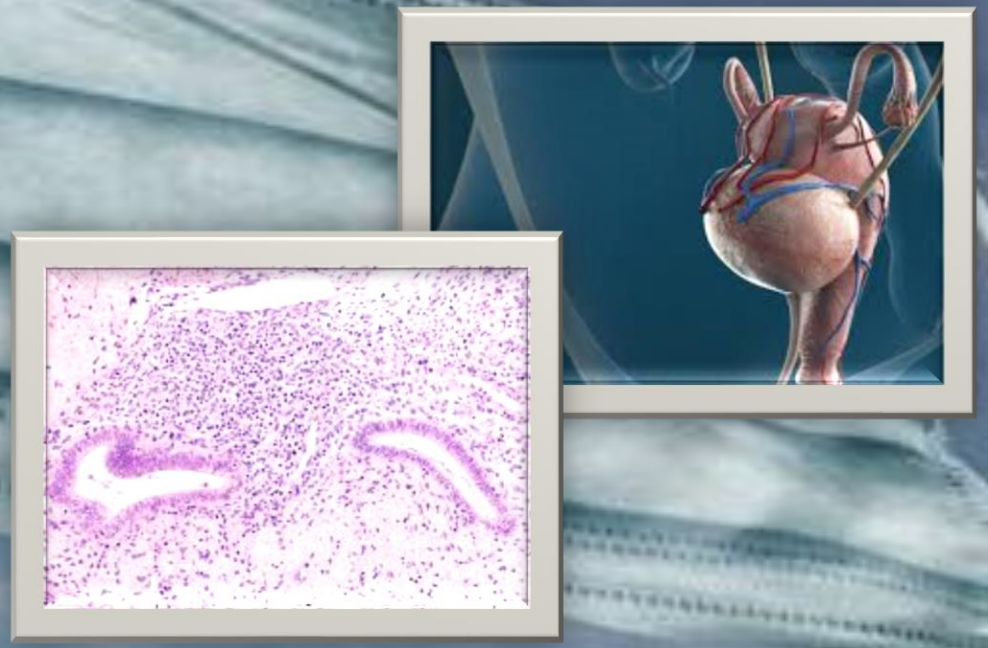
URINARY TRACT ENDOMETRIOSIS



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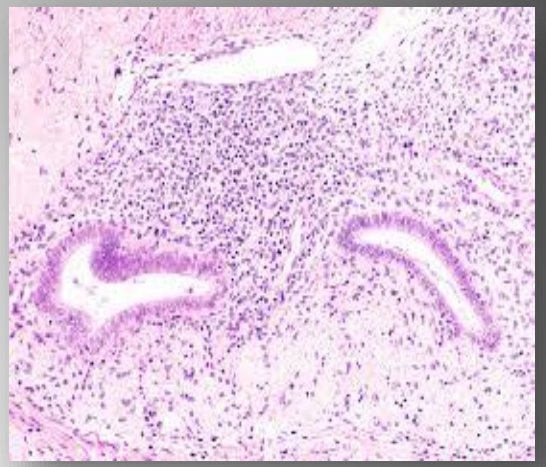
- Endometriosis is defined as endometrial glands and stroma at extrauterine sites.

- The ectopic endometrial implants are typically located in the pelvis but can occur throughout the body.

Urinary tract endometriosis



- BLADDER
- URETER
- Kidney
- Urethra

The most common sites

1 **Clinical presentation** of endometriosis of the bladder & ureter

2 **Diagnosis** of endometriosis of the bladder & ureter

3 **Management** of endometriosis of the bladder & ureter

# of urinary tract endometriosis

Unclear

- Lymphatic / hematogenous dissemination
- Retrograde menstruation
- Coelomic metaplasia
- Spread of endometrium-derived stem/progenitor cells
- Altered genetic or immune factors
- Iatrogenic factors

- (>50 %) of women with endometriosis may be asymptomatic

- The prevalence of urinary tract endometriosis in the general population

- Among women with pelvic endometriosis: (1%)

  (most commonly **bladder** endometriosis)

- Endometriosis of the ureter is rare
(estimated prevalence of **0.1 %**).

