

A case of inguinal endometriosis with difficulty in preoperative diagnosis

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ABSTRACT

An unusual case of endometriosis involving the right round ligament in a 40-year-old woman is presented. After giving birth to two children, she first noticed a tender mass in the right groin at the age of 36. It didn't change in size but pain appeared at the age of 38, disturbing her daily life. A poorly circumscribed elastic hard mass, measuring 3cm in diameter, was palpable in her right inguinal region. Magnetic resonance imaging demonstrated a 2×3 cm mass in the right inguinal canal. At operation, a mass was found to be in continuity with the round ligament at the inguinal canal. Histological diagnosis was endometriosis. After operation, she was completely relieved of pain. It is important to include endometriosis in the differential diagnosis for painful inguinal masses in women of childbearing age.

Key words: Endometriosis, Round ligament of uterus, Inguinal tumor

INTRODUCTION

Endometriosis is a common disease but rarely located in the groin. Inguinal endometriosis has been sporadically reported so far [1–6, 11, 13–15]. It is interesting that 90% of endometriosis in the extraperitoneal part of the round ligament was on the right side, and 32.2% of them were associated with an inguinal hernia [4]. Jimenez et al. suggested possible explanations for the occurrence of endometriosis in the round ligament [8], but no conclusion has been reached. We report one case of endometriosis arising in the inguinal canal with difficulty in preoperative diagnosis.

CASE REPORT

A 40-year-old Japanese woman presented with a tender mass in her right groin of two years' duration. She was diagnosed as having endometriosis at the age of 23 by laparoscopy and took hormonal drugs for 4 months. After the treatment, she had

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Fig. 1. CT scan demonstrating a tumor in the right inguinal canal. It had a smooth and round surface without contact with the right pubis or bladder wall.

complete pain relief and began to undergo therapies for infertility. She bore her first baby at the age of 28 and noticed a soft tumor without pain in her right inguinal region in the 4th month of pregnancy. She bore the second baby at the age of 29 and felt the same tumor but without pain. It became hard at the age of 36 but she didn't



Fig. 2a. MR images showing a mass with an irregular surface in the subcutaneous tissue. The same intensities as muscles on T1 weighted images.

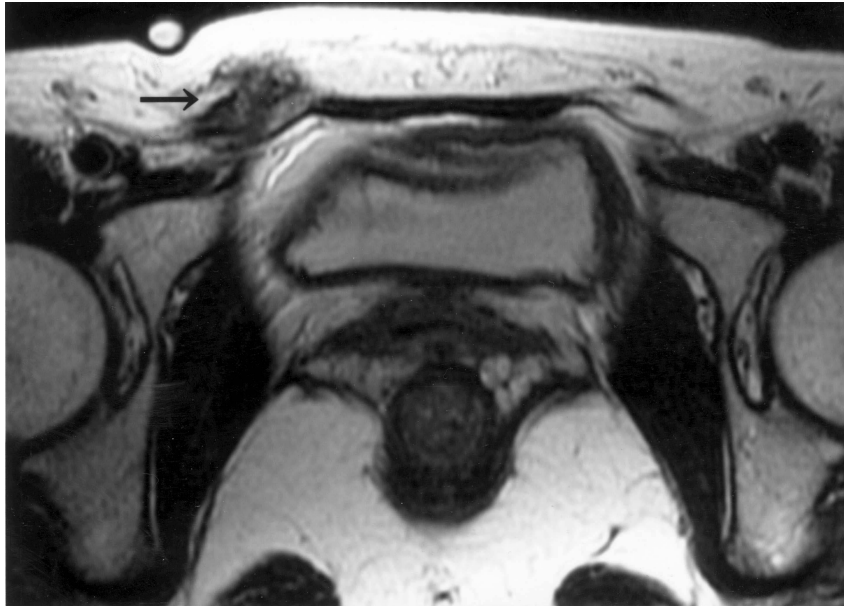


Fig. 2b. Slightly higher intensities than muscles with partial low intensities on T2 weighted images.

feel pain or tenderness. The pain began at the age of 38. Its size didn't change through the menstrual cycle nor did it become more painful. She visited a surgeon, dermatologist, and obstetrician and gynecologist, but no abnormalities were pointed out. She finally visited us because of her severe groin pain.



