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Case Report

Uncharted territory: endometriosis explored in the left canal of Nuck

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ABSTRACT

In this captivating exploration, we unravel a perplexing case of endometriosis taking root within the enigmatic left canal of Nuck. A 33-year-old woman with a tenacious groin mass, manifesting occasional discomfort during menstruation, led us down a diagnostic rabbit hole. Through ultrasound and MRI revelations, a mass emerged, stretching through the left inguinal canal into the pubic domain. The subsequent cytological analysis solidified the diagnosis. While endometriosis, characterized by extrinsic endometrial tissue, typically confines its grip to the pelvic arena, this singular case defies convention. The canal of Nuck, a developmental vestige, reveals itself as a potential portal for endometrial cells under enigmatic conditions. Amid diagnostic intricacies, ultrasound and MRI step forth as guiding imaging tools. In a medical landscape rife with the known, this expedition into the uncharted expands our understanding and beckons us to probe further into the remarkable intricacies of Nuck's canal endometriosis.

Keywords: Endometriosis, Canal of Nuck, Inguinal canal, Fine needle aspiration cytology

INTRODUCTION

A frequently encountered benign gynaecological disorder known as endometriosis is characterised by the presence of endometrial tissue (comprises glands and stroma) outside of the uterine cavity. 10-15% of reproductive women are affected by the condition.¹ Endometriosis can also occur in extra-pelvic locations with a reported incidence of 0.8%.²

Cullen initially identified endometriosis in the canal of Nuck in 1896, and it is an uncommon disease with an incidence of 0.4%.³ The anatomical defect known as the canal of Nuck (NC), which occurs when a parietal peritoneal pouch follows the gubernaculum during its development and was named after Anton Nuck's in 1691.⁴

CASE REPORT

A 33-year-old female presented to her general practitioner with a 10-month history of a left-sided groin mass. It was progressively increasing in size over few weeks. The mass

was occasionally painful during menstruation and was more prominent when standing and straining. Her surgical history included dilation & curettage for abortion and one caesarean section. On examination, the mass was lateral to the left pubic tubercle and measured ~2×2 cm in diameter. It was firm and irreducible. Although it was more prominent upon standing, there was no cough impulse. There was no local lymphadenopathy present, and the skin overlying the lesion was not erythematous. The abdominal and vaginal examinations were unremarkable. The patient was referred for an ultrasound (US) of the left groin which showed a subcutaneous hypoechoic left inguinal mass with ill-defined margins measuring 2.8×2.5 cm (Figure 1). CEMRI pelvis has been performed further to characterise lesion.

MRI revealed a mass measuring ~2×2.8×2.5 cm (APXTRXCC) with irregular contours extending through the left inguinal canal into the left lateral pubic area that was intermediate signal intensity on T2-weighted axial image (Figure 2a). On T1-weighted axial image (Figure 2b), the mass was hypointense and hyperintense on fat-suppressed T1-weighted axial image (Figure 2c), which

indicates haemorrhagic areas. After intravenous gadolinium administration the mass showed only slight homogenous enhancement (Figure 3). It was showing diffusion restriction on DWI/ADC images (Figure 4). Few blooming foci on FFE image was noted within left rectus muscle- likely extra-pelvic endometriotic implants (Figure 5). Fine needle aspiration cytology of the lesion showed spindle shaped stromal cells and few histiocytes on haemorrhagic background which confirmed the endometriosis (Figure 6).

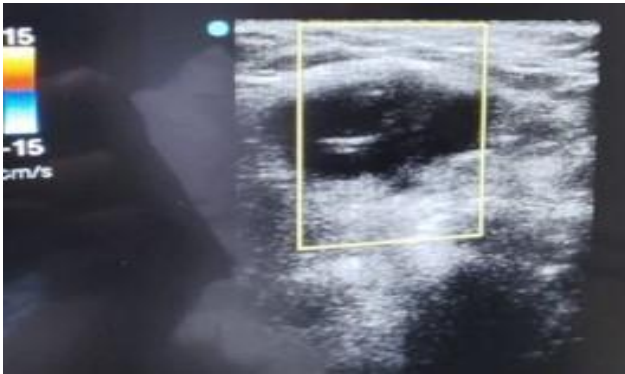


Figure 1: Ultrasonography revealed a hypoechoic left inguinal mass, with ill-defined margins.

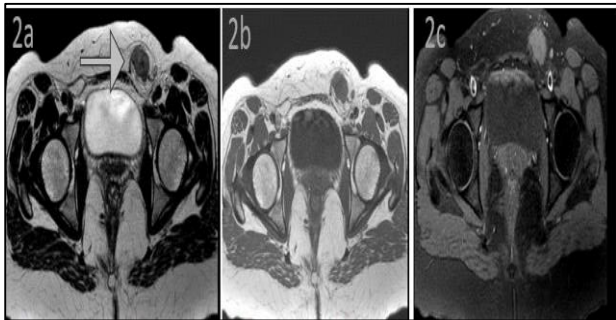


Figure 2 (A-C): T2-weighted axial image revealed an irregular lesion (arrow) with intermediate signal intensity, extending through the left inguinal canal into the left pubic area. The mass was mainly hypointense on T1-weighted image and appeared hyperintense on fat-suppressed T1-weighted image suggestive of hemorrhage.

