

Bladder Endometriosis: Case Report and Literature Review

Soukaina Laaraj^{1*}, Imane Laghrich¹, Abdellah Babahabib¹, Jaouad Kouach¹

¹Gynecology Obstetrics Department, Mohamed V Military Training Hospital, Rabat, Morocco

DOI: [10.36348/sijog.2023.v06i03.008](https://doi.org/10.36348/sijog.2023.v06i03.008)

| Received: 12.02.2023 | Accepted: 09.03.2023 | Published: 15.03.2023

*Corresponding author: Soukaina Laaraj

Gynecology Obstetrics Department, Mohamed V Military Training Hospital, Rabat, Morocco

Abstract

Bladder endometriosis is a rare location of endometriosis. We present a case of female patient with an inter vesical-uterine septum mass that was an incidental finding during the realization of a pelvis IMR to characterize an ovarian tumor. We performed a surgical resection. Histopathological examination revealed a bladder adenomyomas.

Keywords: Endometriosis, Bladder adenomyomas, Ureteral, Bladder, Urinary, Hydronephrosis, Cystoscopy, Partial cystectomy.

Copyright © 2023 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Endometriosis is a chronic condition, usually gynaecological. It is characterized by the presence of functionally active endometrial tissue (glandular epithelium and stroma) outside the uterine cavity, which induces a chronic inflammatory reaction. It is estimated to affect 5–10% of women of reproductive age, although in patients who present with pelvic pain the figures vary from 40 to 60% and among patients with sterility or infertility issues, the frequency of endometriosis reaches 20–40% [1, 2].

The phenotypes of endometriosis can be broadly classified into three categories: Superficial Endometriosis (SE), Ovarian Endometriomas, and Deep Endometriosis (DE). Additionally, the term Urinary Tract Endometriosis (UTE) refers to the presence of endometrial implants in the urinary system, with the bladder and ureter being the most frequently affected regions [3].

CASE PRESENTATION

A menopausal 60-year-old woman, with a history of hypertension. She had previously undergone

a Caesarean section. She had no urological history of interest.

She was referred to our department due to the finding of a nodular formation of 2.5cm in the vesico-uterine space during an MRI of the pelvis realized to characterize a right ovarian tumor of 6x4cm.

History revealed dysuria and recurrent urinary tract infections. She also complains of mild to severe recurrent pelvic pain.

Physical Examination found a right adnexal masse.

Patient was worked up with routine blood and urine examination which were within the normal parameters.

The Magnetic Resonance Imaging showed an hyperintense signal nodule of 2.5cm on T2-weighted images that is located at the level of the vesico-uterine pouch within the bladder dome with a hyperintense signal on fatty saturation T1-weighted images. The nodule forms an obtuse angle with the bladder wall and involving the muscularis layer.



Pelvic MRI in sagittal slices T2 sequence without fat saturation showing: an oval heterogeneous nodule of the bladder dome with T2 hyper signal infiltrating the thickened bladder wall



Pelvic MRI in T1 fat-saturated sagittal slices with Gadolinium injection showing heterogeneous enhancement of the tissue nodule in the intervesical-uterine septum

The patient was subjected to cystoscopy that revealed an elevated lesion in the posterior wall of the bladder with normal-looking mucosa.

She underwent laparotomy after Ureteral catheters to prevent ureteral damage. The resection of the nodular formation was performed by partial cystectomy. Also, a right adnexectomy was performed to treat the ovarian cyst.



Macroscopic aspect of the endometriosis nodule after surgical resection

Histopathological examination revealed a bladder endometrioma and dermoid cyst.

The postoperative course was uneventful, with no complications reported in the following 6 months.

DISCUSSION

Urinary tract endometriosis is a relatively uncommon location, accounting for just 1% of endometriosis lesions. It refers to endometriotic implants of the bladder, ureter, kidney, and urethra. The bladder is most commonly affected [4, 5].

Several pathophysiological theories have been put forward to explain it. Sampson's migratory theory [4] is that of trans-tubal reflux of menstrual blood leading to the implantation of endometrial cells in the vesicouterine pouch. Other authors invoke endometrial metaplasia of müllerian remnants located in the intervesical-uterine septum [6]. A third theory is the invasive theory corresponding to the extension by contiguity of an anterior adenomyosis nodule [7, 8].

