

# Endometriosis of Right Inguinal Subcutaneous Tissue

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## Abstract

Endometriosis is usually found in intrapelvic structures such as ovaries, pelvic peritoneum and Douglas pouch. We report an unusual case of endometriosis in the right inguinal region. A 45-year-old Japanese woman complained of pain and a mass in the right inguinal region, and her symptoms fluctuated with the menstrual cycle. A poorly defined and elastic hard mass was palpable in the right inguinal region. Magnetic resonance imaging (MRI) showed mass in front of the pubis measuring  $2 \times 1$  cm at the lower edge of the rectus abdominis muscle. We performed an excisional biopsy and pathological diagnosis was endometriosis. After the operation, she was relieved from pain and did not show any recurrence at the latest follow-up 30 months after the surgery. In patients with an inguinal subcutaneous mass complaining of periodic change of symptoms, endometriosis should be considered as a differential diagnosis. Since endometriosis can show variable signals on MRI, histological examination including biopsy is mandatory.

**Keywords:** Endometriosis; Inguinal subcutaneous tissue; Histology

## Introduction

Endometriosis is defined as functional endometrial tissue out-

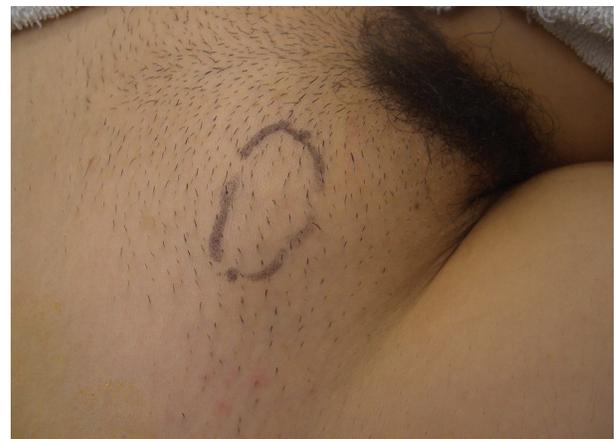
side of the uterine cavity. Endometriosis is usually found in intrapelvic structures such as ovaries, pelvic peritoneum and Douglas pouch. Extrapelvic endometriosis is rare, and some cases show symptoms similar to those of soft tissue tumors [1].

We report an unusual case of endometriosis in the right inguinal region resembling a soft tissue tumor.

## Case Report

A 45-year-old woman who had two pregnancies and two children first noticed pain and a mass of her right inguinal region. She did not have any noticeable disease or Cesarean section. At the local physician, the patient was diagnosed with thrombophlebitis and treated with an administration of NSAIDs and antibiotics. Since the pain gradually increased, the patient visited our out-patient clinic 1 year after the onset.

Physical examination revealed an elastic hard, ill-defined mass in the right inguinal region. The mass was  $2 \times 1$  cm in size and its mobility was poor. The skin color overlying the mass was normal (Fig. 1). Radiographs of the pelvis were normal. Magnetic resonance imaging (MRI) taken during her menstruation revealed a mass, measuring  $2 \times 1$  cm, in the subcutaneous tissue in front of the right superior pubic ramus.



**Figure 1.** A photograph showing the location of the mass. Elastic hard,  $2 \times 1$  cm ill-defined mass was palpable within the area marked on the skin.

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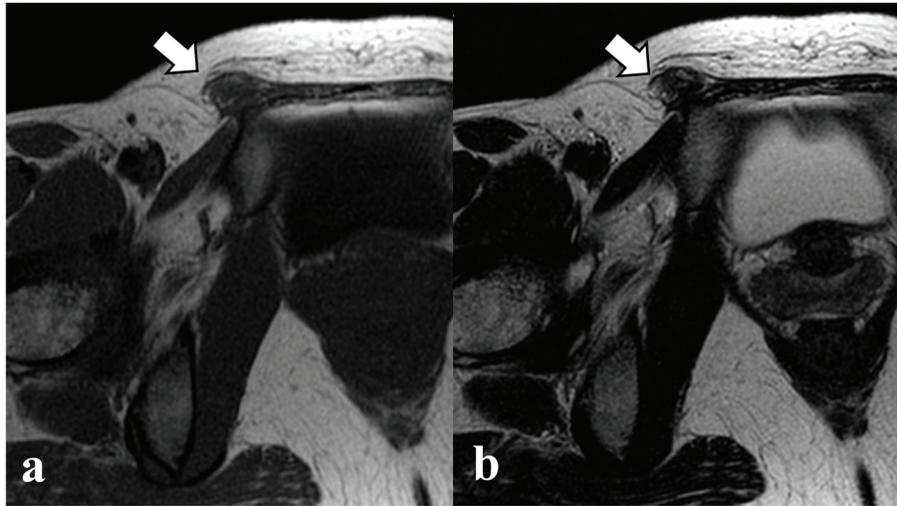
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**Figure 2.** Magnetic resonance imaging of the mass. On T1-weighted images (a), the mass showed iso-signal intensity. On T2-weighted images (b), iso-signal intensity area and high signal intensity area were irregularly distributed.

This mass showed iso-signal intensity on T1-weighted images, and on T2-weighted images, the mass showed iso-signal intensity with partial high-signal intensity area (Fig. 2), suggesting desmoid, or other soft tissue tumors.