- in the subpopulation of women with DIE: **(20 - 50 %)**

- Among women with urinary tract endometriosis:
the prevalence of disease at specific sites :
  - Bladder **(85 - 90 %)**
  - Ureter **(10 %)**
  - Kidney **(4 %)**
  - Urethra **(2 %)**

Bladder endometriosis

- An endometriotic lesion that infiltrates the detrusor muscle and can be either partial or full thickness.

- A mean age of diagnosis of 33 years (range of 20 -57 years)

Bladder endometriosis

Clinical manifestations

- **Bladder pain**
- **Dysuria**
- Hematuria
- Frequency
- Urinary tract infection
- Urgency
- Urinary incontinency
- Asymptomatic

The most common symptoms (70%)

Rare

Bladder endometriosis

- Symptoms of bladder endometriosis may worsen with menses

- Hematuria a is rare presentation and typically coincides with menses

Bladder endometriosis

Diagnostic evaluation in cases suspected having bladder endometriosis

HX & P/E

- dysuria
- voiding dysfunction
- infection
- hematuria

limited laboratory testing

- U/A
- If suspected U/C

Imaging

- Pelvic & renal sonography

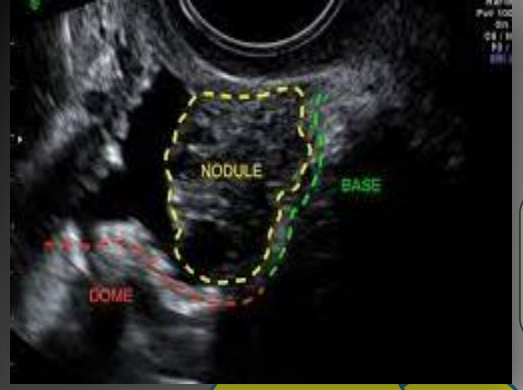
Specific assessment on :
Trigone
Bladder base
Dome

Endoscopy

- If hematuria/ bladder nodule on imaging presented cystourethroscopy

- Bx
- R/O malignancy
- measuring the distance between the lesion to ureteral meatus

Bladder endometriosis



Ultrasound findings in bladder involvement :

Ultrasound may detect partial-thickness lesions not visible with cystoscopy

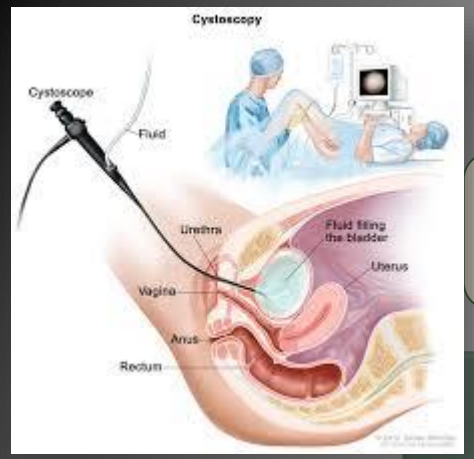
- **Nodules**
- **Abnormal adherence of adjacent structures in the vesicouterine pouch**
- **Hydronephrosis**

ultrasound has detection rate as high as **97 %**

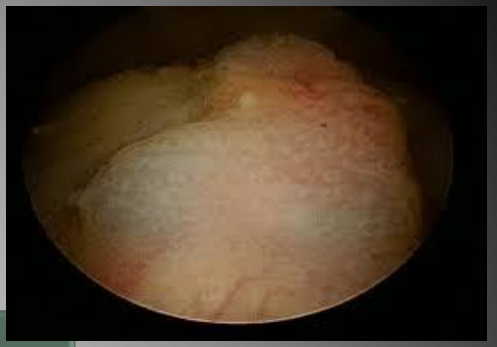
It may detect partial-thickness lesions not visible with cystoscopy

Bladder lesions + **Hydronephrosis** → additional radiologic assessment of ureter → (CT) urogram