Altered genetic/epigenetic or immune factors could be involved [9]. Additionally, in some women UTE appears to be iatrogenic; bladder endometriosis may be more prevalent amongst women with previous Caesarean section(s) [4, 10].

Bladder endometriosis (BE) can affect either the bladder dome or the base in the vesicouterine space. This condition can either be superficial or penetrate into the detrusor muscle and reach the bladder mucosa [11].

Endometriosis classically causes cyclic pain and infertility. In BE the diagnosis is frequently delayed because the symptoms resemble those of other conditions such as urinary tract infections, an overactive bladder, or interstitial cystitis. The most common symptom is dysuria [4, 12] but women with

BE may also have urinary frequency, recurrent urinary tract infections [12, 13] and hematuria, and, more atypically, urinary incontinence [13]. Nevertheless, the constant catamenial nature of the symptoms can serve as a clue for a clinical diagnosis.

Bladder endometriosis can also be asymptomatic and incidentally diagnosed at the time of a cystoscopic or intra-abdominal procedure for a different indication.

Bladder endometriosis is a histologic diagnosis. Medical History and Physical Examination can help guide the diagnosis, as women with DE often have endometriosis at other anatomic sites.

The physical assessment includes speculum examination (looking for lesions on the posterior cervix or vaginal mucosa), tenderness on vaginal examination, nodules in the posterior vaginal fornix, adnexal masses, and immobility or lateral displacement of the uterus [4].

A urinalysis test should be conducted to exclude infection.

To establish the diagnostic, a complementary paraclinical assessment based on a tripod combining ultrasound, MRI, and cystoscopy is needed.

Ultrasound is the primary imaging method for diagnosing endometriosis and should be performed transvaginally by an expert. The examination should include the evaluation of the bladder wall and ureteral size and position as well as evaluating the extension towards the uterus and vesicovaginal septum. A small amount of urine in the bladder can improve the visibility of different portions of the bladder wall, visualizing for focal thickening and for hypoechoic linear or nodular lesions [14-18]. However, ultrasound

is not perfect and may produce false negatives or false positives.

A transabdominal scan (TAS) of the kidneys is recommended in all women with concerns for UTE in order to exclude the presence of hydronephrosis, as this is usually asymptomatic in cases of ureteral DE [19, 20].

Magnetic Resonance Imaging (MRI) is a supplementary imaging tool that can be used in conjunction with transvaginal ultrasound (TVS) for an accurate pre-surgical assessment of bladder endometriosis. MRI is most appropriate in centers where advanced TVS for bladder endometriosis is not available or when TVS is negative and there is a high clinical suspicion of bladder endometriosis. Bladder endometriosis often shows hypointense signals on T2-weighted images and hyperintense signals on T1-weighted images. MRI has been shown to have a high accuracy rate in diagnosing bladder endometriosis, with a sensitivity and specificity ranging from 88-100% [21, 22].

In addition to ultrasound or MRI, cystoscopy is a vital examination for pinpointing the lesion and determining its depth and proximity to the ureters.

The appearance of BE can range from a raised, normal-looking mucosa due to a nodule under the mucosa to a full infiltration through the mucosa. It can also aid in excluding malignancies [23]. The distance between the lesion and ureteral orifices may assist in surgical planning.

The aim of the treatment of bladder DE is to resolve symptoms and avoid possible renal damage.

Possible approaches include expectant management, medication, or surgery. Women who are asymptomatic and don't have hydronephrosis may opt for a more conservative approach with periodic ultrasound exams. However, for those who have ureteral obstruction and hydronephrosis, surgery is necessary. Pain associated with the condition can be treated either through medical means or surgery [23].

Medical treatment is based on progesterone, combined estrogen-progesterone therapy, and GnRH analogues [4, 25].

Surgical management is often performed through laparoscopy. When it comes to superficial lesions on the bladder dome, extramucosal excision combined with detrusor suture is adequate. However, excision of lesions in the vesico-uterine space requires cystotomy. Transurethral resection is not an optimal treatment for bladder endometriosis [25, 26].

