

CASE REPORT

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Inguinal canal endometriosis of the round ligament: A rare case report

Mehmet Sait Bakır, Yasemin Babacan, Zelal Akgündüz, Hasan Turan

ABSTRACT

Introduction: Endometriosis is defined as the presence of functional endometrial tissue outside the uterine cavity. The pelvic organs are most frequently involved, but there are rare reports of extrapelvic sites including bowel, diaphragm, pleura, and inguinal canal. Inguinal endometriosis is a rare disease which may present clinically as other inguinal pathologies especially when involving the round ligament.

Case Report: We describe the case of a 44-year-old woman who has been experiencing episodic, cyclical right groin pain for a period of two years. Transabdominal ultrasonography revealed a 16 mm solid hypoechoic mass in the right inguinal region, and magnetic resonance imaging demonstrated a nodular lesion along the right round ligament containing focal T1-hyperintense hemorrhagic foci. Because the cyclical pain persisted after dienogest had to be discontinued for migraine, and because imaging remained suggestive but not diagnostic, complete surgical excision was performed. Histopathological examination confirmed endometriosis of the round ligament. At six months of follow-up the patient was free of symptoms with no evidence of recurrence.

Conclusion: Inguinal canal endometriosis should be considered in the differential diagnosis of inguinal masses and groin pain in women of reproductive age. Surgical excision remains the gold standard for both diagnosis and treatment.

Keywords: Endometriosis, Extrapelvic endometriosis, Inguinal canal, Round ligament

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INTRODUCTION

Endometriosis is a benign estrogen-dependent disease characterized by ectopic endometrial glands and stroma outside the uterine cavity [1, 2]. It mainly involves the pelvic structures such as peritoneum, uterosacral ligaments, and ovaries most commonly and affects mostly women of reproductive age. The most frequent presenting symptoms are dysmenorrhea, dyspareunia, chronic pelvic pain, and infertility [1, 2].

Extrapelvic endometriosis (defined as endometrial-like glands and stroma outside the peritoneal cavity) occurs in 5–12% of all endometriosis cases [3]. Inguinal involvement, however, accounts for less than 1% of all cases [3, 4]. Inguinal involvement generally presents as a painful cyclical groin mass and can mimic hernia, lymphadenopathy, lipoma, or neoplasm clinically [4, 5]. The most common site of inguinal endometriosis is the round ligament of the uterus, which traverses the inguinal canal, and provides a potential pathway for endometrial cell migration [4, 6].

Another close entity is endometriosis of the canal of Nuck, the female equivalent of processus vaginalis, a patent peritoneal diverticulum that runs anterior to the round ligament into the inguinal canal [7, 8]. Both are very rare and present a significant diagnostic challenge due to the overlapping clinical and imaging features [7, 9].

Many different pathogenetic mechanisms have been suggested to explain the development of inguinal endometriosis, such as retrograde menstruation with lymphovascular dissemination along the round ligament, coelomic metaplasia, and direct extension of endometrial

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tissue through the inguinal canal [4, 5, 10]. The right-sided preponderance seen in most of the reported cases has been explained to the protective role of sigmoid colon on the left side that may prevent caudal migration endometrial implants [4, 11].

Preoperative diagnosis remains challenging because clinical and imaging findings are often nonspecific. Ultrasonography may reveal a hypoechoic or heterogeneous mass, while magnetic resonance imaging (MRI) with reported sensitivity of 90% and specificity of 98% for pelvic endometriosis offers superior soft-tissue characterization and is increasingly used for extrapelvic lesions [7, 11]. Nevertheless, definitive diagnosis requires histopathological confirmation of endometrial glands and stroma [4, 6].

Herein, we present a case of right-sided inguinal canal endometriosis originating from the round ligament, and discuss the clinical presentation, diagnostic workup, surgical management, and relevant literature.

CASE REPORT

A 44-year-old woman presented with a two-year history of episodic, cyclical right groin pain. Her obstetric history included two pregnancies and two vaginal deliveries. The patient had previously used 2 mg dienogest and reported a reduction in her cyclical pain with treatment; however, she discontinued dienogest due to migraine symptoms. The patient, who continued to experience pain, subsequently presented to our clinic.

