

# Endometriosis of the Bladder as a Cause of Obstructive Uropathy

Anthony N. Gyang, MD, Nadia A. Gomez, MD, Georgine M. Lamvu, MD, MPH

## ABSTRACT

A 47-year-old woman (gravida 1, para 1) with menorrhagia and pelvic pain was found to have an enlarged fibroid uterus and bladder mass on ultrasonographic imaging. The patient underwent an abdominal supracervical hysterectomy and transurethral bladder mass resection. Histopathologic findings revealed leiomyoma uteri, intramural adenomyosis, and bladder endometriosis. Most case series of bladder endometriosis include women that present with urinary symptoms. This is a rare case of obstructive uropathy secondary to bladder endometriosis in a patient without any urinary signs or symptoms.

**Key Words:** Endometriosis, Bladder, Uropathy, Fibroid uterus.

## INTRODUCTION

Endometriosis is characterized by the presence of active endometrial tissue outside of the uterine cavity.<sup>1</sup> It has an estimated prevalence of 15% and has considerable health and economic implications.<sup>2</sup> Endometriosis can involve the genitourinary tract, with the bladder being the most commonly affected site.<sup>3</sup> Symptomatic urinary tract involvement is rare, occurring in 1% to 2% of women, and it typically presents with dysuria, suprapubic pain, and, rarely, hematuria.<sup>4</sup> Medical therapy is palliative and definitive therapy is surgical.

## CASE REPORT

A 47-year-old African American woman (gravida 1, para 1) with a 25-week size fibroid uterus presented with pelvic pain and menorrhagia and wanted definitive surgical management. Despite prior management with Depot-Lupron and a prior open myomectomy, the patient continued to complain of heavy vaginal bleeding, with increasing dysmenorrhea and occasional dyspareunia. The patient reported pelvic pressure symptoms but denied any urinary symptoms of hematuria or flank pain on evaluation and review of her past medical records.

Her past medical history was significant for hypertension, and her past surgical history included laparoscopic surgery for endometriosis and an open myomectomy.

A pelvic examination revealed a uterus palpable 4 cm above the umbilicus that was fixed and slightly tender. There were no other masses noted on the examination and there was no fullness or tenderness of the bladder. Transvaginal ultrasonography demonstrated a 17-cm uterus with multiple intramural myomas, the largest being 5 × 5 cm; a 4 × 4-cm submucosal myoma, normal right adnexa, and a left adnexa and bladder could not be visualized.

A computed tomography scan of the abdomen and pelvis from a prior emergency department visit demonstrated left hydronephrosis with marked cortical thinning and the possibility of a 5-cm bladder mass described along the dome of the bladder (**Figure 1**).

The patient's surgery was a joint case between the urology and gynecology departments, and the patient underwent

Advanced and Minimally Invasive Gynecology, Florida Hospital, Orlando, FL, USA (all authors).

Address correspondence to: Anthony N. Gyang, MD, Minimally Invasive Gynecology, 3004 17th Street, St. Cloud FL, 34769 Telephone: (407) 556-3973, Fax: (321) 805-4718 E-mail: tonygyang@hotmail.com

© 2014 by JSLS, Journal of the Society of Laparoendoscopic Surgeons. Published by the Society of Laparoendoscopic Surgeons, Inc.

DOI: 10.4293/108680813X13753907291314

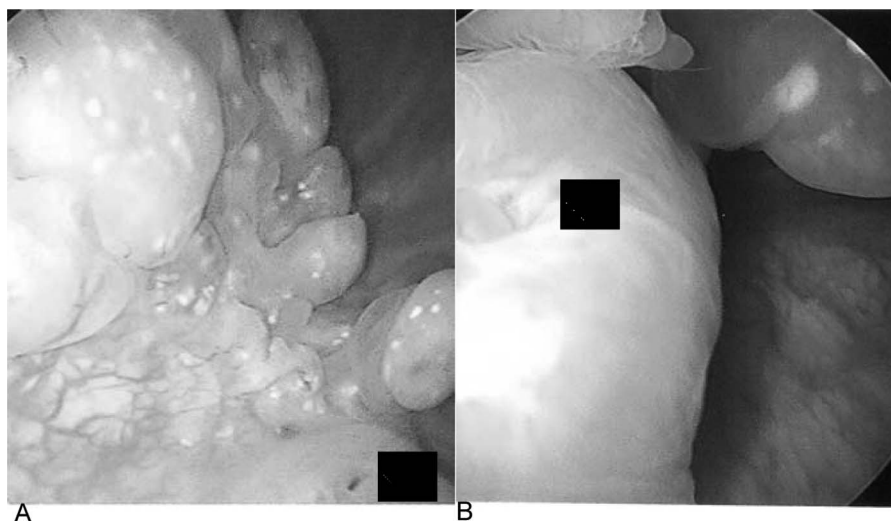


**Figure 1.** Computed tomography scan of the abdomen and pelvis. A, The arrow shows the left marked hydronephrosis with cortical thinning (B) 5.5 × 3.2-cm irregular enhancing lesion within the left bladder (arrow).