Ureteral catheters could be used in order to reduce the risk of inadvertent ureteral damage at surgery. Surgical resection of bladder endometriosis is a risk factor for fistula formation (up to 15% of patients) [27]. Nevertheless, the success rate of surgical management is around 90% [11].

CONCLUSION

Bladder endometriosis is a relatively uncommon location. The diagnosis is often difficult to make because of its non-specific symptoms especially in menopausal woman. Transvaginal ultrasound is increasingly taking a diagnostic role. Hydronephrosis could be found in case of ureteral invasion.

The choice of treatment depends on many factors; size of the nodule, number, localization, symptoms and presence or not of hydronephrosis. Resection of bladder endometriosis should be complete to avoid recurrence.

Conflict of Interests: The authors declare no conflict of interests.

Authors' Contribution

All authors have contributed to the conduct of this work. The authors also declare that they have read and approved the final version of the manuscript.

REFERENCES

1. Fuentes Pastor, J., Ballesteros Diego, R., Correas Gómez, M. Á., Torres Díez, E., Fernández Flórez, A., Ballesteros Olmos, G., & Gutierrez Baños, J. L. (2014). Bladder endometriosis and endocervicosis: presentation of 2 cases with endoscopic management and review of literature. *Case Reports in Urology*, 2014, 296908.
2. Mahmood, T. A., & Templeton, A. (1991). Prevalence and genesis of endometriosis. *Human Reproduction*, 6(4), 544–549.
3. Berlanda, N., Vercellini, P., Carmignani, L., Aimi, G., Amicarelli, F., & Fedele, L. (2009). Ureteral and vesical endometriosis: two different clinical entities sharing the same pathogenesis. *Obstetrical & gynecological survey*, 64(12), 830-842.
4. Leonardi, M., Espada, M., Kho, R. M., Magrina, J. F., Millischer, A. E., Savelli, L., & Condous, G. (2020). Endometriosis and the urinary tract: From diagnosis to surgical treatment. *Diagnostics*, 10(10), 771.
5. Berlanda, N., Vercellini, P., Carmignani, L., Aimi, G., Amicarelli, F., & Fedele, L. (2009). Ureteral and Vesical Endometriosis. *Obstet. Gynecol. Surv.*, 64, 830–842.
6. Acker, O., Robert, Y., Carpentier, F., Vinatier, D., & Cosson, M. (2003). [Symptomatic bladder or ureteral endometriosis: report of 8 cases and review of the literature]. *Ann Chir.*, 128, 34-9.

