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A Mimicker of Metastatic Adenocarcinoma: Ureteral Endometriosis

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Abstract

Ureteral endometriosis is a rare yet important disease that can lead to cause kidney dysfunction due to silent obstruction of the ureter. A 44-year-old hospital worker was discovered to have haematuria. Further examination revealed that she had hydroureteronephrosis due to obstruction at the lower third of her ureter. Diagnosis of ureteral endometriosis is challenging for the pathologists, because of its wide spectrum of morphological variation. Immunohistochemical stains should always be performed to confirm the diagnosis. Early diagnosis can avoid nephrectomy.

Keywords: Endometriosis; Ureter; Immunochemical stains; Surgery; Nephrectomy

Introduction

Endometriosis is characterized by the presence of functional endometrial tissue outside the uterine cavity and uterine musculature [1]. Genitourinary tract involvement is less common, with the urinary bladder being the most common site of involvement, ureter the second, and kidney the least [2,3]. Although, ureteral endometriosis is rare, it represents a diagnostic challenge for the pathologists, and the therapeutic challenge for the clinician. Since Cullen first described ureteral endometriosis in 1917 [4], only few studies were published in the English literature [5-10]. Herein, a woman with ureteral endometriosis is reported. Immuno histochemical staining was performed to confirm the diagnosis.

Case Presentation

A 44-year-old woman, a hospital employee, was found to have haematuria during yearly health examination. She was asymptomatic, but with a long-standing history of essential hypertension. She was admitted to the hospital, and was referred to the urologist for further examination, Physical examination was unremarkable. Laboratory data including chemistry profile and CBC with differential count were within normal limits, except for 3+ occult bloods on urinalysis. Thereupon, the patient underwent Computed Tomography (CT) of the abdomen. The left hydroureteronephrosis was found, due to the stricture on the left lower part of the ureter (Figure 1 A, 1B). The left side ureterosonoscopy ureterotomy and biopsy were performed, followed by Double J stent implantation. Histological sections of the biopsy specimen showed glandular structures invading the muscularis propria of the ureter with increase of round or oval stroma cells (Figure 2 A). Immunostains

were performed. The epithelial cells showed strong immunoreactivity for CK7 and strong expression of epithelial cells and stroma cells for Estrogen Receptor (ER) and Progesterone Receptor (PR). The epithelial cells showed strong expression for CA125. While the stroma cells showed moderate expression for CD10 (Figure 2B, 2C, 2D, 2E & 2F). The diagnosis of ureteral endometriosis, intrinsic type, was rendered. The Double J stent was removed 4 weeks after surgery. The patient came back for follow up, three months after being discharged from the hospital. The urinalysis no longer showed haematuria. Postoperative ultrasound showed no evidence of hydroureteronephrosis. The patient was doing fine, and went back to work at the hospital.

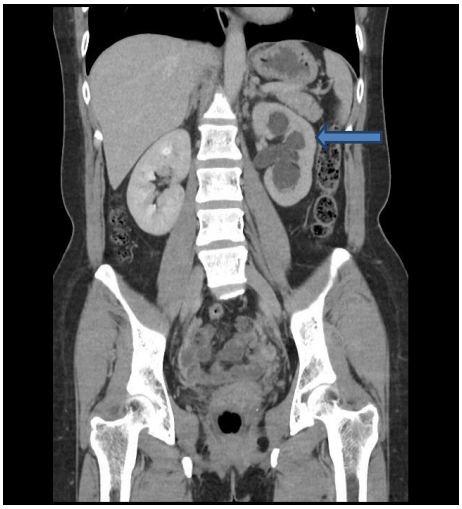

Figure 1A: CT showed hydronephrosis (arrow).

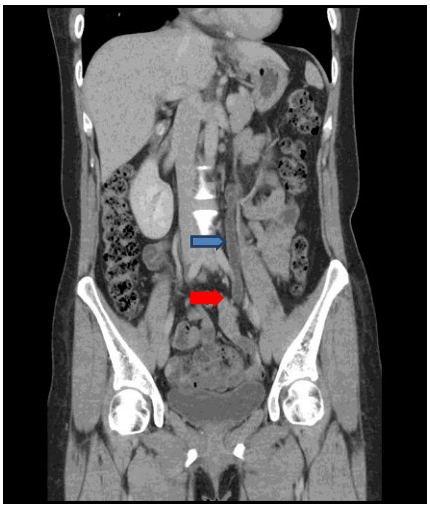

Figure 1B: CT showed dilatation of the left ureter (blue arrow) and stricture at the lower third of the ureter (red arrow).

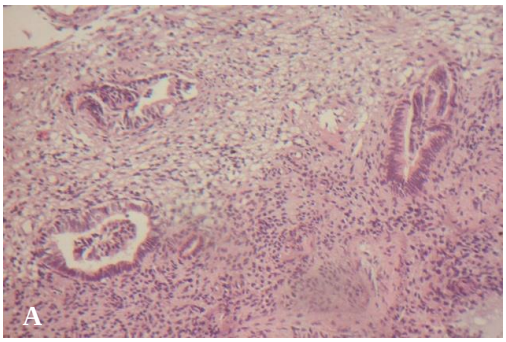

Figure 2A: Endometrial glands with stroma cells. H & E stain. X200.