Physical examination revealed tenderness in the right groin area. Pelvic examination demonstrated a normal-appearing uterus and ovaries without adnexal masses. Tumor markers were within normal limits, and cervical cytology with human papillomavirus (HPV) polymerase chain reaction (PCR) testing was negative.

Transabdominal ultrasonography demonstrated an adenomyotic uterus with five intramural myomas, the largest measuring 27 mm, and a normal endometrial thickness. A 16 mm solid hypoechoic mass was detected in the right groin area, above the pubic bone. Magnetic resonance imaging revealed a nodular lesion along the right round ligament in the inguinal canal and focal T1-hyperintense foci consistent with hemorrhagic endometriosis implants; these findings were suggestive of, but not diagnostic for, endometriosis (Figure 1).

Because the cyclical symptoms persisted, because further hormonal suppression was not a viable option in this patient—dienogest had provided only partial relief and had to be discontinued due to migraines—and because the imaging findings remained suggestive but not diagnostic, complete surgical excision was recommended in order to obtain a definitive histopathological diagnosis, to exclude a neoplastic lesion, and to provide durable symptom relief. Intraoperatively, no hernia sac was identified. A firm, well-demarcated mass was found arising from the distal portion of the round ligament within the inguinal canal and was excised completely (Figure 2). Histopathological examination revealed

endometrial glands surrounded by endometrial stroma within dense fibrous tissue, confirming endometriosis infiltrating the round ligament; estrogen receptor immunohistochemistry was positive (Figure 3).

The postoperative course was uneventful and the patient was discharged on the first postoperative day. No postoperative hormonal suppression was administered, as the lesion had been excised completely and the patient's migraine had previously necessitated discontinuation of dienogest. At six months of follow-up the cyclical right groin pain had resolved completely, and neither clinical examination nor ultrasonography demonstrated any evidence of local recurrence.

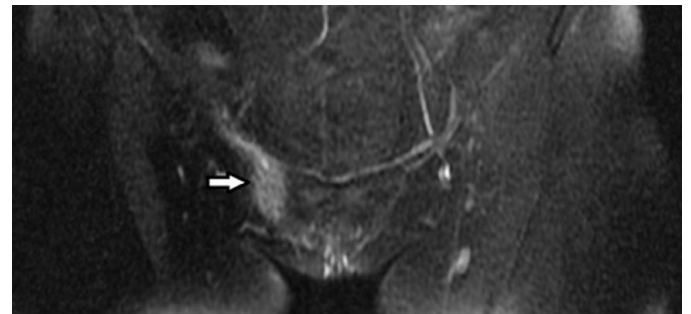


Figure 1: Preoperative MRI findings. T1-weighted fat-suppressed images demonstrating nodular lesion along the right round ligament within the inguinal canal, with focal T1-hyperintense hemorrhagic foci consistent with endometriosis (thick white arrow indicates the lesion).

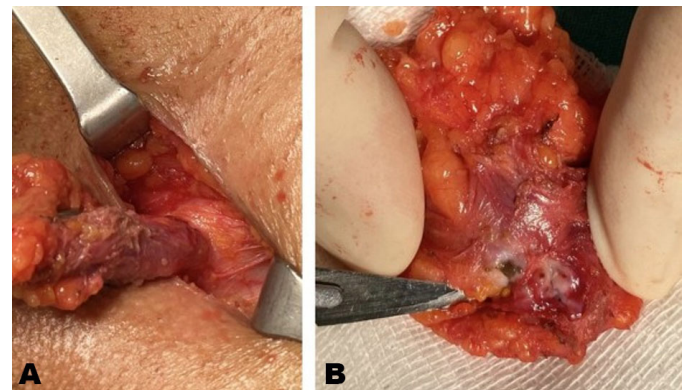


Figure 2: Intraoperative findings. (A) The inguinal canal is opened revealing a firm mass arising from the distal portion of the round ligament; no hernia sac is identified. (B) The excised specimen showing nodular endometriotic tissue with characteristic dark-brown hemorrhagic foci.

