

# Isolated ureteric endometriosis presenting as a ureteric tumor

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## Abstract

A 32 year old lady presented with recurrent left flank pain for 4 weeks and chronic lower back pain. CT without contrast showed no stones and mild left hydronephrosis. CT of the spine suggested an inflammatory process at L5-S1 vertebra. The diagnosis was supported by a bone scan. Incidentally, the scan showed nonfunctioning left kidney. Diuretic renography confirmed poor perfusion and no excretion. A retrograde study showed narrowing of the ureter at the pelvic brim. Ureterscopy showed a papillary mass in the lumen of the ureter from which multiple cold cup biopsies were taken. The pathology however was not conclusive. A robotic nephroureterectomy was carried out. Definitive pathology showed intrinsic endometriosis of the ureter. We conclude that endometriosis should be considered in the differential diagnosis of unexplained ureteric obstruction and ureteric lumen filling defects in young women.

**Key Words:** Endometriosis, tumor, ureter

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## INTRODUCTION

Ureteric endometriosis is rare. Abrao 2009 found only 12 ureteric involvements in 690 patients who underwent laparoscopy with histologically proven endometriosis.<sup>[1]</sup> In another large series of patients with pelvic endometriosis hydronephrosis was found in 3% of cases, more than half of them did not have urological symptoms.<sup>[2]</sup> It is reported in one series that only 10% of ureters affected by endometriosis had obstruction and hydronephrosis, all due to extrinsic involvement.<sup>[3]</sup> Extrinsic compression occurs due to fibrosis of the overlying tissues and is associated with endometriosis of the peritoneum, pelvic ligaments or

ovaries.<sup>[3,4]</sup> Less commonly endometriosis is present in the wall of the ureter forming the intrinsic type accounting for 2.5-42.8% of ureteric involvement.<sup>[5-8]</sup> Some authors reported that 85% of the patients with hydronephrosis secondary to endometriosis were successfully managed with ureterolysis as the primary procedure.<sup>[6]</sup> However, in another prospective study of 56 patients with endometriosis and ureteral dilatation, ureteroureterostomy had less complications and recurrences than ureterolysis.<sup>[9]</sup> Unfortunately occasional loss of the kidney was reported in different series.<sup>[8,9]</sup>

## CASE REPORT

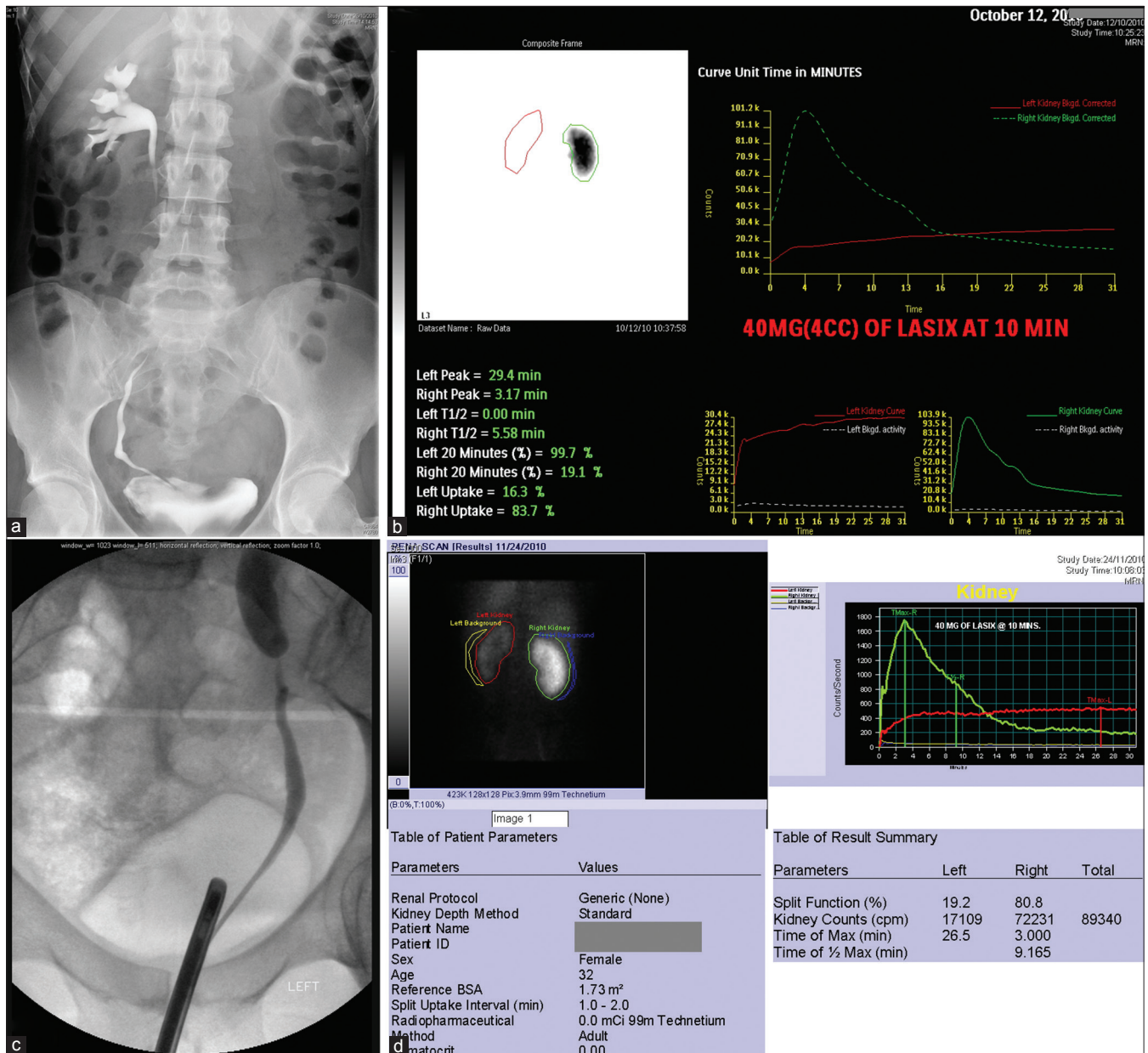
A 32 year old lady presented with recent onset left flank pain which was not associated with any precipitating events. She had chronic lower back pain. She had no gross hematuria, fever or lower urinary tract symptoms. Her menstrual history was normal. She reported no abdominal or pelvic pain, no dyspareunia and had normal bowel motion. She gave no history of smoking, past medical surgical or gynecological treatment or intervention. Examination of the patient revealed no abdominal or pelvic tenderness or masses. Urine analysis showed microscopic

