

#### Innervation

- Nerves derive from adjacent puronomic ptexues (renal, aortic, superior and inferior by togastric)
- Adstepsuperior to the Roless pain line
- Afferent pain fibres follow sympathetic fibres to T10-L2
- Ureteric pain usually referred to ipsilateral lower quadrant of the abdomen and groin

- The uteric orifices and the internal urethral orifice are at the angles of the trigone of the bladder
  - Orifices are encircled by detrusor muscle; when contracted, prevents reflux into the ureter



o Uvula of the bladder is an elevation of the trigone

(B) Median section of female pelvis

Taken from Moore et al, Clinically Oriented Anatomy., Seventh Edition

### Innervation

- Derived from the prostatic plexus (extension of the inferior hypogastric plexus)
- Contains sympathetic, parasympathetic and visceral afferents

### Female urethra

- Passes from internal urethral sphincter to the external urethral orifice, located in the vestibule of the vagina, anterior to vaginal orifice
- Urethral glands present paraurethral glands are homologous to the prostate
  - Para-urethral ducts of these glands open near external urethral orifice

#### Arterial blood supply and venous drainage

- Internal pudendal and vaginal arteries
- Veins follow the arteries

Innervation

- from Notesale.co.uk 27 of 29
- Visceral afferents run in the pelvic splanchnic nerves, with some from the pudendal nerve
- Visceral and somatic afferents extend from S2-4

# **Clinical note**

### latrogenic compromise of ureteric blood supply

- Ureters may be damaged during surgery by inadvertent interruption of the blood supply
- Longitudinal anastomoses are usually adequate to maintain blood supply along the ureters
- Traction of the ureter during surgery can lead to rupture

## Ureteric caliculi

- Can dilate if obstructed by a ureteric caliculus
- Large caliculi can produce pain due to hyperperistalsis at the superior region, which will migrate from lateral abdominal to inguinal regions
- Can cause obstruction to urinary flow
- Can occur at any part of the ureter, but usually at one of the three regions where ureters are relatively constricted

## Hernia of the bladder (cystocele)

- Loss of bladder support following childbirth successe collapse
  of the bladder onto the anterior support following
- Increased intra-abdominal pressure may an separation of the anterior wall of the vegina into the verificulty

# Bloode Coprure

- Can be ruptured by injuries to the inferior part of anterior abdominal wall or pelvic fractures
- Escape of urine intraperitoneally or extraperitoneally
- Can tear the peritoneum, resulting in urine in the peritoneal cavity

## Cystoscopy

- Interior of bladder can be examined with a cystoscope, via passage through the urethra
- Can be used for tumour resection

## Differences in male and female urethras

- Female urethra is distensible due to elastic and muscle tissue
- Can thus be dilated easily, and passage of catheters of cystoscopes is easier in females than males
- Infections of the urethra and bladder is more common in females due to shorter, more distensible, and opening near vaging