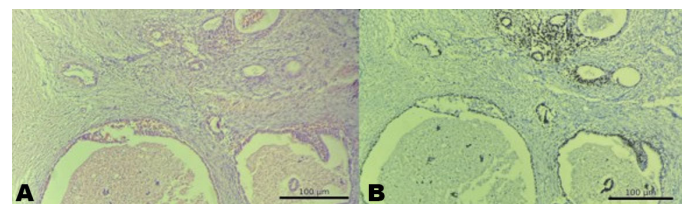


Figure 3: Histopathological findings (H&E staining and ER immunohistochemistry). (A) H&E staining at ×100 magnification showing endometrial glands and stroma. (B) ER immunohistochemistry showing positive staining. Scale bars = 100 μm.

DISCUSSION

The present case illustrates the diagnostic and clinical challenges associated with inguinal canal endometriosis. Our patient exhibited the characteristic features of this rare entity: a woman of reproductive age presenting with cyclical right groin pain and a palpable inguinal mass, without identifiable hernia [4, 5].

Inguinal endometriosis most commonly arises from or along the round ligament [4, 6]. In a recent case series of six patients with inguinal endometriosis reported by Takatsuka et al., all patients presented with cyclical groin pain and round ligament involvement was confirmed in the majority [5]. The authors emphasized that MRI is a useful adjunct in arriving at a specific preoperative diagnosis but histopathological confirmation is essential. Similarly, Sheladiya et al. reported a case of leiomyoma of the inguinal canal with concomitant endometriosis at the deep inguinal ring, emphasizing that more than one pathology may coexist in this anatomical region and that a thorough laparoscopic evaluation is required [6].

A related but anatomically distinct entity is endometriosis of the canal of Nuck. Karam et al. described a 44-year-old patient with left inguinal pain and a 6.2 cm multiloculated cystic lesion on MRI that was confirmed as endometriosis of the canal of Nuck at surgery [7]. Medić et al. further emphasized the diagnostic difficulty of this entity and the central role of surgical excision for both diagnosis and cure [8]. Oyen and Vanslebrouck reported the remarkable occurrence of round ligament endometriosis in identical twins, underscoring the genetic contribution to the disease and the importance of MRI in characterizing both intrapelvic and extrapelvic involvement [9]. In such cases the affected round ligaments appear thickened (>1 cm), shortened and irregular, with a nodular configuration on T2-weighted images [9].

The differential diagnosis of an inguinal mass in women is broad and includes inguinal hernia, femoral hernia, hydrocele of the canal of Nuck, round ligament leiomyoma, lymphadenopathy, abscess, and soft-tissue tumors [3, 10]. Xu et al. described a solitary pelvic kidney with a non-communicating rudimentary uterine horn containing endometriotic tissue that presented as an incarcerated inguinal hernia and required a multidisciplinary laparoscopic approach and postoperative GnRH-agonist therapy [10]. That case is considerably more complex than ours, but it illustrates the spectrum of Müllerian and endometriotic pathology that may present within the inguinal canal.

Magnetic resonance imaging is particularly helpful in narrowing this differential diagnosis. Endometriotic nodules of the round ligament are typically small (<3 cm), solid, and ill-defined, and show low to intermediate signal intensity on T2-weighted images because of their fibromuscular content, together with punctate foci of high signal intensity on T1-weighted and fat-suppressed T1-weighted sequences that correspond

to hemorrhagic products and do not suppress with fat saturation; enhancement is usually heterogeneous [7, 9, 11]. An inguinal or femoral hernia, by contrast, contains herniated peritoneal contents—fat, bowel, or fluid—that follow the signal intensity of their tissue of origin on all sequences, demonstrates continuity with the peritoneal cavity through the deep inguinal ring, and typically changes in size with Valsalva maneuver; a hydrocele or cyst of the canal of Nuck appears as a well-defined, uniformly T2-hyperintense and T1-hypointense non-enhancing cystic structure without hemorrhagic foci [7, 11]. A round ligament leiomyoma is usually a well-circumscribed, homogeneously T2-hypointense mass with avid and homogeneous post-contrast enhancement and, importantly, lacks the T1-hyperintense hemorrhagic foci that suggest endometriosis [6, 9]. Reactive lymph nodes retain a reniform shape with a preserved fatty hilum, whereas soft-tissue sarcomas tend to be larger, markedly heterogeneous and infiltrative. In our patient the combination of a small nodule along the course of the round ligament with focal T1-hyperintense foci and the absence of a hernia sac favored endometriosis, although the findings remained insufficiently specific to obviate histopathological confirmation.