Bladder endometriosis



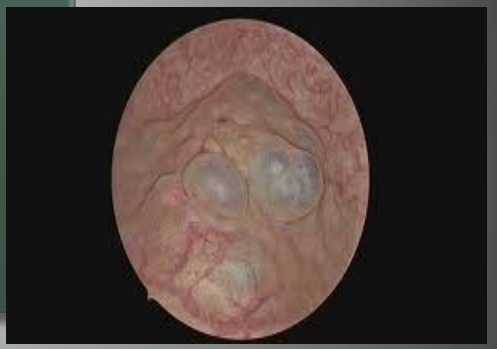
cystourethroscopic findings in bladder involvement :



Edematous/bluish submucosal lesions that are located posterior to trigone or on dome

The lesions can be large and multiple /often single

(approximately 1 cm in size)



The intramural lesions are identified on ultrasound & not visible on cystourethroscopy

→ MRI →

To provides information on the extent of disease &t aid in surgical planning

Bladder endometriosis

- **Endometriosis is a histologic diagnosis of tissue resected during cystoscopy / laparoscopy**
- **BX is necessary to exclude malignancy**

- As the presenting symptoms of urinary tract endometriosis are often **nonspecific urinary symptoms**, other urinary tract abnormalities should be excluded as part of the evaluation

- Alternate causes of **dysuria, voiding dysfunction & bladder pain** :
  - Urinary tract infection
  - Interstitial cystitis/bladder pain Sy
  - Urinary tract stones
  - Benign lesions (papilloma , angioma)
  - Malignancy

- **UTI** is excluded with negative U/C.

- **Unitary tract stones** commonly present with episodic crampy pain , gross or microscopic hematuria.

- stones are typically identified on non-contrast CT scan/ultrasound studies.

- **Interstitial cystitis/bladder pain syndrome (IC/BPS)** is a clinical diagnosis based upon symptoms (bladder discomfort associated with bladder filling & pelvic tenderness on examination).

It is often a diagnosis of exclusion, once other etiologies (bladder endometriosis , malignancy)have been R/O.

- **Bladder neoplasms** can be benign /malignant.

Cystoscopy with tissue BXcan differentiate:
- papillomas,
- angiomas
- malignancy
- endometriosis

Bladder endometriosis

- Resolving the symptoms

- Asymptomatic women can be observed

Bladder endometriosis

- Must be continued until menopause
- Not effective in all women

Medical RX

- To avoid the risk of surgical complications
- To treat pain symptoms associated with pelvic endometriosis

Bladder endometriosis

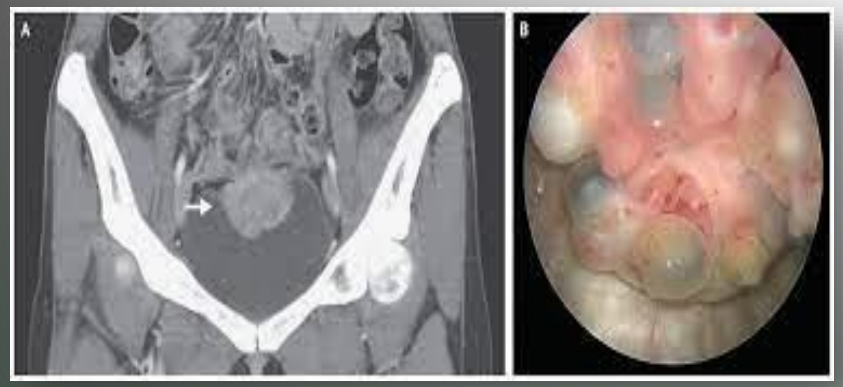
- **2 EXCEPTION :**

1- The patient with both bladder endometriosis & hydronephrosis

2 –The patients with ureteral endometriosis

- The surgery should be selected as the 1st treatment option to prevent subsequent renal damage

Bladder endometriosis



- Failed medical RX
- Not acceptable for the patient
- To avoid chronic medical RX

Bladder endometriosis

- The data comparing surgical therapy **VS.** Medical therapy are limited

Bladder endometriosis

- **Medical options:**

1- combined estrogen-progestin contraceptives

2 - progestins

3 – GnRH agonists

- **In one cohort study on women with deep dyspareunia from DIE (urinary & rectovaginal):**

