

## Postmenopausal endometriosis with ureteric involvement

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Ureteral endometriosis is a rare clinical condition in postmenopausal women. It should be considered as one of the differential diagnoses in women presenting with a lower ureteric mass, as it can lead to silent loss of renal function. We present a case of a chronically obstructed kidney due to ureteric endometriosis in a postmenopausal woman.

### Introduction

Endometriosis is a benign growth of endometrial mucosa outside the endometrial cavity and uterine musculature. It is an estrogen-dependent clinical condition seen in 15% of women in the reproductive age group, generally affecting women between 25 to 45 years (1, 2, 3). Though rare, it has also been reported in approximately 2-5% of postmenopausal women (4). Urinary tract involvement with endometriosis is also rare (less than 2% of cases) (5).

### Case report

A 63-year-old postmenopausal female was evaluated for right-sided upper abdominal and loin pain. She reported progressively increasing spasmodic right-upper-abdominal discomfort over the past couple of years. She also complained of nocturia but denied other urological and bowel symptoms. Her past surgical history included hysterectomy with bilateral salpingo oophorectomy at the age of 48 for fibroids; she never started hormonal replacement.

On evaluation in the clinic, she was afebrile with normal vital signs. On physical examination, her abdomen was soft and nontender with no palpable mass.



Figure 1. 63-year-old postmenopausal female with ureteral endometriosis. Transabdominal ultrasound showing right-sided hydronephrosis.

Laboratory findings included a normal white-blood-cell count ( $5.4 \times 10^9/l$ ), hematocrit (13.9g/l), serum urea (8.6 mmol/l), and serum creatinine ( $85 \mu\text{mol/l}$ ).

Transabdominal sonography demonstrated multiple gallstones and right-sided hydronephrosis (Fig. 1). An abdominal/pelvic CT scan with oral and IV contrast confirmed chronic right-sided hydronephrosis with very minimal cortex (Fig. 2b). There was a 3.6-cm mass along the right pelvic side wall at the level of iliac bifurcation with proximal right hydroureteronephrosis. The mass was centered on the cecal pole and could be arising from the cecum, appendix, or the right ureter (Fig. 2a). There was no associated lymphadenopathy. A MAG 3 renogram showed a right-sided nonfunctional kidney (Fig. 3). Tumor markers for bowel carcinoma and carcinoid tumor were within

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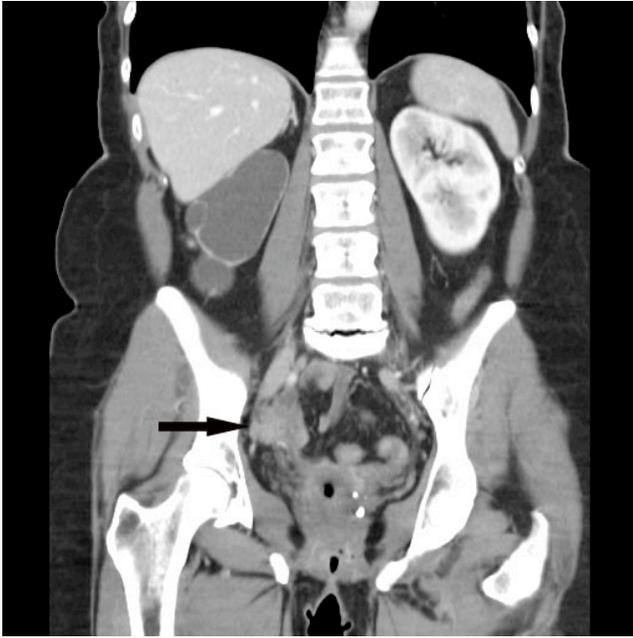


Figure 2A. 63-year-old postmenopausal female with ureteral endometriosis. Coronal CT scan showing a mass in the pelvis (arrow) causing right-sided hydronephrosis.