7. Cullen, T. (1917). Adenomyoma of the rectovaginal septum. *Bull Johns Hopkins Hosp*, 28, 343.
8. Fedele, L., Bianchi, S., Zanconato, G., Bergamini, V., Berlanda, N., & Carmignani, L. (2005). Long-term follow-up after conservative surgery for bladder endometriosis. *Fertil Steril*, 83, 1729–33.
9. Horne, A. W., & Saunders, P. T. (2019). SnapShot: Endometriosis. *Cell*, 179, 1677–1677.e1. doi: 10.1016/j.cell.2019.11.033.
10. Somigliana, E., Vercellini, P., Gattei, U., Chopin, N., Chiodo, I., & Chapron, C. (2007). Bladder endometriosis: Getting closer and closer to the unifying metastatic hypothesis. *Fertil. Steril.*, 87, 1287–1290. doi: 10.1016/j.fertnstert.2006.11.090.
11. Vulliamoz, N., Meuwly, J. Y., Jichlinsky, P., Hahnloser, D., & Achari, C. (2014). Prise en charge des endométriomes et de l'endométriose recto-vaginale et vésicale. *Rev Med Suisse*, 10, 1977-84.
12. Maccagnano, C., Pellucchi, F., Rocchini, L., Ghezzi, M., Scattoni, V., Montorsi, F., Rigatti, P., & Colombo, R. (2013). Ureteral Endometriosis: Proposal for a Diagnostic and Therapeutic Algorithm with a Review of the Literature. *Urol. Int.*, 91, 1–9.
13. Maggiore, U. L. R., Ferrero, S., & Salvatore, S. (2014). Urinary incontinence and bladder endometriosis: Conservative management. *Int. Urogynecol. J.*, 26, 159–162.
14. Guerriero, S., Condous, G., Van den Bosch, T., Valentin, L., Leone, F. P. G., Van Schoubroeck, D., ... & Timmerman, D. (2016). Systematic approach to sonographic evaluation of the pelvis in women with suspected endometriosis, including terms, definitions and measurements: a consensus opinion from the International Deep Endometriosis Analysis (IDEA) group. *Ultrasound in Obstetrics & Gynecology*, 48(3), 318-332.
15. Guideline developed in collaboration with the American College of Radiology (ACR) the American College of Obstetricians and Gynecologists (ACOG) (Spr), T.S.F.P.R. (Sru), T.S.O.R.I.U AIUM Practice Guideline for the Performance of Ultrasound of the Female Pelvis. *J. Ultrasound Med.*, 2014; 33, 1122–1130.
16. Arion, K., Aksoy, T., Allaire, C., Noga, H., Williams, C., Bedaiwy, M. A., & Yong, P. J. (2019). Prediction of Pouch of Douglas Obliteration: Point-of-care Ultrasound Versus Pelvic Examination. *J. Minim. Invasive Gynecol.*, 26, 928–934.
17. Reid, S., Leonardi, M., Lu, C., & Condous, G. (2019). The association between ultrasound-based ‘soft markers’ and endometriosis type/location: A prospective observational study. *Eur. J. Obstet. Gynecol. Reprod. Boil.*, 234, 171–178.
18. Savelli, L., Manuzzi, L., Pollastri, P., Mabrouk, M., Seracchioli, R., & Venturoli, S. (2009). Diagnostic accuracy and potential limitations of transvaginal sonography for bladder endometriosis. *Ultrasound in Obstetrics and Gynecology: The Official Journal of the International Society of Ultrasound in Obstetrics and Gynecology*, 34(5), 595-600.
19. Bretón, S. A., Carrasco, A. L., Gutiérrez, A. H., González, R. R., & de Santiago García, J. (2013). Complete loss of unilateral renal function secondary to endometriosis: a report of three cases. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 171(1), 132-137.
20. Nezhat, C., Paka, C., Goma, M., & Schipper, E. (2012). Silent loss of kidney secondary to ureteral endometriosis. *JLS: Journal of the Society of Laparoendoscopic Surgeons*, 16(3), 451-5.
21. Hernández Gutiérrez, A., Spagnolo, E., Hidalgo, P., López, A., Zapardiel, I., & Rodríguez, R. (2019). Magnetic resonance imaging versus transvaginal ultrasound for complete survey of the pelvic compartments among patients with deep infiltrating endometriosis. *International Journal of Gynecology & Obstetrics*, 146(3), 380-385.
22. Bazot, M., Darai, E., Hourani, R., Thomassin, I., Cortez, A., Uzan, S., & Buy, J. N. (2004). Deep pelvic endometriosis: MR imaging for diagnosis and prediction of extension of disease. *Radiology*, 232(2), 379-389.
23. Gupta, A., Bhatnagar, A., Seth, B. N., Dang, A., & Gupta, V. (2016). Bladder Endometriosis Mimicking TCC—A Case Report. *Journal of Clinical and Diagnostic Research: JCDR*, 10(2), PD12-3.
24. Comiter, C. V. (2002). Endometriosis of the urinary tract. *Urol. Clin. N. Am.*, 29, 625–635.
25. Freire, M. J., Dinis, P. J., Medeiros, R., Sousa, L., Águas, F., & Figueiredo, A. (2017). Deep infiltrating endometriosis—urinary tract involvement and predictive factors for major surgery. *Urology*, 108, 65-70.
26. Pérez, M. P. U., Bazán, A. A., Dorrego, J. M. A., Hernández, A., de Francisco, M. G., Hernández, M. M., ... & de la Peña Barthel, J. (2009). Urinary tract endometriosis: clinical, diagnostic, and therapeutic aspects. *Urology*, 73(1), 47-51.
27. Reisenauer, C. (2015). Vesicovaginal fistulas: A gynecological experience in 41 cases at a German pelvic floor center. *Arch. Gynecol. Obstet.*, 292, 245–253.