

Functional medicine

Endometriosis in the Canal of Nuck presenting with suprapubic pain: A case report and literature review

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ARTICLE INFO

Keywords:

Endometriosis
Canal of nuck
Suprapubic pain

ABSTRACT

The endometriosis in the Canal of Nuck is a rare condition. Most patients exhibited groin swelling but this case present with a rare condition which is suprapubic pain for 2 years. This case is a 34-year-old healthy woman had developed chronic intermittent right suprapubic pain for 2 years. Physical examination revealed a 2-cm. Reducible mass at right suprapubic area. MRI was performed and the result showed a $2.7 \times 1.3 \times 4.9$ cm-size multiloculated cystic mass located near the round ligament of the uterus which was consistent with a Nuck's canal cyst. The definitive treatment was done by excision of mass.

1. Introduction

The Canal of Nuck is an abnormal patent of the processus vaginalis located in the inguinal canal in females. It was first described and reported by Anton Nuck in 1961.¹ Several structures could be found in the canal of Nuck, for example, hydrocele, hernia and cyst. Endometriosis, however, is rarely found in this distinctive structure. There have been only 17 cases reported in 14 literatures on the Pubmed database of cases of endometriosis in the Canal of Nuck. Most patients exhibited groin swelling while one case displayed vulvar swelling.² Two cases exhibiting abnormal mass at groin and were diagnosed with endometriosis complicated by cancer or carcinoma.³ Interestingly, none of these cases had experienced suprapubic or pelvic pain. In this report, we would like to present a rare experience of endometriosis in the Canal of Nuck. This patient did not exhibit groin swelling but developed suprapubic pain and came to visit at our urology clinic as an out-patient case instead of a surgery clinic. Hence, urologists should be aware of this uncommon condition.

2. Case presentation

A 34-year-old healthy woman had developed chronic intermittent right suprapubic pain for 2 years. She noticed that she had a first episode of dull aching pain while running and its severity was intense so that she had to halt running. Sometimes, she felt a small lump of reducible mass at her right suprapubic area. She denied a history of lower urinary tract symptoms or dysmenorrhea. However, she felt that her pain would be

aggravated by a period of menstruation. Her bowel movement was normal. Her symptoms worsened and she could palpate that abnormal mass approximately six months before she came to visit our clinic. Physical examination revealed a 2-cm. Reducible mass at right suprapubic area, mild tenderness on palpation, otherwise is unremarkable. Abdominal ultrasonography was performed and showed an oval-shape, cystic mass with internal thin septate at the medial aspect of right inguinal region. The size of this mass was 3.5 cm in length and 1 cm in width. No communication with the peritoneal cavity was noted. The differential diagnoses made by a radiologist was either hydrocele of the Canal of Nuck or lymphangioma. MRI was then performed to clearly identified the origin of this mass and the result showed a $2.7 \times 1.3 \times 4.9$ cm-size multiloculated cystic mass with thin septate in the right inguinal canal medial to the right common femoral vein. The cyst is located near the round ligament of the uterus which was consistent with a Nuck's canal cyst. The definitive treatment was done by excision of mass. Intraoperatively, we found an irregular soft to rubbery, light brown tissue mass 4 cm in size locating closed to the round ligament (Fig. 1). The pathologic examination found a multi cystic lesion which was lined by mesothelium cells and a fibrous wall with multiple foci of misplaced endometrial glands and stroma (Fig. 2).

3. Discussion

The development of the inguinal canal in an embryo is related to the gubernaculum and the processus vaginalis. In females, the theory of the development of gubernaculum is controversial. Several studies have

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<https://doi.org/10.1016/j.eucr.2020.101497>

Received 2 November 2020; Received in revised form 11 November 2020; Accepted 14 November 2020