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hematuria and pyuria. Urine culture was positive for Klebsiellae pneumoniae. Serum creatinine was 59 umol/L. CT scan without contrast showed no stones and mild left hydronephrosis. The patient was discharged on antibiotics and analgesics for follow up. A 7 day course of ciprofloxacin eradicated the infection. Imaging for evaluation of the lower back pain indicated osteoarthritis at vertebra L5-S1. A bone scan confirmed this diagnosis and accidentally revealed poor tracer uptake of the left kidney. The patient was referred to Urology.

An intravenous urography showed no excretion from the left kidney [Figure 1a]. A diuretic renogram using 99mTc-MAG3

showed poor excretion of the left kidney [Figure 1b]. A retrograde study was carried out which revealed a short narrow segment in the ureter at the junction of the lumbar and pelvic ureter [Figure 1c]. Ureteroscopy showed a papillary growth obstructing the lumen of the ureter. A cold cup biopsy was taken from the lesion. A double J stent was left indwelling. Microscopic pathology was not conclusive indicating an inflammatory process. A repeat renal scan with the JJ stent indwelling for 16 days, failed to show any improvement in renal function or excretion [Figure 1d]. The patient was informed that in view of the poor functioning kidney and the high risk of harboring a malignant ureteric tumor surgery is



**Figure 1:** Radiological investigations of the left renal unit. (a) An intravenous pyelogram showing no excretion from the left kidney. (b) A diuretic renogram showing no excretion of the left kidney. (c) A retrograde ureterogram showing filling defect of the left ureter at the pelvic brim. (d) A repeat diuretic renogram, 2 weeks after ureteric stent insertion, showing no improvement of excretion of the left kidney