In our patient the imaging findings were suggestive but not conclusive, which is consistent with the literature. Ultrasonography is generally the first choice and can show a mass of solid or mixed echogenicity but is non-specific [5]. Magnetic resonance imaging allows a better tissue characterization; endometriotic nodules of the round ligament generally show T2-hypointense fibrous tissue with interspersed T1-hyperintense hemorrhagic foci [9]. Despite these advances, a definitive diagnosis ultimately depends on histopathology showing endometrial glands and stroma as confirmed in our case.

Inguinal endometriosis is still best treated by complete surgical excision, both for diagnosis and for symptom relief [4–6]. Medical therapy with progestins, combined oral contraceptives, or GnRH agonists may attenuate cyclical pain, but it rarely resolves an established fibrotic extrapelvic nodule, symptoms frequently recur after discontinuation, and, critically, medical treatment does not provide the tissue diagnosis required to exclude a neoplastic lesion. In our patient dienogest had produced only partial symptom control and had to be stopped because of migraine, which limited further hormonal options; surgical excision was therefore preferred over continued medical therapy. In carefully selected patients, postoperative hormonal suppression with GnRH agonists or progestins may be considered to reduce the risk of recurrence, particularly in the case of incomplete excision [10]. Our patient did not require adjuvant hormonal therapy after complete excision and remained free of symptoms without recurrence at six months, which is in keeping with the low recurrence rates reported after complete excision [5, 11]. Clinicians should be aware of this rare extrapelvic manifestation to reduce the diagnostic delay and avoid mismanagement.

CONCLUSION

Inguinal canal endometriosis of the round ligament is a rare but clinically significant extrapelvic manifestation of endometriosis. It should be included in the differential diagnosis of any woman of reproductive age presenting with a groin mass or cyclical inguinal pain. While ultrasonography is the initial imaging modality of choice, MRI provides superior characterization of the lesion and its relationship to surrounding structures. Surgical excision remains both diagnostic and curative, as illustrated by the complete and sustained symptom resolution in our patient. Awareness of this entity and of the related condition of Nuck canal endometriosis is essential for clinicians evaluating inguinal pathology in women.

REFERENCES

1. Giudice LC, Kao LC. Endometriosis. *Lancet* 2004;364(9447):1789–99.
2. Bulun SE. Endometriosis. *N Engl J Med* 2009;360(3):268–79.
3. Jubanyik KJ, Comite F. Extrapelvic endometriosis. *Obstet Gynecol Clin North Am* 1997;24(2):411–40.
4. Candiani GB, Vercellini P, Fedele L, Vendola N, Carinelli S, Scaglione V. Inguinal endometriosis: Pathogenetic and clinical implications. *Obstet Gynecol* 1991;78(2):191–4.
5. Takatsuka S, Kataoka H, Ito F, Shimura K, Mori T. Pathogenesis, diagnosis, and management of inguinal endometriosis: A case series of six patients. *Reprod Sci* 2025;32(3):647–54.
6. Sheladiya P, Simko S, Namazi G, Stuparich M. Resection of an inguinal canal fibroid with concurrent endometriosis in a patient status post hysterectomy. *J Minim Invasive Gynecol* 2026;33(2):147–9.
7. Karam K, Azizi L, Azizi M, Dabaj E. Going against the grain: A case report of an endometriosis in the canal of Nuck. *Eur J Case Rep Intern Med* 2024;11(12):005024.
8. Medić F, Pavlović M, Vlatković IV, Rašić F, Jug-Klobučić A. Endometriosis of the canal of Nuck: Diagnosis and treatment. *Arch Gynecol Obstet* 2024;310(4):2265–66.
9. Oyen T, Vanslebrouck R. Endometriosis of the round ligaments in twins: A rare and unique presentation. *J Belg Soc Radiol* 2025;109(1):16.
10. Xu G, Li W, Qu J. From pelvis to groin: Non-communicating rudimentary uterine horn and endometriosis presenting as an inguinal hernia in a woman with a solitary pelvic kidney. *Int J Womens Health* 2026;18:581854.
11. Prodromidou A, Pandraklakis A, Rodolakis A, Thomakos N. Endometriosis of the canal of Nuck: A systematic review of the literature. *Diagnostics (Basel)* 2020;11(1):3.

Author Contributions

Mehmet Sait Bakır – Conception of the work, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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