Figure 2B. 63-year-old postmenopausal female with ureteral endometriosis. Axial CT scan view showing a mass in the pelvis (arrow) inseparable from the cecum.

normal range: Ca 12-5 = 19U/ml (<30U/ml), LDH=370IU/L (230-460IU/L), AFP=4KU/L (<15KU/L), CEA=1ng/ml (<5ng/ml), Urine cytology=normal, Chromogranin A&B=Normal, and 5 HIAA/Creat ra-

tio=Normal (<10 $\mu$ mol/mmol). A colonoscopy was attempted, but it was not possible to reach the cecum, so the procedure was abandoned. The patient further proceeded to undergo a diagnostic laparoscopy for evaluation of the tissue mass, which was later converted to laparotomy for resection of the mass. The specimen was sent for histopathology and was reported as a fibromuscular tissue variably lined with endometrial, tubular, and cervical types of epithelium, in keeping with endometriosis.

### Discussion

Endometriosis depends on cyclic hormonal stimulation. The main source of estrogen in women in their reproductive age group is ovaries, while in postmenopausal women it is in the form of hormonal replacement therapy or by peripheral conversion of androstenedione to estrone in skin and adipose tissue.

The exact pathogenesis of endometriosis is still not clear, but different theories have been suggested. The main theories are embryonic, migratory, and immunogenic (1, 3) although most of the time the cause of origin is multifactorial. Endometriosis mainly affects the pelvis and pelvic organs. The most common site is the ovaries, followed by the surrounding peritoneum, round ligaments, fallopian tubes, bladder, sigmoid colon, and rectum. A few cases have been reported involving the inferior vena cava (6), kidneys, and distant metastasis in lungs and CNS (7). Involvement of the urinary tract has been reported in around 1-2 % of all cases, and involvement of ureter has been reported in 0.1-0.4% of cases (5), with the urinary bladder being the most common site, followed by the ureter and urethrae. The left ureter is more commonly involved than the right because of its close anatomical proximity to the female reproductive organs (8). The incidence is more in the lower third compared to the middle and upper third of the ureter (1).

Postmenopausal endometriosis was first reported in 1942 by Hayden (9). Stewart and Ireland were the first to report a case of vesical endometriosis in a postmenopausal woman (10). Although a rare condition, it should be considered in postmenopausal women and women who have undergone hysterectomy with classical symptoms of endometriosis, like pain.

Endometriosis cases involving the bladder present with symptoms of dysuria, urinary frequency, and hematuria (11, 12). Involvement of the ureter may present with acute abdominal and flank pain, gross hematuria, recurrent infections, and some times with palpable pelvic mass. In 50% of patients, the condition is asymptomatic (1) and presents with obstructive uropathy, which can cause significant morbidity such as silent and progressive loss of renal function (as seen in the case reported).

The management of endometriosis is mainly medical but may also require surgical intervention. Because endometriosis depends on estrogen, medical treatment aims to reduce the level of estrogen or antagonize its effect using drugs like danazol, GnRH analogues, and medroxyprogesterone and aromatase inhibitors. In postmenopausal women, aro-