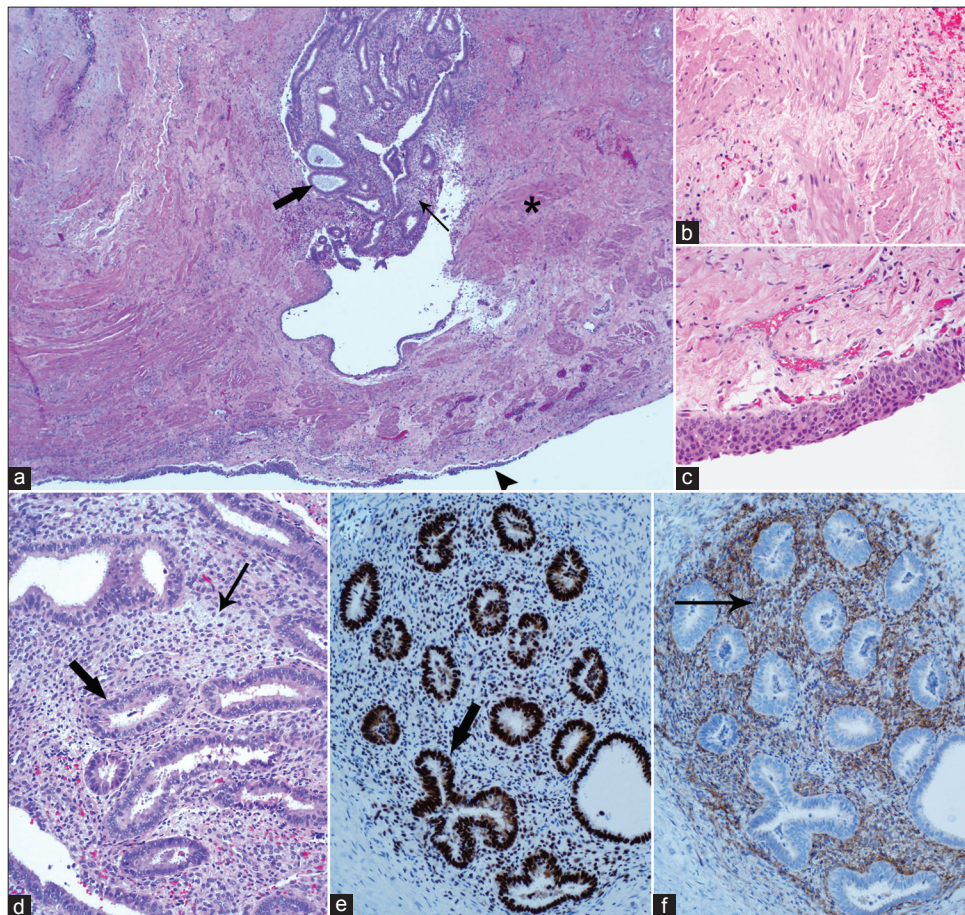
indicated. A robotic nephroureterectomy with a bladder cuff was carried out with an uneventful course. During the surgery the left ureter was seen at the pelvic brim surrounded by adhesions and scar tissue. No other gross lesions were identified intraoperatively. Macroscopic examination of the ureter at the site of narrowing showed a firm nodule covered by bluish-red mucosa measuring  $1.5 \times 1.5$  cm. Microscopic examination of the ureteric nodule revealed benign endometrial gland and stroma underlining the normal urothelium [Figure 2a-d]. Immunohistochemical studies were performed for estrogen receptor and CD10. The endometrial glands were positive for Estrogen receptor [Figure 2e] while the endometrial stroma was positive for CD10 [Figure 2f].

## DISCUSSION

Endometriosis is suspected when pelvic pain, dyspareunia, dysmenorrhea, dyscasia, low back pain or infertility are seen in women of child bearing age.<sup>[10]</sup> In a series of patients with proven endometriosis causing ureteric obstruction, 91%

presented with dysmenorrhea and 68% with dyspareunia.<sup>[9]</sup> Our patient had no symptoms that raised the suspicion of endometriosis. Investigations for low back pain however showed osteoarthritis of the lumbosacral vertebra, leading away from considering endometriosis in the differential diagnosis. The incidental finding of nonfunctioning left kidney lead to further urologic investigations resulting in the diagnosis of a filling defect in the ureter. Although biopsy from the lesion was not indicative of carcinoma, a high index of suspicion combined with nonfunctioning kidney even after adequate drainage lead to surgical removal of the kidney and ureter.

The definitive diagnosis of endometriosis is through laparoscopic findings. The presence of characteristic lesions in the pelvic peritoneum and the ovary accompanied by histopathology confirm the diagnosis.<sup>[11]</sup> We performed intraperitoneal robotic nephroureterectomy. During the procedure we did not observe any lesions suspicious of endometriosis. The inflammatory process engulfing the ureter was an isolated lesion.



**Figure 2:** Microscopic examination of the ureter at the level of endometriosis involvement. (a) Hematoxylin and Eosin staining showing endometriosis of the ureter underlying normal epithelium (arrow head). Endometrial stroma (thin arrows) and glands (thick arrow) are seen amidst ureteric musculosa (asterisk,  $\times 50$ ). (b) Ureteric musculosa ( $\times 200$ ). (c) Ureteric epithelium ( $\times 200$ ). (d) Hematoxylin and Eosin staining showing endometrial glands (thick arrow) and stroma (thin arrow,  $\times 200$ ). (e) Immunohistochemical staining for estrogen receptor positive in the endometrial glands (arrow,  $\times 200$ ). (f) Immunohistochemical staining for CD10 positive in the endometrial stroma (arrow,  $\times 200$ )

This case illustrates the difficulty in diagnosing isolated ureteric endometriosis. Preoperative diagnosis would have been considered only with suggestive symptoms, the presence of suspicious radiological abnormalities, or finding characteristic lesions during endourologic and laparoscopic procedures. We conclude that endometriosis should be considered in the differential diagnosis of unexplained ureteric obstruction and ureteric lumen filling defects in young women.

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