- **60 %**of women treated medically were satisfied
- **1/3** of women had an inadequate response to medical RX & required surgical management

Vercellini .et al. Hum Reprod 2012; 27:3450

Bladder endometriosis

- Start hormonal contraceptives:

- easy to use & obtain
- low cost
- low risk

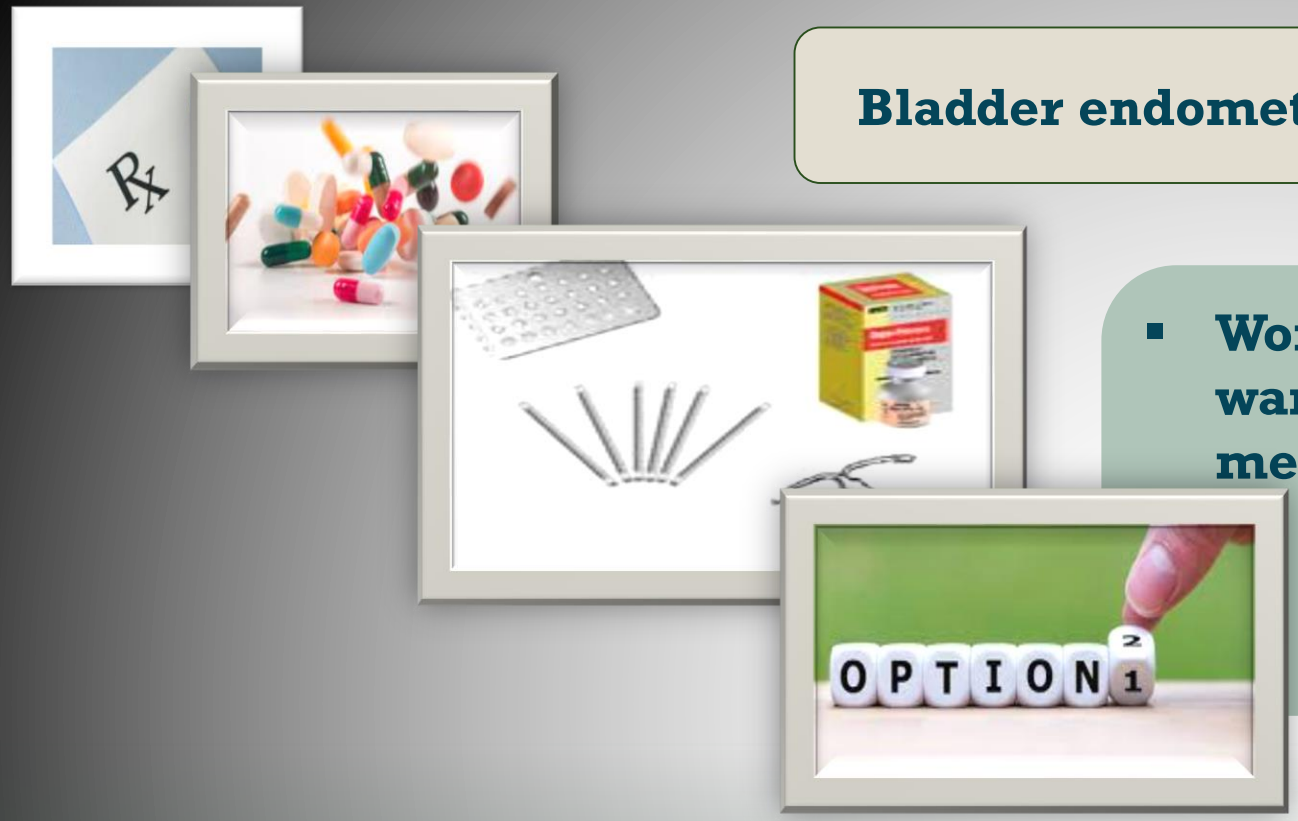
- Start with a cyclic regimen of OCP

(3 weeks of therapy followed by a placebo week)