an abdominal supracervical hysterectomy because of extensive pelvic adhesive disease, enterolysis, and transurethral resection of a bladder mass. Findings at the surgery included a 25-week size uterus with multiple fibroids on the anterior uterus, fundus, and bilateral broad ligaments, overlying small intestine on the anterior surface of the uterus and adherent to the left pelvic side wall. There was also severe pelvic adhesive disease to the posterior surface of the uterus, posterior cul-de-sac endometriosis, contributing to a distorted pelvic anatomy. A cystoscopy was performed and revealed a 5- to 7-cm lobulated and nodular solid mass at the left hemitrigone that involved

the left ureteral orifice (**Figure 2, A and B**). A retrograde pyelogram demonstrated severe left hydronephrosis and narrowing of the distal ureter. Despite multiple attempts, a ureteral stent was unable to be passed. The right ureter was not involved and demonstrated efflux of the indigo carmine dye. A transurethral resection of the bladder mass with negative margins was performed, with a preliminary diagnosis of endometriosis.

Postoperatively, a nuclear renal scan showed a nonfunctioning left kidney. The histopathology of the specimens revealed leiomyoma uteri weighing 1191 g and intramural



**Figure 2.** A, Nodular and lobulated bladder mass found medial and superior to the left ureter on cystoscopy. B, Zoomed view of the mass seen involving the left ureter. The black arrow points to the left ureteral orifice.

adenomyosis. A panel of immunohistochemical stains was performed on the bladder mass that were positive for estrogen and progesterone receptors and Ck7 with the diagnosis of endometriosis. The patient recovered well after her surgery and is currently being treated with 3 monthly Depot Lupron injections and daily 5-mg norethindrone add-back therapy. She will be followed up with a cystoscopy and pelvic magnetic resonance imaging scan in 6 months to check for endometriosis recurrence.

## DISCUSSION

Bladder endometriosis (BE) usually affects women in the reproductive age-group, at an average age of 35 years.<sup>5</sup> Within the urinary system, the bladder is the most commonly affected site in 85% of cases.<sup>3</sup> As many as 30% of patients remain asymptomatic and diagnosis is incidental.<sup>3</sup> Although symptomatic, urinary tract involvement is rare, occurring in 1% to 2% of women; it typically presents with dysuria, suprapubic pain, cyclic urgency, and rarely hematuria, symptoms similar to those of recurrent cystitis, which may be responsible for its delayed diagnosis.<sup>3,6</sup>

According to the onset type, BE is defined as “primary” or “secondary.” Primary BE is a spontaneously occurring disease, whereas secondary BE is an iatrogenic lesion occurring after pelvic surgery. In fact, up to 50% of patients with BE have a history of prior pelvic surgery<sup>5</sup> with lesions from implanted endometrium or extensions from adenomyosis from the anterior uterine wall. Our patient had a prior pelvic surgery of an abdominal myomectomy, and we speculate her bladder lesion may have emerged from implanted endometrial tissue.

The pathogenesis of BE is controversial, but the lesion has been described to evolve from the serosal surface of the bladder toward the mucosa. It is often multifocal, with the trigone and the dome the most frequently affected sites.<sup>7</sup>

Imaging modalities for BE include transvaginal bladder ultrasonography, with specificity and positive and negative predictive values of 100%, and pelvic magnetic resonance (MR) reaching a sensitivity of 88% and specificity of 99%.<sup>3</sup> Cystoscopy is one of the most cost-effective tests and may reveal isolated or multifocal lesions usually located at the dome or base of the bladder. Calculating the distance between the ureteral orifices and the lower endometriotic margin is critically important to define the most correct surgical approach.<sup>3</sup> Endoscopic biopsy is critical to exclude bladder carcinomas, varices, papillomas or angiomas, as well as detrusor mesenchymal tumors.<sup>3</sup>

