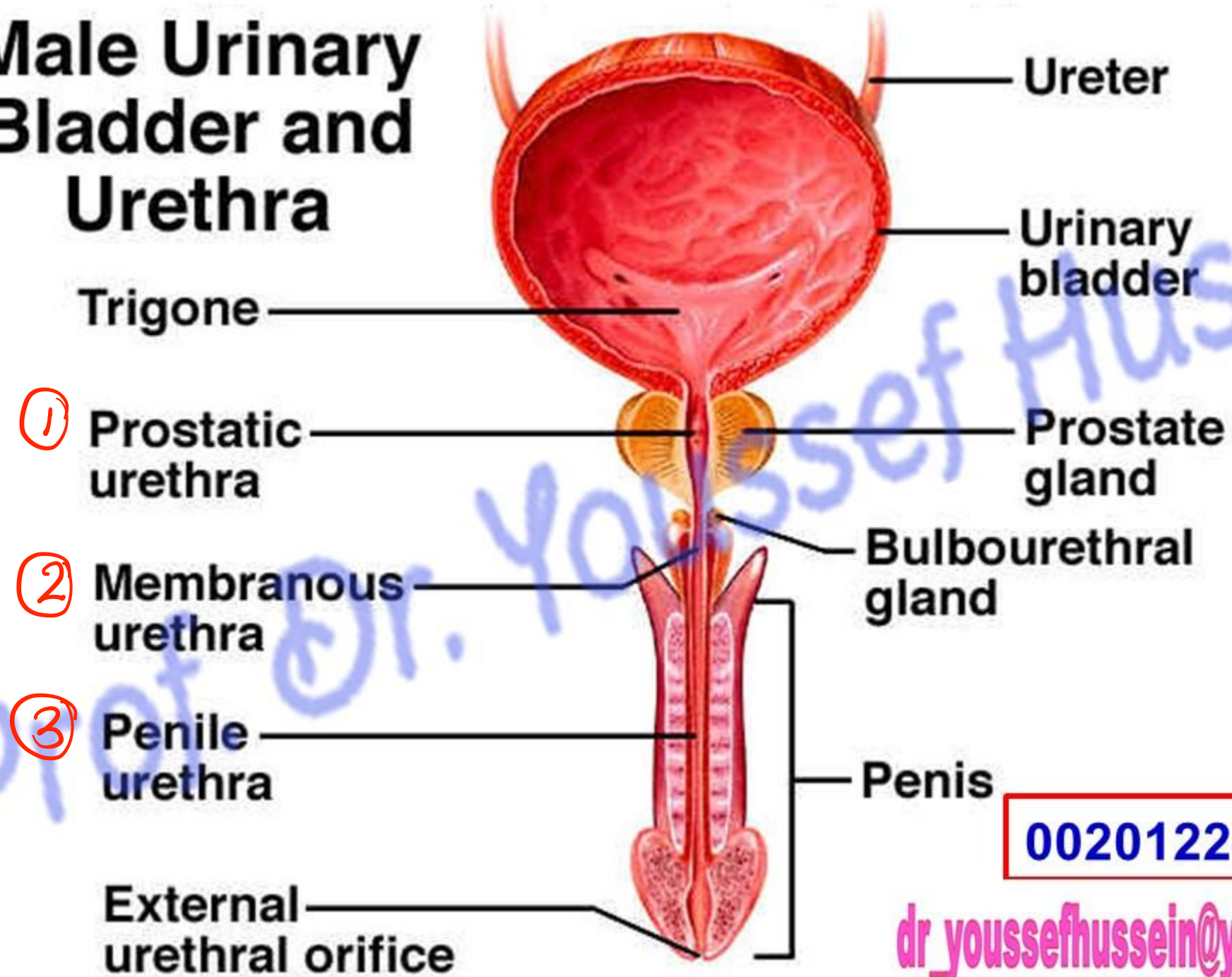


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Male Urinary Bladder and Urethra



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**** Development of male urethra**