Fig. 2c. The tumor was enhanced by gadolinium injection.



Fig. 3. Microphotograph showing fibrous tissue with various foci of endometriosis associated with chronic inflammation.

On physical examination, an elastic hard mass 3cm in diameter was palpable in the right inguinal region. The skin color was normal and there was no swelling. The mass was tender and poorly circumscribed. There were no abnormalities in the blood examinations. CT scans showed a mass in the right inguinal canal with the same density as that of the muscles (Fig. 1). Magnetic resonance images demonstrated a poorly circumscribed mass measuring 2×3 cm in the subcutaneous region without contact with the right pubis and bladder wall. The mass had the same intensities as the muscles on T1 weighted images (Fig. 2a) and slightly higher intensities than the muscles with partial low intensities on T2 weighted images (Fig. 2b) and was enhanced in a mosaic pattern after gadolinium injection (Fig. 2c). The importance of gadolinium enhancement as an adjunct to native magnetic resonance imag-

ing is stressed [18]. Preoperative differential diagnoses were inguinal hernia, desmoid tumor, and hemangioma.

At operation, an elastic hard tumor was located just lateral to the right pubis. A 5 cm longitudinal skin incision was made over the mass, which adhered to the skin. The mass was found to be in continuity with the extraperitoneal portion of the right round ligament. The swollen ligament adhered tightly to the inguinal canal. Marginal excision was made including the right round ligament. Iliopubic tract repair was done to strengthen the posterior wall.

Macroscopically, the tumor mainly consisted of fibrous tissue with much hemorrhaging. The endometrial glandular epithelia were in the proliferative phase, and there were no atypical features (Fig. 3).

After operation, she was completely relieved from pain.

DISCUSSION

Endometriosis is a common disease characterized by the presence of endometrial tissue at sites other than the uterine cavity [11]. It is said that Rokitansky first described endometriosis in 1860 [12], but that case is now thought to be more properly defined as adenomyosis. Endometriosis occurs in 10% of 30 to 40-year-old women and affects 2% of the population [17]. The most common sites of occurrence are in the pelvis, with symptoms of progressive dysmenorrhea, menstrual irregularities, dyspareunia, and infertility [9].

Endometriosis also occurs at extrapelvic sites including the rectosigmoid, ileum, and appendix [15]. But the incidence of extrapelvic endometriosis is low. More rare locations are the vagina, vulva, bladder, umbilicus, lymph nodes, skin, muscle, lung, pleura, kidney, heart, and bone [7]. In these cases patients are classified by the localization and not by the size of the lesions [11]. Endometriosis outside the pelvis presents unusual symptoms which often cause misdiagnosis. Occasionally, typical menstrual pain also occur, with cyclic symptoms in 50% of patients [16], but the correct preoperative diagnosis was made in only approximately 38% of the cases [15]. The present case didn't show any symptoms of endometriosis after giving birth to two children.

Endometriosis in the inguinal or groin region was first reported by Cullen in 1896 [3]. The reported incidence of endometriosis in the inguinal region is 0.8%, with one-half of these cases involving extraperitoneal structures [10]. The intra- and extraperitoneal portion of the round ligament, hernia sacs, skin, and scars has been cited as regions of endometrial involvement in the groin [1, 5, 10, 14]. Clausen reported 30 cases of endometriosis in the inguinal area, which were often associated with an inguinal hernia [4], and Miranda reported another 25 cases [11]. There are two cases of endometriosis in a hernia sac that had no association with the round ligament [1, 13]. It is noteworthy that the present case had continuity with the right round ligament but no association with inguinal hernia.

