



Contents lists available at SciVerse ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.elsevier.com/locate/ijscr

Endometriosis in the canal of Nuck hydrocele: An unusual presentation

A. Bagul^{a,*}, S. Jones^a, S. Dundas^b, Emad H. Aly^a^a Colorectal Surgical Unit, Aberdeen Royal Infirmary, Aberdeen AB25 2ZD, United Kingdom^b Department of Pathology, Aberdeen Royal Infirmary, Aberdeen AB25 2ZD, United Kingdom

ARTICLE INFO

Article history:

Received 13 August 2010

Received in revised form 1 March 2011

Accepted 29 March 2011

Available online 20 September 2011

Keywords:

Endometriosis

Canal of Nuck

Hydrocele

ABSTRACT

The authors describe an unusual rare presentation of endometriosis in a hydrocele of the canal of Nuck. A 43-year-old lady presented with a swelling in her right groin associated with mild discomfort. Examination revealed a cystic swelling in the groin for which she underwent an exploration and excision of the swelling. Surgery revealed a hydrocele of the canal of Nuck which was confirmed histologically. The unusual presentation of endometriosis in the sac was confirmed immunocytochemically.

© 2011 Surgical Associates Ltd. Published by Elsevier Ltd. All rights reserved.

1. Background

The canal of Nuck described by a Dutch anatomist Anton Nuck in 1691⁴ is an abnormal patent pouch of peritoneum extending into the labium majus of women. It is the female embryological remnant equivalent to the male processes vaginalis. During embryological development small invaginations of parietal peritoneum accompany the round ligament of the uterus through the internal inguinal ring into the inguinal canal. The round ligament inserts into the ipsilateral labium majus; incomplete obliteration leads to a patent peritoneal evagination called the canal of Nuck which in turn fills with fluid to form a hydrocele. This can present as a swelling in the inguinal region.

Endometriosis is a common gynecology entity affecting 1–2% of woman.¹ Endometriosis is retrograde implantation of endometrial tissue outside the uterus. It usually involves the ovaries and peritoneum² although rare cases have been reported in the lungs, rectum, vagina, subcutaneous tissue and inguinal canal.³ The patent canal of Nuck supports the theory of retrograde implantation or movement of endometrial tissue into the extraperitoneal space as it creates a communication between the peritoneal cavity and the inguinal canal.⁴

2. Case presentation

A 43-year-old lady presented to the surgical clinic with a swelling in her right groin, associated with mild discomfort. Her symptoms of discomfort progressively worsened over 8 weeks and she had also noticed a small lump in her right groin, present for

over 8 months. She had no history of trauma, her medical history was unremarkable. She was premenopausal and had regular menstrual cycles and had no symptoms of endometriosis. There were no associated symptoms and the lump did not alter with her menstrual cycle. Examination revealed a 2.5 cm cystic subcutaneous swelling in the groin which was painless on palpation.

She underwent an exploration of right groin which revealed a cystic subaponeurotic swelling in continuity with the round ligament. Dissection of the subcutaneous tissues revealed a hydrocele of the canal of Nuck; hydrocele fluid was aspirated and sent for histopathology. On probing the neck of the sac, it was revealed that the hydrocele was communicating with the peritoneal cavity. The sac was transfixed, excised and sent en-block for histopathology.

The hydrocele sac was confirmed on histology, the sac lining was associated with multiple foci of endometriosis, haemosiderin deposition, inflammation and fibrosis. The diagnosis was confirmed immunocytochemically. The features seen support those of endometriosis in the canal of Nuck, presenting as a hydrocele.

3. Discussion

During embryological development, the processes vaginalis is a peritoneal evagination into the inguinal canal and in the female it accompanies the round ligament or the gubernaculum. In both sexes it obliterates completely by the first year of life. When it fails to obliterate completely, it can result either in a congenital hernia or a hydrocele.⁵ Hydroceles are more common in the male probably because of the differences in migration of the gonads. A hydrocele can result from either a persistent patency of the processes vaginalis with peritoneal communication, as in this patient, or with proximal obliteration at the deep ring with over-secretion and under-absorption in the distal segment. In such cases, the canal provides the most likely pathway for the endometrial tissue to implant

* Corresponding author.

E-mail address: drbagul@doctors.org.uk (A. Bagul).

into superficial inguinal tissues extending as far as 96% into the inguinal region. It has been proposed that extra-pelvic endometriosis that is distant to the uterus tends to lose its hormonal receptors and response, hence the lack of cyclic symptoms. The canal of Nuck cyst is thin walled, contains clear fluid and is lined by cuboidal or flattened mesothelial cells.⁶ Normally the hydrocele of the canal of Nuck presents as a painless, translucent, irreducible lump in the groin. The explanation of the discomfort and pain in this case could be due to the presence of the extraperitoneal endometriosis in the hydrocele,⁷ however the overlying fascia of external oblique may not allow transillumination. Surgical excision is effective treatment as it is therapeutic along with being diagnostic. There are 5 reported cases in literature which are listed in the table below.

Turpin, et al.	Involvement of Canal of Nuck by endometriosis.	J Radiol 2001;82:933–35
Louis Wu, et al.	Atypical manifestation in an unusual location.	AJR 2005;185(July):284–5
Whitford W, et al.	Endometriosis of canal of Nuck	AJR 2006;186(January):56
Lai CH, et al.	Challenge in management of Endometriosis in canal of Nuck	Fertil Steril 2009;91(3):936
Blandino A, et al.	Nuck canal endometriosis: MR imaging findings and clinical features	Abdom Imaging 2010;35(December (6)):737–41

4. Conclusion

We demonstrate the unusual manifestation of extra peritoneal endometriosis in the canal of Nuck. Endometriosis in the canal of Nuck can present as a painless swelling in the groin and may be unaffected by the menstrual cycle, possibly because it is distant to the uterus and loses of hormonal response. Despite imaging, often surgical intervention is justified as diagnosis is unclear.

Accurate diagnosis requires both histological and immunocytochemical techniques.

Conflict of interest

None known.

Funding

None.

Contributors

All authors are involved in case study.

Ethical approval statement

Written consent obtained.

References

1. Diagnosis and Treatment of Endometriosis. *Am Acad Fam Phys* 1999;**60**:6(October).
2. Seli E, Berkkanoglu M, Arici A. Pathogenesis of endometriosis. *Obstet Gynecol Clin North Am* 2003;**30**:41–61.
3. Strasser EJ, Davis RM. Extraperitoneal inguinal endometriosis. *Am Surg* 1977;**43**:421–2.
4. Shadbolt CL, Heinze SBF, Dietrich RB. Imaging of the groin masses: inguinal anatomy and pathologic conditions revisited. *Radiographics* 2001;**21**:S261–71.
5. Nuck. *Adenographia curiosa et uteri foeminei anatome nova*. Leiden; 1691. p. 130.
6. Moore KL. *The developing human: clinically oriented embryology*. 3rd ed. Philadelphia: WB Saunders; 1982.
7. Markham SM, Carpenter SE, Rock JA. Extrapelvic endometriosis. *Obstet Gynecol Clin North Am* 1989;**16**:193–219.

Open Access

This article is published Open Access at sciedirect.com. It is distributed under the IJSCR Supplemental terms and conditions, which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.