Case Report

Bladder Endometriosis: A Great Masquerader

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Abstract

Endometriosis is a chronic condition presenting with the presence of endometrium outside the uterus. Case 1: A 29-year-old woman presented with abdominal pain and painful urination for 15 days, beginning after her menstrual cycle. She had a history of frequent urination, recurrent urinary tract infections, hematuria, and two uneventful cesarean sections. Ultrasound revealed a lobulated soft tissue lesion in the posterior bladder wall. Microscopy revealed endometrial glands and hemosiderin-laden macrophages. Immunohistochemistry (IHC) confirmed bladder endometriosis with positive estrogen and progesterone receptors (ER/PR) and CD10-positive stromal cells. Case 2: A 33-year-old woman with menorrhagia, dysmenorrhea, and burning urination underwent surgery for a fibroid and ovarian cyst. During surgery, a 6.5 cm firm mass adhered to the bladder and uterus was found. Histopathology confirmed bladder endometriosis with ER-positive glands. The diagnosis of bladder endometriosis is aided by imaging techniques along with histopathology and IHC. This comprehensive approach helps differentiate bladder endometriosis from malignancies or other gynecological conditions, thus reducing the risk of misdiagnosis. Early and precise diagnosis facilitates targeted treatment, improving patient outcomes and preventing unnecessary interventions.

Keywords:

bladder, endometriosis, estrogen receptor, progesterone receptor

Introduction

Endometriosis is a chronic condition presenting with the presence of endometrium outside the uterus, affecting around 10% of women in reproductive age [1]. Common locations include the ovaries, uterosacral ligaments, rectovaginal septum, and posterior vaginal fornix. Involvement of the urinary tract is uncommon, occurring in only 1–2% of cases [2]. Bladder endometriosis is characterized by the presence of endometrial glands and stroma in the detrusor muscle, occurring typically near the bladder dome [3].

Endometriosis is prevalent among women of reproductive age, causing pelvic pain, infertility, urinary issues, and alterations in bowel habits. These symptoms can significantly impact personal relationships, quality of life, and work performance over time. However, many cases remain asymptomatic, resulting in delayed diagnosis [4].

Prompt identification and management of urinary tract endometriosis are crucial to prevent a decline in bladder function [5]. It requires histological confirmation, with cystoscopy and biopsy being the primary diagnostic methods. However, the initial assessment involves reviewing medical history, conducting a physical examination, and utilizing imaging techniques to suspect bladder endometriosis. Ultrasound (USG) is the primary imaging method for detecting bladder endometriosis, with transvaginal USG being preferred [6].

Endometriosis presents a complex and diverse clinical picture, posing ongoing challenges in medical management. Its symptoms are often mistaken for normal menstrual responses or confused with gastrointestinal or gynecological issues, contributing to its diagnostic complexity. This variability underscores the need for heightened awareness and comprehensive evaluation to differentiate endometriosis from other conditions with overlapping symptoms in females of reproductive age [7]. We hereby present two rare cases of bladder endometriosis identified on routine histopathological examination.

Case Report

Case 1:

A 29-year-old female presented with a history of abdominal pain and painful micturition for the last 15 days, which started after her menstrual cycle. She also had a past history of episodes of increased urinary frequency, recurrent urinary tract infections, and hematuria, along with an obstetric history of two cesarean sections, which were uneventful.

On USG, the urinary bladder was distended and showed evidence of a hypoechoic to isoechoic lobulated soft tissue lesion in the superior aspect of the posterior wall of the urinary bladder, predominantly on the right side, measuring 3.6 × 2 cm. Transurethral resection of the bladder tumor (TURBT) was done, and the specimen was sent for histopathology.

Gross examination revealed multiple grey-white tissue pieces measuring 2.2 × 2 × 0.5 cm. Microscopic examination (Figure 1a, 1b, 1c) showed transitional epithelium-lined tissue with the presence of endometrial glands, stroma, and hemosiderin-laden macrophages in the subepithelium.

On immunohistochemistry (IHC), these endometrial glands were strongly positive for both estrogen receptor (ER) [Figure 1d] and progesterone receptor (PR) [Figure 1e], along with stromal cells being CD10 positive [Figure 1f]. The final diagnosis, based on histomorphological features and IHC, was given as urinary bladder endometriosis.

Case 2:

A 33-year-old female presented with a history of menorrhagia, dysmenorrhea, and burning micturition for 20 days, along with a past history of on-and-off lower abdominal pain for three years. There was a history of childbirth via cesarean section.

On per vaginal examination, the uterus was retroverted and tender, and a cystic mass of approximately 7 cm was felt in the anterior fornix.

On USG, a hypoechoic lesion measuring 6.7 × 5.8 cm was seen in the myometrium posteriorly, which was suggestive of a fibroid uterus, along with a cyst in the right ovary measuring 5.3 × 5.1 cm with no solid area. While she was being operated on for a uterine fibroid and right ovarian cyst, the bladder was found to be diffusely adhered to the anterior surface of the uterus. A firm-to-hard irregular mass of approximately 6.5 cm was seen involving the bladder and the anterior uterine wall. This thickened, hard mass was excised and sent for histopathology examination.