Our extensive literature survey revealed that there have been no reports about

MRI or CT examinations of inguinal endometriosis. In the present case, as compared with the muscles, the magnetic resonance images demonstrated a poorly circumscribed mass, which had the same intensities on T1 weighted images and higher intensities with partial low intensities on T2 weighted images and a mosaic pattern on enhancement. Retrospectively, these findings corresponded well with the macroscopic and microscopic findings of endometriosis. If a fertile woman has a painful mass in the inguinal region associated with the menstrual cycle or not, endometriosis should be considered as a differential diagnoses.

REFERENCES

1. Brzezinski, A. & Durst, A. L.: Endometriosis presenting as an inguinal hernia. *Am J Obstet Gynecol* 146: 982–983, 1983.
2. Candiani, G. B., Vercellini, P., Fedele, L., Vendola, N., Carinelli, S. & Scaglione, V.: Inguinal endometriosis: pathogenesis and clinical implications. *Obstet Gynecol* 38: 577–581, 1991.
3. Cullen, T. S.: Adenomyoma of the round ligament. *Johns Hopkins Hosp Bull* 7: 112–114, 1896.
4. Clausen, I. & Nielsen, K. T.: Endometriosis in the groin (review). *Int Gynecol Obstet* 25: 469–471, 1987.
5. Demetriades, D., Levy, N. B. & Posen, J. A.: Endometriosis of the inguinal canal. *S Afr J Surg* 21: 61–62, 1983.
6. Felding, C., Nyrnberg, L. E. & Moesgaard, J.: Endometriosis of the round ligament. *Ann Chir Gynaecol* 78: 327–328, 1989.
7. Fox, H. & Buckley, C. H.: Current concept of endometriosis. *Clin Obstet Gynaecol* 11: 279–287, 1984.
8. Jimenez, M. & Miles, R. M.: Inguinal endometriosis. *Ann Surg* 151: 903, 1960.
9. Luciano, A.A. & Pitkin, R.M.: Endometriosis: approaches to diagnosis and treatment. *Surg Ann* 16: 297–312, 1984.
10. Markham, S. M., Carpenter, S.E. & Rock, J. A.: Extrapelvic endometriosis. *Obstet Gynecol Clin North Am* 16: 193–219, 1989.
11. Miranda, L., Settembre, A., Capasso, P., Picolboni, D., De Rosa, N. & Coroione, F.: Inguinal endometriosis or irreducible hernia? A difficult preoperative diagnosis. *Hernia Mar*; 5(1): 47–49, 2001.
12. Molgaard, C. A., Golbeck, A. L. & Gersham, L.: Current concepts in endometriosis. *West J Med* 143: 42–46, 1985.
13. Quagliarello, J., Coppa, G. & Bigelow, B.: Isolated endometriosis in an inguinal hernia. *Am J Obstet Gynecol* 152: 688–689, 1985.
14. Sampson, J. A.: Inguinal endometriosis (often reported as endometrial tissue in the groin, and adenomyoma of the round ligament). *Am J Obstet Gynecol* 10: 462–503, 1925.
15. Sataloff, D. M., LaVorgna, K. A. & McFarland, M. M.: Extrapelvic endometriosis presenting as a hernia clinical reports and review of the literature. *Surgery* 105: 109–112, 1989.
16. Singh, K. K., Lessels, A. M., Adam, D. J., Jordan, C., Miles, W. F. & Greig, J. D.: Presentation of endometriosis to general surgeons: a 10 year experience? *Br J Surg Oct*, 82(10): 1349–1351, 1995.
17. Tran, D. K. & Leroy, J. L.: Endométriose externe *EMC Gynécologie* 150 A 10, 1996.
18. van der Woude, H. J., Bloem, J. L. & Pope, T. L.: Magnetic resonance imaging of the musculoskeletal system. *Clin Orthop*, Feb ; (347): 272–286, 1998.

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