Ureteral endometriosis requiring bilateral ureteroneocystotomy: saving the endangered kidneys

As I watch the video of Fernandes et al. on laparoscopic bilateral ureteral reimplantation for ureteral endometriosis (1), it brings to mind one of the central themes of the movie Saving Private Ryan. Similar to how the war had killed three of the four sons within the same family, and the fourth son was in imminent danger, endometriosis had affected different organs of the reported patient and was endangering her kidneys. Endometriosis has been estimated to affect approximately 10%–20% of reproductive-aged women and can cause significant loss of function in multiple organs. The incidence of urinary tract endometriosis is highly variable due to limited case reports on this topic (2, 3). It is estimated to account for 0.01%–2% of total endometriosis cases, with bladder lesion in 70%–85%, the ureter in 9%–23%, the kidney in 4%, and the urethra in 2% of patients (3). The average age range for ureteral endometriosis involvement is between the ages of 30 and 35 years, and most commonly is unilateral, affecting the distal-third segment of the ureter (3). Bilateral ureteral endometriosis has been described in 10%–42% of cases (2). It can coincide with a spectrum of diseases, such as endometriomas in 52%–68% of cases, rectovaginal lesions in up to 56%, uterosacral ligament disease in up to 50%, and bowel involvement in up to 39%, with varying severities (2, 3).

The clinical presentation of ureteral endometriosis can also be variable. Patients may present with flank pain, gross hematuria, unexplained hypertension, dysmenorrhea, dyspareunia, or nonmenstrual pelvic pain. A pelvic mass palpated during routine gynecologic examination within the correct clinical context may raise suspicion for genitourinary involvement of endometriosis. However, the progression of tissue damage caused by ureteral endometriosis may occur without physical symptoms, and up to 50% of patients with ureteral endometriosis may remain completely asymptomatic, leading to silent loss of kidney function (2). Ureteral involvement can be either intrinsic (endometriotic lesions involving the lumen, lamina propria, or muscularis propria) or extrinsic (involving the adventia or surrounding tissue). It can be constrictive or obstructive, particularly within the intrinsic compartment, causing hydroureter with hydronephrosis and secondary renal insult. Some 43% of patients with infiltrative ureteral disease may experience compromised renal function (2–4).

Undiagnosed ureteral disease or long-standing urinary insult can lead to recurrent urinary tract infections, pyelonephritis, and irreversible renal injury, which highlights the critical need for prompt and effective diagnosis and treatment. Numerous diagnostic options are available for the evaluation of ureteral endometriosis; however, there is no universal protocol for the optimal diagnostic technique. Physical examination suggestive of deeply infiltrating endometriosis can be a clue to possible ureteral involvement (i.e., uterosacral liga-ment nodularity, palpable disease in the pouch of Douglas). Ultrasound and magnetic resonance imaging (MRI) can be helpful to assess the extent of involvement and to monitor during the posttreatment follow-up period.

Fernandes et al. described a unique case of laparoscopic approach to bilateral ureteral reimplantation for ureteral endometriosis (1). A 36-year-old woman with a history of segmental bowel resection and left ovarian cystectomy due to advanced-stage endometriosis presented with lumbar pain and was found to have bilateral hydronephrosis and deteriorating kidney function. A 5-cm lesion in the pelvis involving the parametrium and ureters bilaterally raised suspicion for an obstructing endometriotic lesion, confirmed by ultrasound and MRI. Subsequently double-J ureteral stents were placed, followed by video laparoscopic bilateral ureteral reimplantation. The patient’s kidney function recovered during the postoperative course, as evidenced by both normal creatinine and renal ultrasound findings at the 2-month postoperative visit.

The clinical approach to the management of ureteral endometriosis depends on the severity of the disease, location, and the level of invasion. Because of the risk of worsening renal compromise, medical therapy is not the best choice in patients with ureteral obstruction.

Surgical management of ureteral endometriosis is intended to relieve ureteral obstruction, to preserve renal function, and to prevent future recurrence. Techniques for ureteral endometriosis management are limited to case series, with few reports of bilateral ureteroneocystostomy for ureteral endometriosis.

The conservative surgical approach to ureteral endometriosis involves ureterolysis by ureteral isolation and mobilization with excision of para-ureteral lesions, relieving ureteral obstruction and minimizing recurrence risk. Shaving technique for surgical management of partial ureteral obstruction due to endometriosis causing ureteral stricture and hydroureter can effectively resect peri-ureteral disease with excellent long-term results, which have been reported for as long as 14 years postoperatively (4).

Ureter resection, a more radical surgical approach, is indicated for intrinsic lesions with significant obstruction, as seen in the patient in this report, who had bilateral hydronephrosis from severe bilateral distal ureteral strictures (3). The earliest attempt at ureteric resection followed by bladder reimplantation was reportedly by Nussbaum in 1876 (5). In 1903, Sampson conducted several experiments in dogs, after which he also described the case of a woman in whom he reimplanted the left ureter via an extraperitoneal approach using local anesthesia (5). Since these early cases, numerous approaches to ureteric resection and reimplantation into the bladder have been described in the literature. Ureteroneocystostomy with reimplantation of the unilateral (or bilateral) ureter(s) into the bladder has been suggested for patients with severe ureteral stricture (particularly near the bladder), extensive ureteral stenosis preventing end-to-end anastomosis, or in the case of recurrent ureteral stenosis after previous conservative surgical approach. Case series involving video laparoscopic unilateral ureteral reimplantation due to ureteral...
endometriosis have revealed very low rates of complications or recurrence at 6 months postoperatively (1, 2).

Caring for women with endometriosis requires understanding the invasive nature of the disease and maintaining a very low threshold for comprehensive diagnostic evaluation of ureteral endometriosis if warranted by clinical suspicion. Fernandez et al. have drawn attention to this “silent killer” and have eloquently demonstrated the video laparoscopic technique of “saving the endangered kidneys.”


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