Available online 18 November 2020

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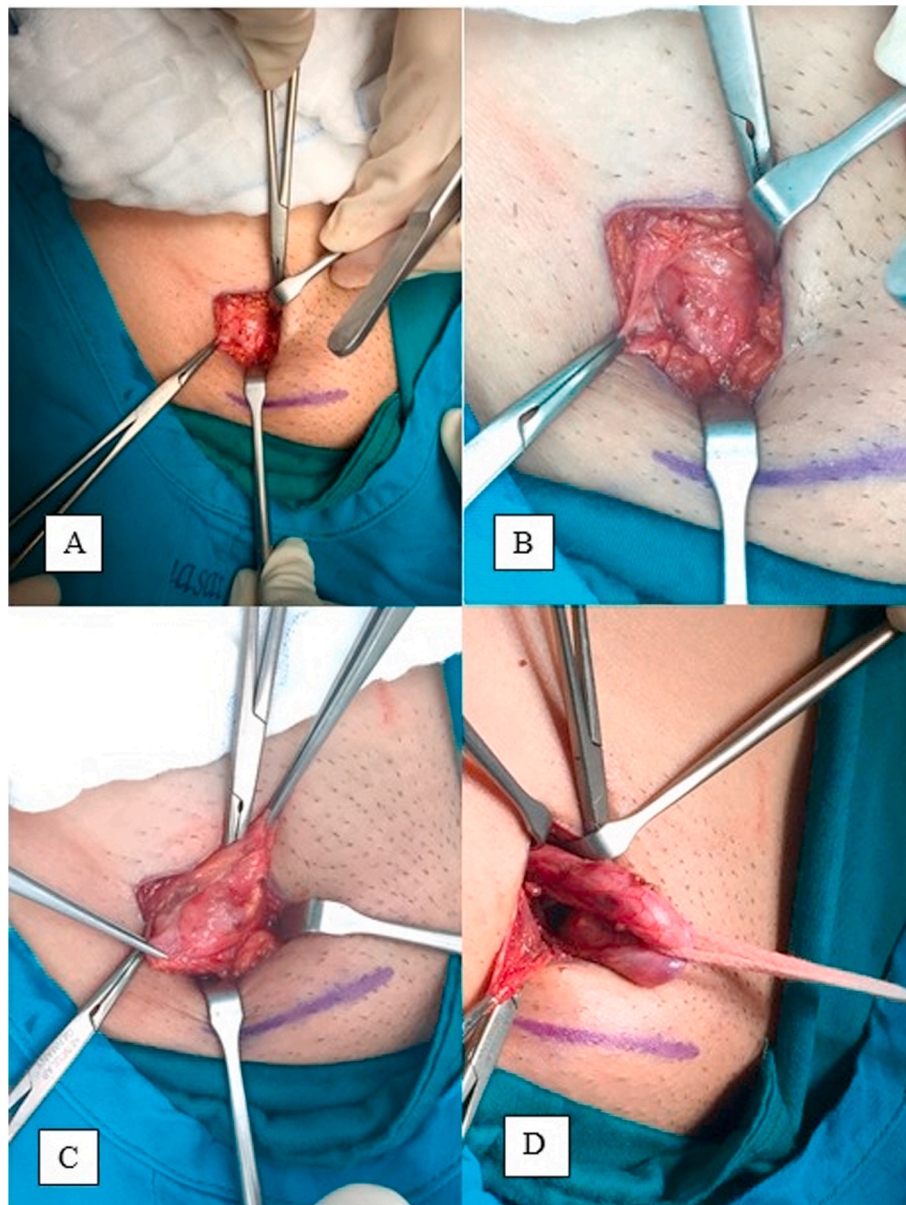


Fig. 1. Shows intraoperative pictures. A shows the Canal of Nuck after exploring the area of tenderness, B shows after opening Canal of Nuck, C and D shows cystic mass in the Canal of Nuck locating close to the round ligament.