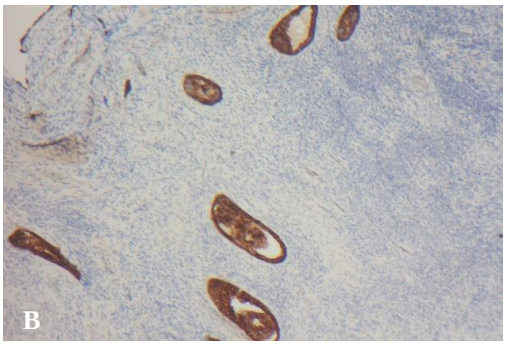

Figure 2B: Epithelial cells showing strong expression for CK7.Immunohistochemical stain (IHC), x200.

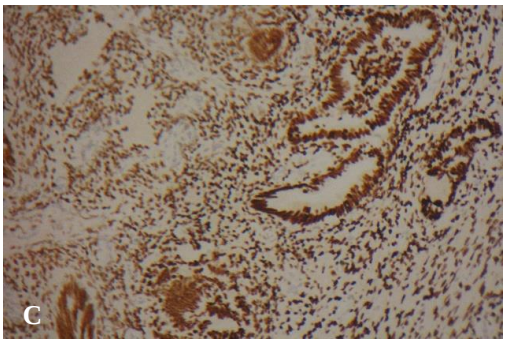

Figure 2C: Strong expression of epithelial cells as well as stroma cells with ER, IHC, x200.

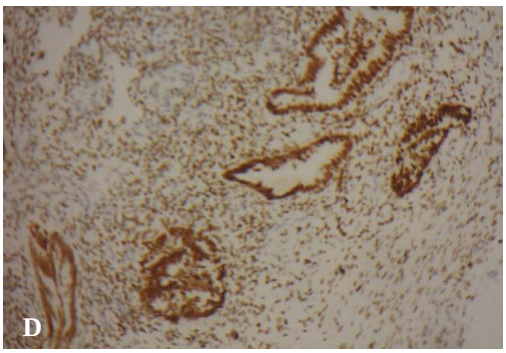

Figure 2D: Strong expression of epithelial cells as well as stroma cells with PR, IHC, x200.

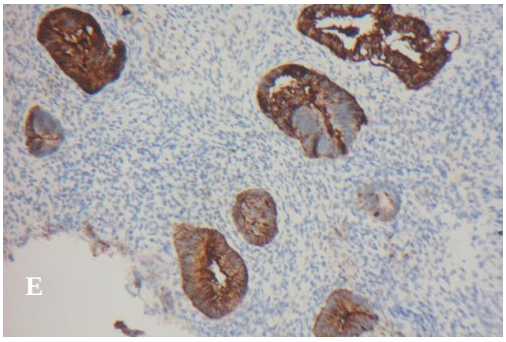

Figure 2E: Epithelial cells displaying stong expression for Ca125, IHC, x 200.

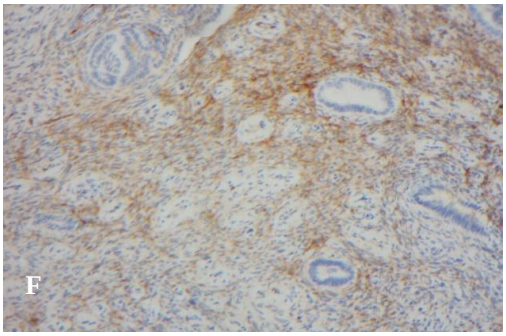

Figure 2F: Moderate expression to CD10 in the stroma cells, IHC, x200.

Discussion

Ureteral endometriosis can be classified as either intrinsic or extrinsic type. Intrinsic disease is characterized by the presence of endometrial glands and stroma in the ureteral wall [5], like the present case. In extrinsic type, endometrial tissue involves only the ureteral adventitia or surrounding connective tissue [2,4]. As many as 50% of the patients of ureteral endometriosis are asymptomatic [6], it can potentially lead to urinary tract obstruction, resulting in hydronephrosis, and loss of renal function, necessitating a nephrectomy. The diagnosis of ureteral endometriosis is usually straightforward Sometimes problems can arise and lead to a diagnostic challenge for the pathologists;

- Limited sample.
- The appearance of the glandular component can be altered by hormonal and metaplastic changes.
- Cytological atypia and hyperplasia [6].

Tsung SH, et al. [11] reported a patient of gastric cancer with ureteric metastasis as the presenting manifestation of gastric cancer. The morphology of this case mimicked endometriosis. In systematic review, Hu et al, [12] found 265 patients with cancer metastasizing to the ureter. Prostate, bladder, breast, and gastrointestinal tract cancer were the predominant primary site. Therefore, before the diagnosis of ureteral endometriosis is rendered, immunohistochemical stains should be performed to confirm it. I performed immunohistochemical study on the present case using ER, PR, CK7, CA 125, and CD-10, the results agreed with those published by AL-Khawaja M, et al. [7]. The pathogenesis of endometriosis and more specifically of ureteral involvement is still unknown [8]. Approximately 50% of the patients with ureteral endometriosis have symptoms, such as lumbar pain, dysuria, urgency, urinary tract infections and haematuria [8].

Diagnosis on patients without symptoms may be difficult. Ultrasound, CT, Magnetic Resonance Image (MRI) may be of help on patients with symptoms. Surgery is the standard treatment of choice for ureteral endometriosis. Preoperative stent is recommended [10].

Conclusion

Ureteral endometriosis is a rare challenging disease, mostly asymptomatic. The present case was discovered incidentally. Although the biopsy specimen showed typical histological appearance of ureteral endometriosis, immunohistochemical stains were performed to confirm the diagnosis. The patient was treated with ureterosonoscopy ureterotomy with Double J implantation. If the disease is diagnosed early, the nephrectomy can be avoided.

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