Although long-term medical management is preferred over serial surgeries for the management of endometriosis, a recent study showed that 25% of patients who underwent surgery for endometriosis had additional surgery within 4 years.<sup>8</sup> In our case, a supracervical hysterectomy was performed because of extensive anatomical distortion caused by her fibroids, and we have successfully controlled her symptoms postoperatively with medical suppression therapy. The main surgical debate is whether to preserve the ovaries at the time of hysterectomy. Data have shown that women who undergo hysterectomy with ovarian preservation have a higher risk of undergoing repeat surgery up to 7 years later as opposed to women who have ovarian removal.<sup>9</sup> However, health implications of ovarian removal need to be reviewed with the patient, and the surgical plan must be individualized based on health risks and benefits. On the other hand, the treatment of BE is controversial because of the rarity of the condition. Treatment includes medical therapy using gonadotrophin-releasing hormone agonist<sup>10</sup> and antagonist,<sup>11</sup> progestins,<sup>12</sup> and combined oral contraceptives.<sup>13</sup> Medical therapy, however, has a high recurrence rate after treatment cessation and is often considered a palliative modality for the treatment of BE.<sup>3</sup> Surgical management of BE includes transurethral resection, which has a higher incidence of recurrence compared with partial cystectomy, laparotomy, or laparoscopy, with or without associated cystoscopy, combined transurethral partial cystectomy, and laparoscopic reconstruction of the bladder, robotic approach to surgery, and association of surgical and medical therapy;<sup>3</sup> whereas ureteral endometriosis is treated by surgery; ureterolysis is preferred for nonobstructive lesions, and ureteral resection for obstructive lesions.

## CONCLUSION

Bladder endometriosis is rare and is commonly associated with severe urinary symptoms. Both adequate diagnosis and successful treatment should be completed with a multidisciplinary team with a dedicated gynecologist and urologist. Hormone therapy still remains an option, while surgical treatment leads to satisfactory long-term outcome results.

## References:

1. Antonelli A, Simeone C, Zani D, et al. Clinical aspects and surgical treatment of urinary tract endometriosis: our experience with 31 cases. *Eur Urol.* 2006;49:1093–1097.
2. Hemmings R, Rivard M, Olive DI, et al. Evaluation of risk factors associated with endometriosis. *Fertil Steril.* 2004;81:1513–1521.

3. Maccagnano C, Fredierico P, Lorenzo R, et al. Diagnosis and treatment of bladder endometriosis: state of art. *Urol Int*. 2012 Jul 20 [Epub ahead of print].
4. Litta P, Saccardi C, D'Agostino G, et al. Combined transurethral approach with Versapoint and laparoscopic treatment in the management of bladder endometriosis: technique and 12 months follow up. *Surg Endosc*. 2012;26:2446–2450.
5. Comiter CV. Endometriosis of the urinary tract. *Urol Clin North Am*. 2002;29:625–635.
6. Abrao MS, Dias JA Jr, Bellelis P, et al. Endometriosis of the ureter and bladder are not associated diseases. *Fertil Steril*. 2009;91(5):1662–1667.
7. Vercellini P, Meschia M, De Giorgi O, Panazza S, Cortesi I, Crosignani PG. Bladder detrusor endometriosis: clinical and pathogenic implications. *J Urol*. 1996;155(1):84–86.
8. Weir E, Mustard C, Cohen M, Kung R. Endometriosis: what is the risk of hospital admission, readmission, and major surgical intervention? *J Minim Invasive Gynecol*. 2005;12:486–493.
9. Shakiba K, Bena JF, McGill KM, Minger J, Falcone T. Surgical treatment of endometriosis: a 7 year follow up on the requirement for further surgery. *Obstet Gynecol*. 2008;111:1285–1292.
10. Prentice A, Deary AJ, Bland E, Goldbeck-Wood S, Farquhar C, Smith SK. Gonadotrophin-releasing hormone analogues for pain associated with endometriosis. *Cochrane Database Syst Rev*. 2000:CD000346.
11. Winkel CA, Scialli AR. Medical and surgical therapies for pain associated with endometriosis. *J Womens Health Gen Based Med*. 2001;10:137–162.
12. Schindler AE, Henkel A, Moore C, Oettel M. Effect and safety of high-dose dienogest (20mg/day) in the treatment of women with endometriosis. *Arch Gynecol Obstet*. 2010;282:507–514.
13. Vercellini P, Eskenazi B, Consonni D, et al. Oral contraceptives and risk of endometriosis: a systemic review and meta-analysis. *Human Reprod Update*. 2011;17:159–170.