Gross examination revealed multiple grey-brown tissue pieces measuring 8.5 × 5.5 × 2 cm with a congested external surface. Representative sections (Figure 2a, 2b) revealed fibrocollagenous and fibromuscular tissue showing the presence of columnar to cuboidal lining focally. The subepithelium showed a few clusters of round-to-oval glands with large areas of hemorrhage and congestion.

On IHC, these endometrial glands were strongly positive for ER [Figure 2c] and PR [Figure 2d]. The final diagnosis, based on histomorphological features and IHC, was given as urinary bladder endometriosis. Postoperative follow-up was uneventful.

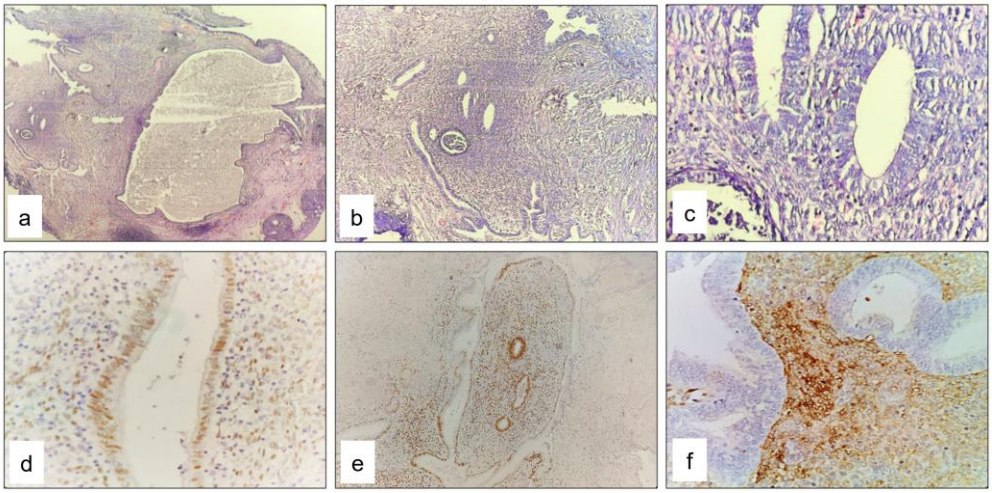

Figure 1(a) Transitional epithelium lined tissue showing endometrial glands and stroma in the subepithelium (H&E stain X40), 1(b) Endometrial glands and stroma (H&E stain X100), 1(c) Endometrial glands, hemosiderin laden macrophages (H&E stain X400), 1(d) ER shows nuclear positivity in endometrial glandular epithelium, 1(e) PR shows nuclear positivity in endometrial glandular epithelium, 1(f) CD10 shows cytoplasmic staining in endometrial stromal cells.

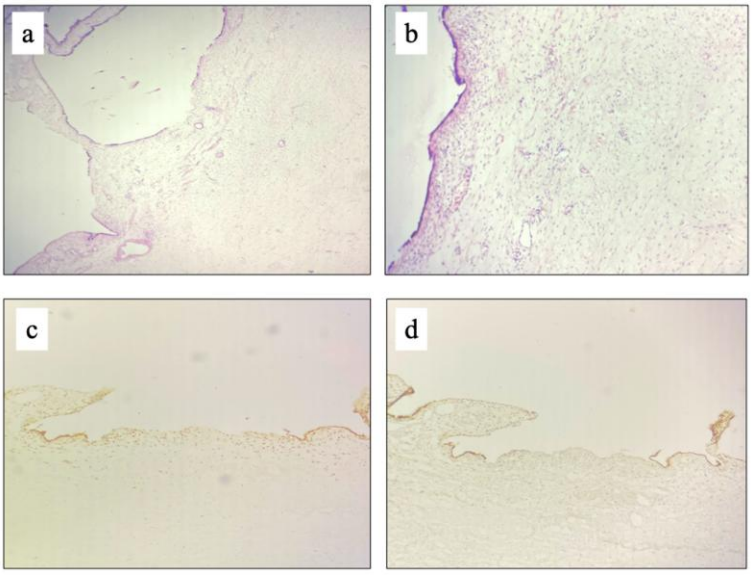

Figure 2: (a) Transitional epithelium lined tissue showing endometrial glands and stroma in the subepithelium (H&E stain X40), 1(b) Endometrial glands and stroma (H&E stain X100), 1(c) ER shows nuclear positivity in endometrial glandular epithelium, 1(d) PR shows nuclear positivity in endometrial glandular epithelium.