We performed a biopsy. An elastic hard tumor was located in the subcutaneous tissue (Fig. 3). Macroscopically, a band-like structure in a specimen was observed (Fig. 4). We removed the mass with a wide margin, thinking of the case of malignancy and recurrence. Histological examination showed gland structures consisting of cylindrical epithelium in a dense fibrous tissue (Fig. 5a). These epithelia showed minimal nuclear atypia, and they were positive for estrogen (Fig. 5b). A diagnosis of endometriosis was made. Microscopically, a band-like structure was a dense fibrous tissue around the gland. We noticed, after the diagnosis, that her intensity of the pain and tenderness periodically increased during menstruation. She was relieved from pain and there was no recurrence at the latest follow-up 30 months after the surgery.



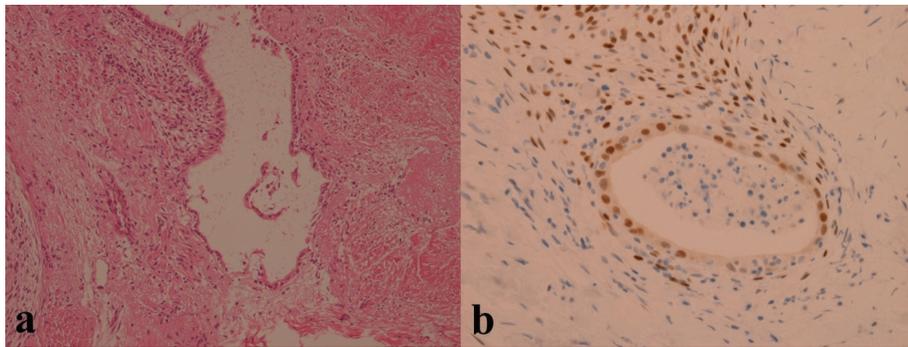
**Figure 3.** A surgical finding of the mass. The tumor was located in the subcutaneous region.

## Discussion

Endometriosis occurs in 10% woman who can give birth [2]. Most patients with endometriosis are asymptomatic, but some of them have infertility, menstrual irregularities, menorrhagia, low abdominal pain or low back pain [1]. The occurrence of symptoms and growth of the endometriosis depend on estrogen. Therefore, periodic increase of symptom intensity associated with menstruation can occur. The current patient complained that the intensity of the symptom periodically increased during menstruation, although we did not notice before the histological diagnosis. Although endometriosis is usually found in intrapelvic structures such as ovaries, pelvic peritoneum or Douglas pouch, extrapelvic endometriosis is relatively uncommon. Extrapelvic endometriosis can occur in the ileum, jejunum, pleura, lung, palm, forearm, and peripheral nerve. Endometriosis that occurred in the pleura is famous as the catamenial pneumothorax. Operative scar after cesarean



**Figure 4.** A cut surface of the surgical specimen. A band-like structure in a specimen was observed.



**Figure 5.** Histopathological findings of the tumor. Gland structures consisting of cylindrical epithelium in dense fibrous were observed (a: original magnification  $\times 100$ ). This epithelium was positive for estrogen (b: original magnification  $\times 400$ ).

section has the potential to be an endometriosis [3-5]. In the current case, the patient did not have any Cesarean section nor operation around the inguinal region. In extrapelvic endometriosis, those occurring in the inguinal subcutaneous tissue are extremely rare. Candiani et al reported that the incidence of endometriosis in the inguinal region was 0.6% in all extrapelvic cases [6]. Therefore, it is difficult, in inguinal region, to diagnose a soft tissue mass as the extrapelvic endometriosis.

Clausen and Nielsen reported the largest series of endometriosis in the inguinal region, including 30 cases. In 27 of the 30 cases, the lesion occurred on the right side [7]. In other literature, the right side was predominant, and two-thirds of the cases occurred around the round ligament [8]. Similarly, the lesion in the current case was on the right side, and ligamentous structure was observed in the surgical specimen. Hagiwara et al reported two cases of inguinal subcutaneous endometriosis attaching to the round ligament of the uterus. They mentioned there had been continuity between the lesion and right round ligament of the uterus, but no association with inguinal hernia [9, 10].

In previous reports, endometriosis usually appears as a high signal intensity lesion on T1-weighted images, owing to depositing of methemoglobin. On T2-weighted images, high signal intensity is common; however, diffuse hemosiderin deposition reflecting cyclic hemorrhage can result in low signal intensity appearance. Shading or variable loss of signal intensity on T2-weighted images is a frequent feature of endometriosis [11-13]. In the current case, the mass showed iso-signal intensity both on T1- and T2-weighted images. In addition, the mass showed partial high signal intensity area on T2-weighted images. Since the appearance of an endometriosis on MRI is variable, diagnosis of endometriosis by MRI is considered to be difficult. The importance of biopsy for correct diagnosis should be stressed. Furthermore, if clinical history including periodic pain cycle and MRI can suggest a possibility of endometriosis, excisional biopsy should be done with a wide margin, since operative scar has a potential to be an endometriosis [3-5]. Proliferation of fibrous tissue, gland structures consisting of cylindrical epithelium, and immunohistochemical positive reaction for estrogen can be helpful for the diagnosis of endometriosis [14].

In summary, in patients with a right inguinal subcutaneous mass complaining of periodic change of symptoms, endometriosis should be considered as a differential diagnosis. Since

endometriosis can show variable signals on MRI, histological examination including biopsy is mandatory.

### Conflicts of Interest

We do not have any conflict of interest.

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