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

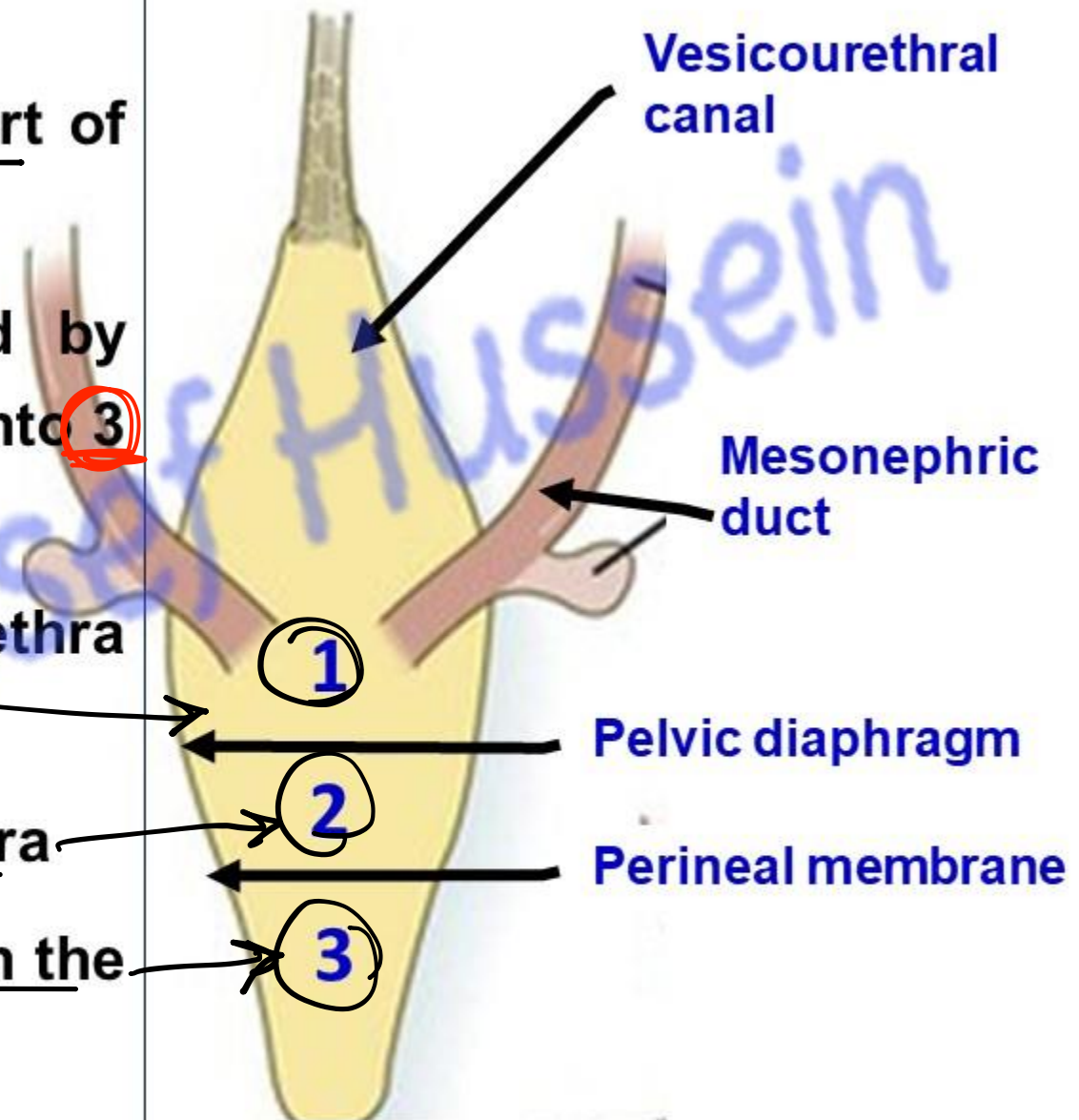
A- Definitive urogenital sinus is divided by pelvic diaphragm and perineal membrane into 3 parts:

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

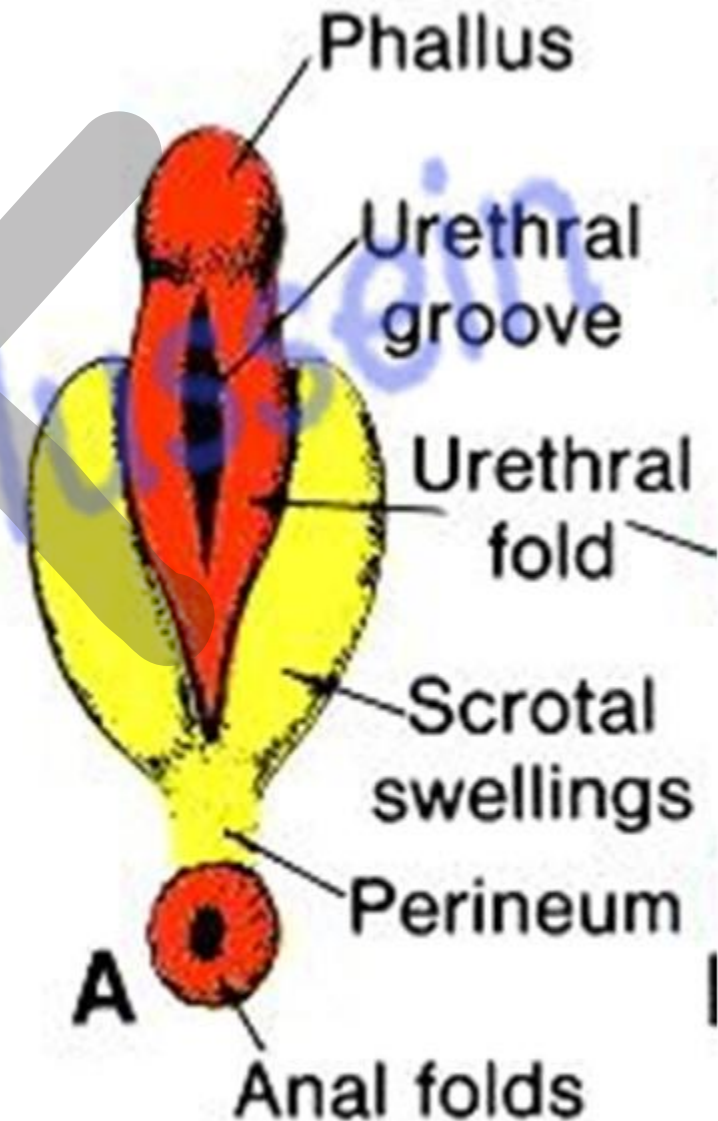
a. Inner fold called urethral fold. *أغلفة قوس*

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 ^{كلمة لاتينية معناها Penis}

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

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: ^(Glandular) at glans penis (The best one for man, can not be repair).

• Hypospadias

- The opening of the urethra (External meatus) is not located at the top of the penis, can form anywhere on the lower surface of the penis from the end of the penis to the scrotum.
- It is caused by failure in fusion of the urethral groove (Folds).

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

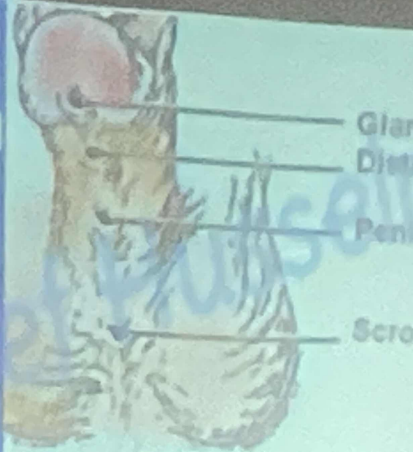
B- Incomplete:

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



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- 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