- If perimenstrual symptoms do not resolve within 3 - 6 months

- switch to a continuous schedule for menstrual suppression

Bladder endometriosis



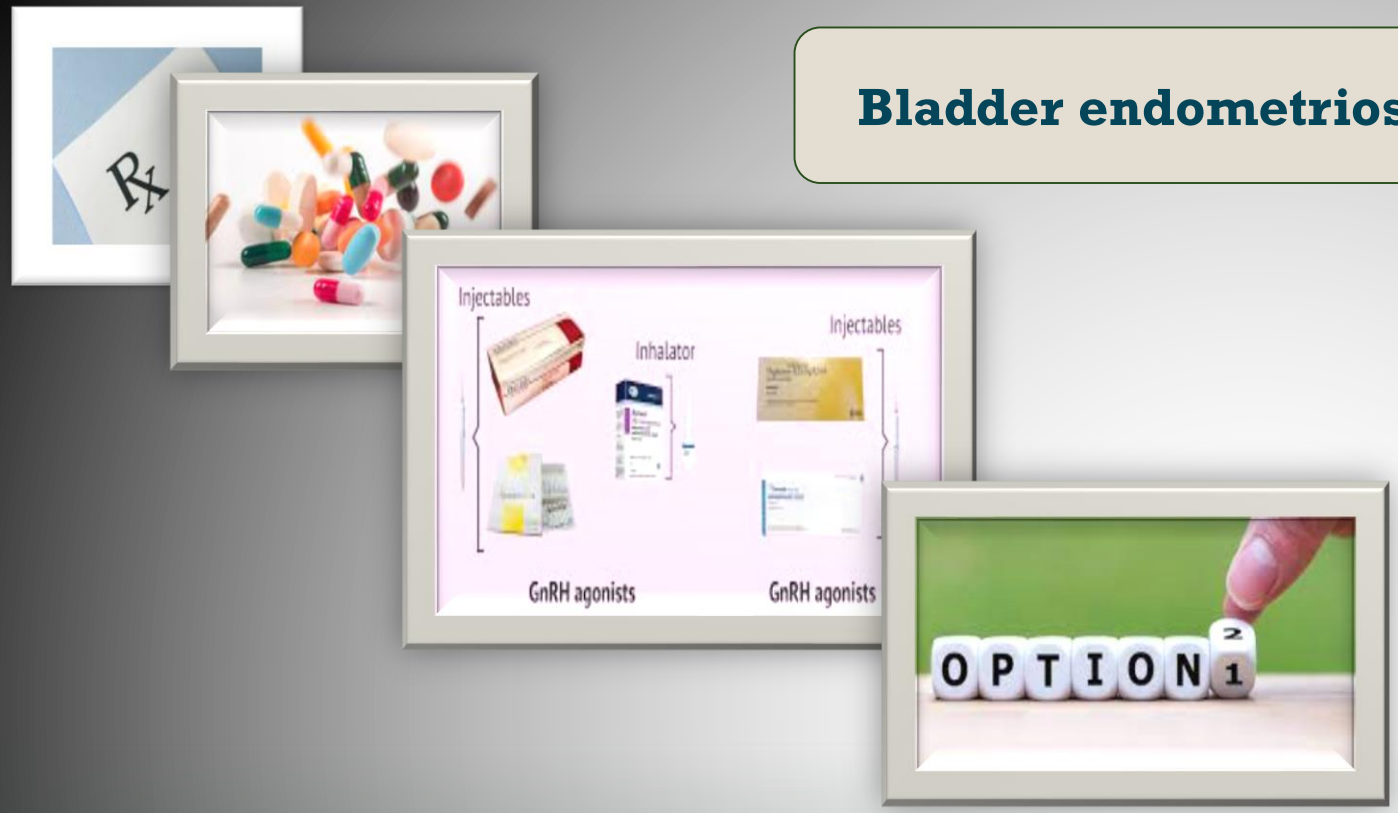
- **Women who are not candidates for or do not want combined estrogen-containing medications:**

Start progestin-only methods
(pills, injection, implant, IUDs)

- Select the method (based on):

- **Dosage**
- **Contraceptive need**
- **Cost**

Bladder endometriosis



- **For women who cannot use or do not respond to estrogen-progestin / progestin-only methods:**