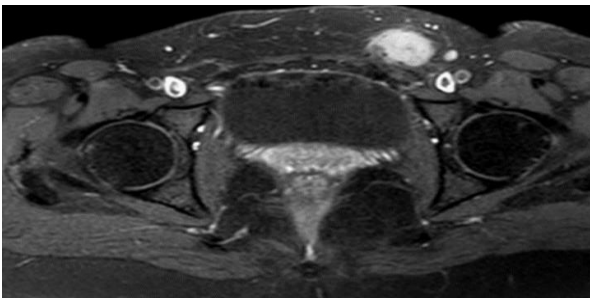


Figure 3: After the injection of gadolinium contrast material the mass showed minimal homogenous enhancement.

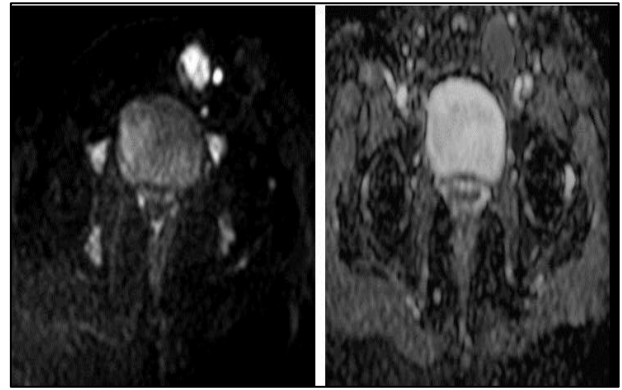


Figure 4: The mass lesion was showing diffusion restriction on DWI/ADC images.

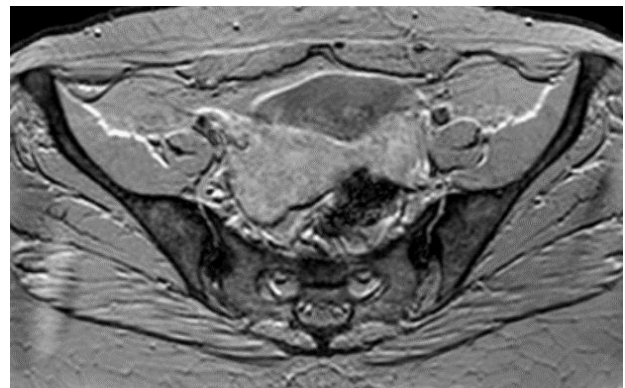


Figure 5: On FFE image, few blooming foci were seen within left rectus muscle.

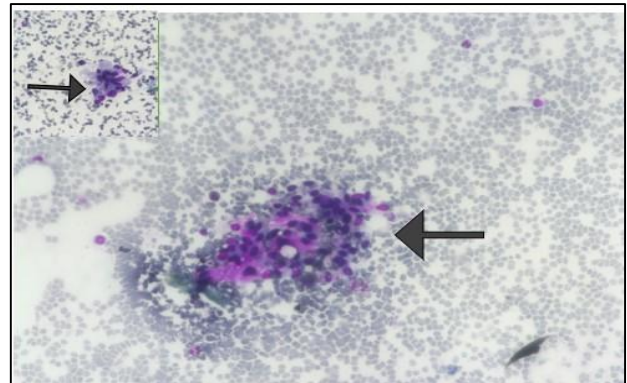


Figure 6: Fine needle aspiration cytology of the lesion showed spindle shaped stromal cells and few histiocytes on haemorrhagic background. Inset: histiocyte (20x).

DISCUSSION

The clinical presentation, anatomic location of the mass and MRI imaging findings, were suggestive of endometriosis in the canal of Nuck.

The canal of Nuck is a "glove finger-like" evagination of parietal peritoneum that extends through the inguinal canal

into the labium majus and is typically obliterated during the first year of life. Occasionally, the canal of Nuck can remain patent, providing a communication between the peritoneal cavity and the inguinal canal. The aforementioned defect may lead to the development of a hydrocele or the herniation of surrounding intraabdominal tissues through a canal. It can be penetrated by endometrial cells under specific conditions, which are, however, unclear, leading to the emergence of endometriosis.

Endometriotic implants appear throughout the pelvic structures probably a result of endometrial cells infiltrating to the pelvic cavity through the fallopian tubes during retrograde menstruation.

When endometriosis affects the canal of Nuck the most common symptom is a groin inguinal lump (96%). In literature, there is substantial preponderance of right-sided Nuck canal endometriotic lesions, but in our case, it is very well appreciated over left side.⁵

Unusual groin mass poses a diagnostic challenge; therefore, ultrasonography is recommended as the first-line imaging modality because it can accurately differentiate between cystic or solid lesions.

Pelvic MR imaging with its large field of view and multiplanar imaging is useful for identifying haemorrhagic content that characterizes endometriosis and allows a correct mapping of multiple deeply infiltrating endometrial implants, also facilitating the surgical planning.⁶

The differential diagnosis of a groin lump or a subcutaneous mass of the inguinal region is challenging and may include a wide variety of entities such as hernia, lymph node enlargement, malignancy, endometriosis, Nuck hydrocele, lipomas, and abscess.⁷ Malignancy arising from arising from Nuck endometriosis have been reported in the literature, very rarely.

Surgical wide excision of the lesion is the treatment of choice. Type of surgical procedure varies from transabdominal laparoscopic or open approach to excisional biopsy of the tumor through an inguinal approach. The surgeon should be aware so as to avoid dissemination of endometriotic cells to the surrounding tissues during surgical manipulations in order to reduce recurrences.⁸

CONCLUSION

Despite its rarity, the Nuck endometriosis is an existing entity, which should not be overlooked when investigating the pathology of the NC.

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