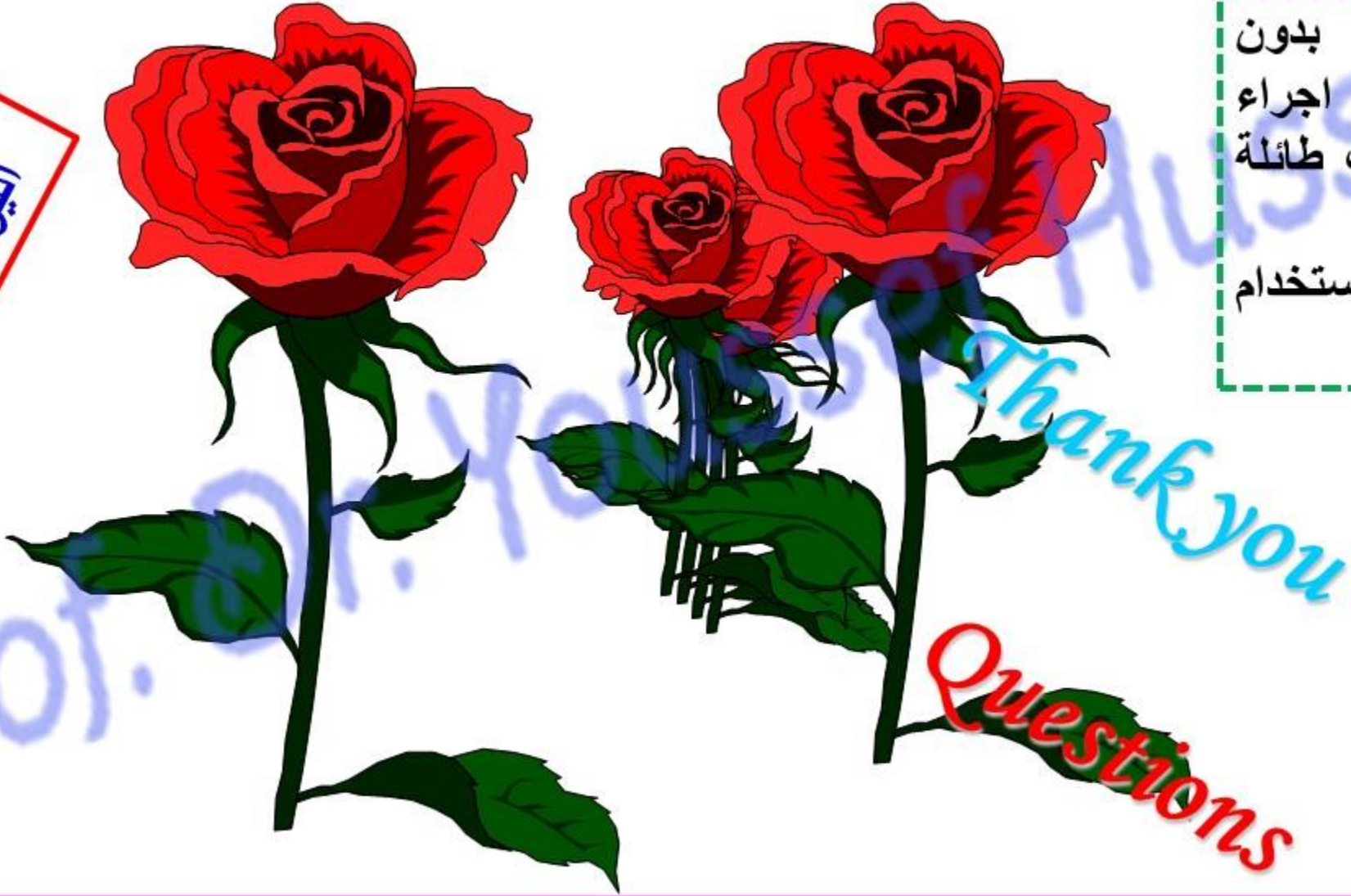
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