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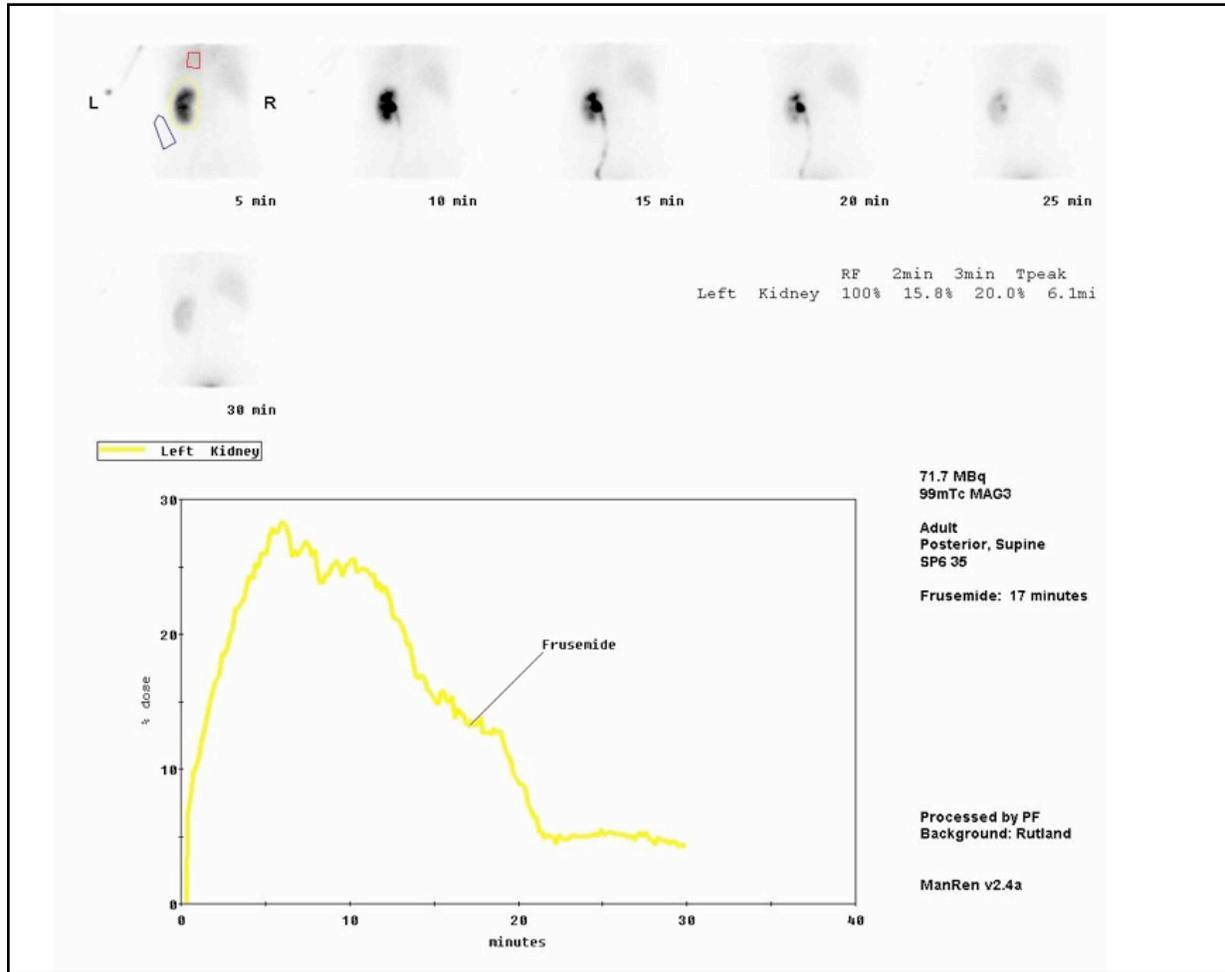


Figure 3. 63-year-old postmenopausal female with ureteral endometriosis. MAG 3 Renogram showing right side nonfunctional kidney.

matase P450 helps convert steroids to estrogens in adipose tissue; hence, aromatase inhibitors play a promising role in these patients (13). Surgical management depends on the extent of disease and the remaining renal function; its goal is to relieve or remove the obstruction. If renal function is salvageable, then ureterolysis or resection of the affected segment of ureter followed by primary anastomosis in the form of primary ureteroureterostomy or ureteral reimplantation can be done. In cases where renal function is not salvageable, laparoscopic nephrectomy is the best option; this was done in the reported case.

Though rare in postmenopausal women, ureteric endometriosis should always be considered as a differential diagnosis in chronic obstructive uropathy, especially in patients presenting with a mass in the lower third of the ureter and bladder. It can lead to silent loss of renal function, which later can lead to nephrectomy.

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