- Start a trial of GnRH agonist

- can be used with or without estrogen-progestin add-back therapy

Bladder endometriosis

- **For women whose symptoms improve with medical RX:**
  - continue RX until they desire pregnancy / reach menopause

- **For women whose symptoms do not respond to medical RX within 6 months:**
  - Offer surgical treatment

Bladder endometriosis

- **Surgical procedures :**

1 - laparoscopic shaving of serosal lesions
2 - Full thickness resection of deeply infiltrating lesions

- **Ureteral stent placement**
- **Lesion dissection and excision –**
- **Ureter reimplantation**

- Most surgeries are performed laparoscopically
- Laparotomy can be required for extensive disease that cannot be optimally managed laparoscopically

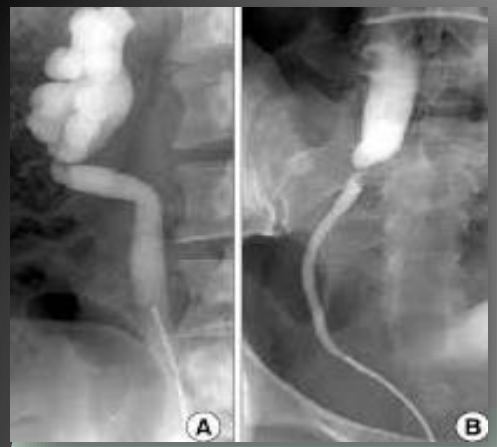
- Hydronephrosis is uncommon with bladder nodules
- In cases with bladder lesions & hydronephrosis an additional radiologic assessment of the ureter(CT-urogram) should be requested

Bladder endometriosis

1- Vesical hematoma

2 - Vesicovaginal fistula

- Complete surgical removal of bladder endometriosis is associated with long-term control of symptoms



Ureteral endometriosis

- The endometriotic involvement of the ureter that can be either intrinsic or extrinsic

- **A mean age of diagnosis of 33 years (range of 20 -57 years)**

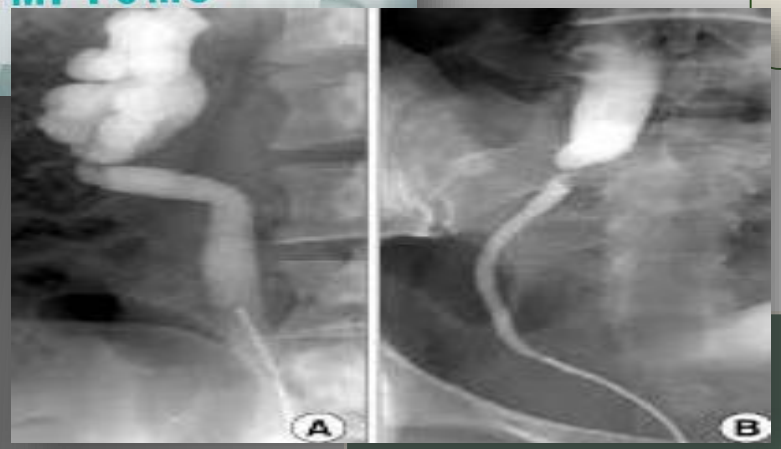
- **Extrinsic ureteral endometriosis (60%):**

The endometriosis lesions involves the peritoneum overlying the ureter & causes compression of the ureteral wall

- **Intrinsic ureteral endometriosis (40%):**

- An endometriosis lesion develops within the ureter wall & results in fibrosis and proliferation of the ureteral muscularis
- Rarely, the mucosa can also be involved
  (a polypoid mass projecting into the lumen)

