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Endometriosis of the Urinary Bladder Causing a Right Hydronephrosis: A Case Report

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Patient: Female, 25
Final Diagnosis: Unusual clinical course
Symptoms: Flank pain • nocturia • urinary frequency • urinary incontinence
Medication: —
Clinical Procedure: —
Specialty: Urology

Objective: Unusual clinical course
Background: Endometriosis is a chronic and benign condition in which endometrial glands and stroma are present outside the uterine cavity. The pathogenesis of endometriosis is not fully understood; however, several mechanisms have been hypothesized. Endometriosis is a common clinical presentation in gynecology, but affecting the urinary tract is a rare phenomenon, occurring in 0.3–12% of cases. In more severe forms, the initial presentation may be hydronephrosis or infertility.

Case Report: We describe the case of a 25-year-old Saudi woman who presented with obstructive urinary tract symptoms and was diagnosed with urinary bladder endometriosis complicated with a right hydronephrosis. After thorough investigations and workups, the management was taken on by a multidisciplinary team approach.

Conclusions: This case report shows that hormonal therapy management resulted in a satisfactory outcome contrary to the surgical resection approach that is discussed in many articles.

MeSH Keywords: Contraceptives, Oral, Hormonal • Endometriosis • Hydronephrosis • Uterine Diseases

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Background

Endometriosis is a chronic and benign condition in which endometrial glands and stroma are present outside the uterine cavity and wall [1]. The pathogenesis of endometriosis is not fully understood; however, several mechanisms have been hypothesized, including the retrograde menstruation theory of Sampson, estrogen driven proliferation, oxidative stress along with inflammation, and immune dysfunction. Genetic factors have also been proven to play a major role in the development of endometriosis, as suggested by the high frequency in twins [2] and first-degree relatives, and by familial aggregation [3]. Several reports have discussed the strong correlation between urinary tract endometriosis, history of pelvic surgery [4], and C-section deliveries [5]. The presence of bladder endometriosis raises a suspicion of complex endometriosis affecting multiple extra-pelvic organs. Diagnosis requires a high level of suspicion, and radiography can aid in diagnosis by confirming localized bladder wall thickening with occasional protrusion into the bladder lumen [5]. Therapeutic approaches should focus on the ultimate goal of preserving kidney function [6].

Case Report

A 25-year-old Saudi woman presented with obstructive urinary tract symptoms, including increase in frequency, nycturia, and weak and intermittent stream, associated with intermittent right flank pain. There were no other associated symptoms such as fever or hematuria. She was diagnosed with endometriosis 3 months before, involving the urinary bladder, complicated with a right hydronephrosis, but was otherwise healthy. She did not smoke or have exposure to second-hand smoke. There was no history of drug abuse, and her travel history was

insignificant. In 2013, the patient underwent a C-section at a local hospital, which was complicated by urethral and ureteral injuries, causing a recurrent urinary tract infection (UTI), which is a rather unusual complication. The injuries required a urethral re-anastomosis and right ureteric re-implantation. The rest of her history was unremarkable.

For further investigation, the patient had an ultrasound of the pelvis and a contrast CT scan of the abdomen, which revealed a right hydro-uretero-nephrosis with an obstructive mass in the pelvis, measuring 2.5×1.7 cm, that was pressing on the right lower ureter. On 1 April 2018, she underwent an explorative cystoscopy, and a biopsy was taken at King Faisal Specialist Hospital and Research Center in Riyadh, Saudi Arabia. A bladder mass was detected over the right ureteric orifice area, and the biopsy showed an endometrial tissue containing glands and stroma, which confirmed the diagnosis of bladder endometriosis (Figure 1A, 1B). A nephrostomy tube was inserted to relieve the obstructive symptoms temporarily at about 1 year, and was removed with improvement of kidney function and decreasing size of the mass. As a multidisciplinary team approach, the patient was prescribed Ibuprofen (an NSAID) (400 mg, oral, PRN), and Dienogest (a progesterone) (2-mg pills, oral, daily) for 6 months to manage her condition. Her symptoms improved significantly over the last 10 months, and she underwent a follow-up contrast CT scan, which showed a 50% reduction in the size of the pelvic mass. It should be noted that the main cause of these obstructive symptoms cannot be determined if it is related to a previous C-section surgery or the endometriosis itself due to lack of previous data and weak history. Also, she developed endometriosis of unknown cause and there was no evidence that it was an iatrogenic injury caused by the C-section surgery.