Discussion

Bladder endometriosis is characterized by the abnormal presence of endometrial tissue, glands, or stroma invading the detrusor muscle or other layers of the bladder wall outside the uterus. [8] The most common symptoms of endometriosis are infertility and chronic cyclic pelvic pain; therefore, other conditions should be ruled out from the differential diagnosis, such as pelvic inflammatory disease, adhesion, endometritis, cervical stenosis, interstitial cystitis, and chronic urinary inflammation. [9]

In a study by Pastor et al., [8] two cases were reported. The first case was of a 38-year-old ex-smoker woman with a history of four cesarean sections, with a nodular bladder formation found during a nonviable pregnancy examination. MRI revealed placenta increta and an endometrioma. During cesarean section, bladder integrity was confirmed, and a raised nodular formation was seen on cystoscopy. Complete resection following histopathological examination confirmed bladder endometrioma, with the patient remaining asymptomatic after 16 months. The second case was of a 64-year-old woman with hypertension, insulin-dependent diabetes mellitus, dyslipidemia, primary hypothyroidism, and chronic renal failure, along with two previous cesarean sections. A bladder filling defect was detected during a renal Doppler ultrasound. Despite no urological symptoms, transurethral resection revealed a solid adenomatous mass, diagnosed as endocervicosis with endometriosis on histopathology. After seven months of follow-up, she remained symptom-free.

Both the above cases emphasize the role of prior cesarean sections in the development of bladder endometriosis. However, unlike the present case, the second patient in the case report by Pastor et al. [8] lacked overt symptoms, highlighting that it can be detected incidentally on radiological examination, necessitating careful evaluation with the help of pelvic imaging. Histopathology and IHC are crucial for the final diagnosis.

Trigui et al. [10] reported a case of a 42-year-old woman presenting with severe right-sided back pain and lower urinary tract symptoms, with a history of uterine fibroid resection nine years prior. USG indicated right ureterohydronephrosis and a large uterine fibroid. Despite analgesic treatment, symptoms persisted, leading to diagnostic ureteroscopy uncovering the presence of stenosis. Subsequent imaging revealed foreign bodies in the ureter, prompting their extraction. Due to the patient's age, compromised kidney function, and findings, a laparotomy with total nephroureterectomy was performed, revealing bladder endometriosis on histopathological examination. Postoperatively, the patient recovered well and received gynecological treatment. Similar to the present case, this case highlights the presence of prior pelvic surgery and urinary symptoms. However, the present case required less extensive treatment, while Trigui’s case involved nephroureterectomy due to advanced complications of compromised renal function.

In a study by Bloom et al., [11] a premenopausal woman with a history of endometriosis sought a pelvic ultrasound for pelvic pain. Imaging revealed a normal uterus and left ovary, while the right ovary displayed a 3-cm simple cyst. Endovaginal assessment unveiled a solid mass with small cystic spaces within the distended bladder's posterior wall, measuring 1.6 × 2.5 × 1.6 cm. Considering her history and age, the mass was likely an endometriosis implant, but the possibility of transitional cell carcinoma couldn't be ruled out due to its intraluminal extension. Microscopic evaluation post-surgery confirmed the presence of endometriosis involving the bladder.

Toz et al. [12] reported a case of a 31-year-old woman, 30 weeks pregnant with a history of two previous cesarean sections, presenting with dysuria. Transabdominal USG detected a 3.3 × 3.3 × 2.1 cm vegetative mass with irregular borders on the bladder's posterior wall. Cystoscopy showed no abnormalities, and follow-up was recommended. At 38 weeks of gestation, during a

cesarean section, a 3 cm mass adherent to the bladder's anterior wall was excised, which was diagnosed as endometriosis on pathological evaluation.

The above two cases closely parallel the present case, with both women experiencing similar symptoms and requiring imaging and histopathology for diagnosis. In the present cases, both women experienced urinary symptoms and pelvic pain, with imaging revealing soft tissue masses. Overlapping clinical symptoms, such as the presence of a mass and hematuria, can lead to diagnostic confusion between endometriosis and bladder carcinoma, underscoring the importance of IHC. IHC is essential for differentiating endometriosis from malignancies by utilizing specific markers to distinguish benign endometriotic tissue from cancerous cells. Markers such as estrogen receptor (ER), progesterone receptor (PR), and CD10 are indicative of endometriosis, while markers like PAX8 and p63 help confirm bladder malignancy. The combined evaluation of positive and negative staining patterns ensures an accurate diagnosis and guides appropriate treatment. [13]

Prompt recognition of this condition is crucial to prevent prolonged suffering. Transurethral resection serves both diagnostic and therapeutic purposes, allowing for histopathological analysis. Maintaining a high suspicion for bladder endometriosis in premenopausal women with relevant symptoms is vital to prevent diagnostic delays.

Conclusion

Bladder endometriosis is a rare diagnosis. Although imaging techniques can assist in identifying the condition, accurate diagnosis requires histopathological examination combined with IHC to avoid misdiagnosing it as a malignancy or another gynecological disorder. This comprehensive approach is crucial for ensuring proper treatment and management. Due to its uncommon nature, bladder endometriosis is often overlooked, making a thorough diagnostic process even more important for timely and effective intervention. Its rarity highlights the need for heightened clinical awareness to avoid delays in treatment and improve patient outcomes.

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Ethical clearance – not required as it is a case report. The identity of the patients was masked and therefore, permission was not obtained.

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