Ureteral stenosis
Ureteral obstruction



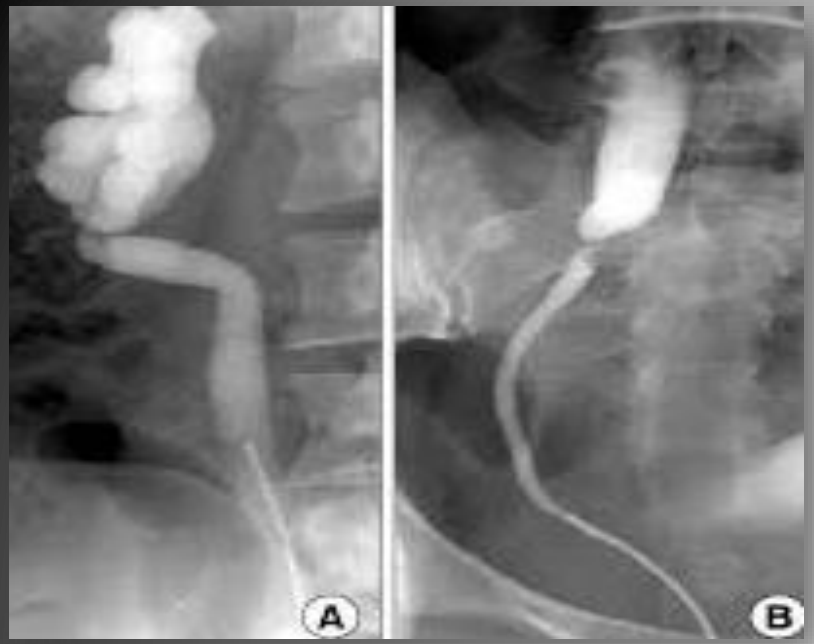
Ureteral endometriosis

Clinical manifestations

In asymptomatic patients , the diagnosis is made:

- at pelvic surgery
- by imaging for other indications: unexplained hypertension renal failure develop

- Colicky flank pain — 25%
- Gross Hematuria — 15%
- Nonspecific symptoms
  - Dysmenorrhea
  - Dyspareunia
- Asymptomatic — 50%



Ureteral endometriosis

For women diagnosed with severe ureteral stenosis or obstruction , it should be done preoperative renography to determine if the kidney is salvageable

Diagnostic Evaluation

- HX+PE
  - The same as for women suspected of having generalized endometriosis
- Evaluation of renal function
  - U/A-U/C
- Pelvic &Urinary tract sonography
  - If hydroureter or hydronephrosis was detected in sonography
  - Other imaging modalities (IVP - MRI - **CT**)
- Cystourethroscopy
- Tissue biopsy
  - **GOLD STANDARD**

Hematuria + Flank pain

- UTI
- Stone
- Neoplasm
- Endometriosis

Ureteral endometriosis

- **Ureteral obstruction should be operated as soon as the diagnosis is made**

- Medical RX does not typically resolve the fibrotic component of the lesion, which is largely responsible for the anatomic distortion & obstruction
- the risks of poor medical response include worsened obstruction & decreased renal function.

Ureteral endometriosis

1 - to remove the endometriotic lesion(s)

2 – to restore ureteral anatomy

3 – to prevent loss of renal function

Ureteral endometriosis

1 - to remove the endometriotic lesion(s)

2 – to restore ureteral anatomy

3 – to prevent loss of renal function

- **Ureterolysis**
- **Ureterectomy with ureteroureteral anastomosis**
- **Ureteroneo-cystostomy**
- **Excision of all endometriosis lesions**

Ureteral endometriosis

1- Persistent / recurrent ureteral stenosis **(7.4 %)**

2 - ureteral /ureterovaginal fistula **(1.6%)**

3 - hemoperitoneum **(0.4 %)**

- **The rate of persistent / recurrent ureteral stenosis appears to vary by type of surgical procedure:**

- Ureterolysis alone **(8%)**
- Ureterectomy with ureteroureteral anastomosis **(11 %)**
- Ureteroneocystostomy **(3 %)**

SPECIAL Populations

- **Combined bladder & ureteral endometriosis**

- **Iatrogenic bladder endometriosis**

The surgeries disrupt (**C/S- myomectomy**)

- **Incidental endometriosis**

If appropriate informed consent has not been obtained , defer the extensive surgery on ureter
(cutting of the ureteral adventitia or ureteral resection)

- **Pregnant women**

Removal of bladder endometriosis is contraindicated in pregnancy

-Increased pelvic blood flow (risk of hemorrhage)
-Gravid uterus does not facilitate tissue planes & resection of endometriotic lesions


Thanks for your attention