indicated that the gubernaculum would become the round ligament because it connects between the uterus and the labia majora by passing through the inguinal canal. Thus, the round ligament acts like a male gubernaculum which connects between the scrotum and both testes. During normal development of a female embryo, the processus vaginalis is short and it will obliterate before birth. Nevertheless, if it remains, it may become the patent pouch of the peritoneum lining in the inguinal canal. This pouch usually locates anterior to the round ligament and may extend into the labia majora; called 'Canal of Nuck'. Extrapelvic endometriosis is an unusual condition and may affect a number of organs. To date, many theories have been posited about the pathophysiology of extrapelvic endometriosis. The first theory is that this type of endometriosis is resulting from retrograde menstruation. Meanwhile, the other two theories state that it comes from vascular and lymphatic spread, or coelomic metaplasia.⁴ Endometrial cells might attach to the round ligament and might cause inguinal endometriosis but this phenomenon is a rare condition. The pathogenesis of the endometriosis in the Canal of Nuck in this patient including her chronic suprapubic pain symptoms

could be explained by the aforementioned theories. The American college of Obstetricians and Gynaecologists defines chronic pelvic pain as non-cyclic pain which lasts for six months or more. This type of pain usually localizes to the anatomic pelvis, anterior abdominal wall at or below the umbilicus, the lumbosacral back, or the buttocks and is of sufficient severity to cause functional disability or lead to medical care. There are several common causes resulting in chronic pelvic pain in women, for example, diseases of pelvic organs including the bladder and fibromyalgia.⁵ However, the Canal of Nuck is an exceedingly rare condition which is a least common cause of chronic pelvic pain. While most patients tend to present with hernias and hydroceles, this patient has had chronic right suprapubic pain for more than 6 months. She, however, did not seek for medical care or receive any treatment. She eventually came to our urology clinic because of the mass and pain. We sent her to perform abdominal ultrasound as well as MRI in order to identify the cause and origin of this mass. We then decided to perform the excision as it is the definitive treatment and sent the tissue to the pathologist to confirm the diagnosis. Even though the endometriosis in

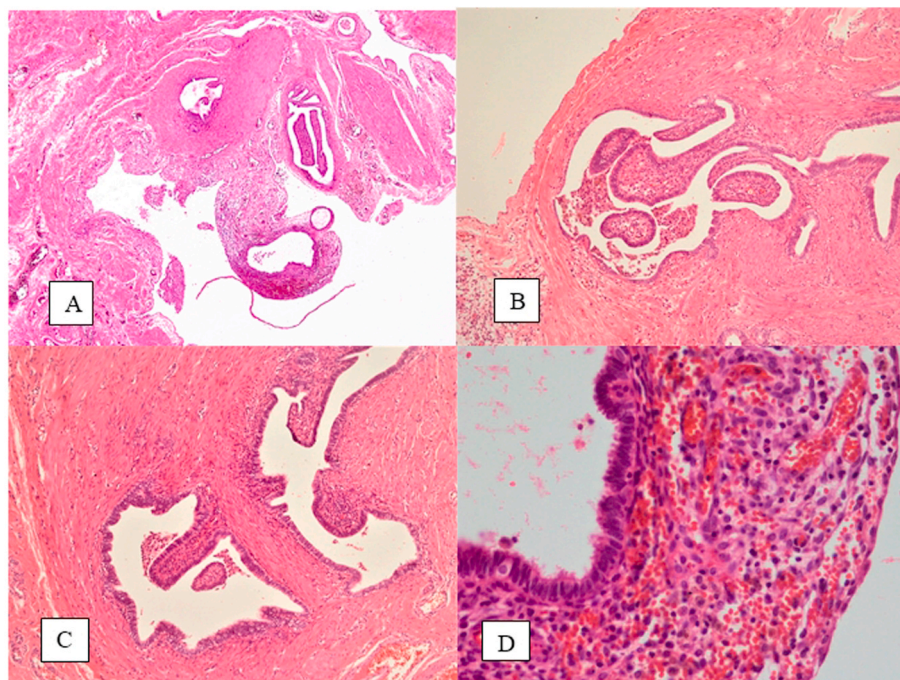


Fig. 2. Shows endometrial gland from pathological examination. A shows $\times 40$, B and C show $\times 100$, and D shows $\times 400$ magnification.

the Canal of Nuck is an uncommon condition, this case reminds urologists that they should be aware of this diagnosis. Differential diagnoses should include this condition in women presenting with suprapubic pain. History taking about the characteristic of pain, careful physical examination and appropriate further investigations should be done to avoid the misdiagnosis.

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