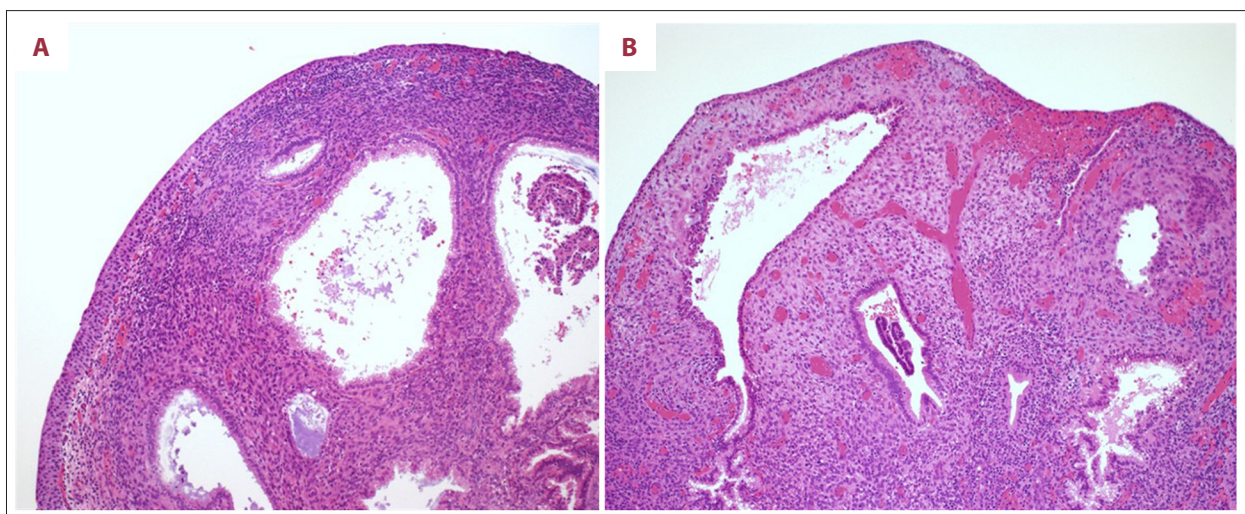


Figure 1. (A, B) Micrograph showing an endometrial biopsy from pelvic mass confirming endometriosis.

We performed a routine blood and urine examination, and the results were within normal parameters. An ultrasound study was done to evaluate the kidneys and urinary bladder and to be compared with previous similar studies. It showed an interval development of moderate right-sided hydronephrosis, persistent on the pre- and post-void images, as well as stable appearance of the heterogeneous irregular posterior urinary bladder wall, with persistent 2.8×2×3.1 cm focal area of thickening, likely related to postsurgical changes.

Abdominal and pelvic CT scans done to evaluate the bladder mass revealed the right kidney was scarred and small in size, measuring 8.2 cm in the cranio-caudal dimension, after right nephrostomy tube insertion. It also showed a mild residual hydronephrosis and hydroureter. Moreover, there was a significant regression in density and size of the ill-defined deep pelvic endometriosis in the vesicouterine pouch, from 2×1.3 cm to 1.4×0.5 cm. It was slightly infiltrating the mid-posterior wall of the urinary bladder. We found no adnexal mass and no endometrial thickening. However, the left kidney showed also multiple scars, with no hydro-uretero-nephrosis. The liver, gallbladder, hepatic veins, portal veins, spleen, pancreas, and adrenals were all within normal limits. No significant abdominal or pelvic lymph nodes were noted, and we found no concerning lung bases or bony abnormalities.

Subsequently, the patient underwent a right nephrostogram through her existing right nephrostomy tube, with no resistance or pain. Findings showed a distal right ureter narrowing with delayed emptying. Left-sided vesicoureteral reflux was noted. To assess the right renal drainage, a diuretic Tc-MAG3 renogram was performed, showing a small right kidney with decreased perfusion and tracer uptake. It also showed retention in the mildly dilated pelvi-calyceal system and ureters, but showed a spontaneous excretion enhanced by Lasix. In conclusion, the right kidney contributed 29% of the total renal function compared to the left kidney, which contributed 71% of the total renal function, showing good perfusion and tracer uptake.

Discussion

Endometriosis is a gynecological condition that is commonly seen in clinical practice. It is defined as the presence of ectopic endometrial glands and stroma outside the uterine wall, which is associated with the appearance of signs and symptoms during the menstrual period [7]. Despite the urinary tract endometriosis, it affects the urinary bladder in 84% of cases, resulting in complications such as hydronephrosis and infertility [2]. By definition, endometriosis is not rare, but the involvement of the urinary tract is a rare phenomenon, affecting about 0.3–12% of cases [8]. Less than 200 cases of bladder

endometriosis have been reported and described in the literature [9]. Here, we report a new symptomatic case that was diagnosed and managed successfully in King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia.

Based on 2 studies, conducted in 2011 and 2014, respectively, patients complaining of severe pelvic endometriosis, as well as patients with previous history of endometriosis or with irritative urological symptoms during menstruation, are suspected to have a severe form of urinary tract endometriosis [10,11]. In addition, recent studies have shown that the management of urinary bladder endometriosis is quite challenging. The literature supports that the most effective treatment of bladder endometriosis is a partial cystectomy via video-laparoscopy, with the advantages of laparoscopy procedures and generally satisfactory outcomes [12–14]. Along with the surgical management, a review article was conducted in 2017 in Italy, suggesting another treatment of bladder endometriosis besides partial cystectomy. The study concluded that the hormonal treatment of deep endometriosis, such as endometriosis of the urinary bladder, is effective in relieving the pain in more than 90% of women affected, and the surgical resection approach was taken if hormonal therapy did not work [15]. An iatrogenic cause of endometriosis in surgical scars is a rare complication of C-sections, with reported incidence of 0.03–0.4%, and any other gynecological procedures [16]. Two studies performed between 2005 and 2019 in Turkey and Italy, reported and discussed the association between the endometriosis and C-section surgery. They concluded that any cyclical painful nodules that increase in size monthly at the site of the procedure should be excised surgically, as the second study reported the 8th case in the literature of a subcutaneous case of a pregnancy-related decidualization occurring in a woman with post-caesarean section scar endometriosis [16,17]. Incisional endometriosis is quite common in middle-aged women, and more studies are needed to assess the relationship between these 2 conditions.

Conclusions

This case report discussed an uncommon presentation of endometriosis in which the exact cause was unknown, showing that hormonal therapy management resulted in a satisfactory outcome, contrary to the surgical resection approach that has been discussed in many articles [18]. In particular, appropriate systematic evaluation of the evidence regarding the exact cause and the management plan of this condition is necessary to ensure timely diagnosis and improve the patient outcome, requiring a collaborative and multidisciplinary team approach in which both urologists and gynecologists are involved [18].

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Conflict of interest

None.