ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 5, Issue – 1, February - 2020, Page No. : 166 - 170

Endometriosis and herniation of fallopian tube in Canal of Nuck hydrocele: A rare case report

[1]Dr. Surabhi Sapre, Pathology Resident, Department of Pathology, NKP Salve Institute of Medical Sciences and Research Centre, Digdoh Hills, Nagpur 440019, Maharashtra.

[2]Dr. Kalpana Bothale , Associate Professor, Department of Pathology, NKP Salve Institute of Medical Sciences and Research Centre, Digdoh Hills, Nagpur 440019, Maharashtra.

[3]Dr. Sadhana Mahore, Professor & HOD, Department of Pathology, NKP Salve Institute of Medical Sciences and Research Centre, Digdoh Hills, Nagpur 440019, Maharashtra.

[4]Dr.Sabiha Maimoon, Professor, Department of Pathology, NKP Salve Institute of Medical Sciences and Research Centre, Digdoh Hills, Nagpur 440019, Maharashtra.

Corresponding Author: Dr. Surabhi Sapre, Pathology Resident, Department of Pathology, NKP Salve Institute of Medical Sciences and Research Centre, Digdoh Hills, Nagpur 440019, Maharashtra.

Citation this Article: Dr. Surabhi Sapre, Dr. Kalpana Bothale, Dr. Sadhana Mahore, Dr.Sabiha Maimoon, "Endometriosis and herniation of fallopian tube in Canal of Nuck hydrocele: A Rare Case Report", IJMSIR- February - 2020, Vol – 5, Issue -1, P. No. 166 – 170.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

The "Canal of Nuck" is an abnormal patent pouch of parietal peritoneum that invaginates the inguinal canal along with the round ligament in females. It is homologous to the processus vaginalis in males. The Canal of Nuck usually obliterates before birth or during the first year of life. Failure of closure or incomplete obliteration of the canal of Nuck may lead to the development of indirect inguinal hernia or hydrocele. Endometriosis i.e the implantation of endometrial tissue outside the uterine cavity, is rare in the canal of Nuck. Endometriosis may also occur in combination with inguinal hernia and hydrocele of the canal of Nuck, but these cases are exceedingly rare. We report the case a of 32-year-old female who presented with complaints of swelling in the right inguinal region. The contrast enhanced computed tomography scan of abdomen and pelvis was suggestive of hydrocele of canal of Nuck. Surgical excision of the cyst was done. Histopathological examination revealed the presence of fallopian tube and endometriosis in the hydrocele of canal of Nuck.

Keywords: Canal of Neck, Encysted Hydrocele, Endometriosis.

Introduction

The canal of nuck was first described by Anton Nuck in 1961 as the persistence of processus vaginalis peritoni in the inguinal canal of a female.[1] In most cases the canal of Nuck gets obliterated by eight months of gestation or first year of life.[2,3] Failure of closure or incomplete obliteration creates a communication between the peritoneal cavity, inguinal canal, and the labia majora. Various pathologies encountered in the canal of Nuck include

hydrocele or cyst of Nuck, inguinal hernias, inguinal gonad , endometriosis , infection/abcess, hematoma, and rarely benign/malignant neoplasms.[4] Endometriosis is a common gynaecological condition affecting women of reproductive age group. The common sites are ovary and peritoneum. Extraperitoneal inguinal endometriosis has an incidence of 0.4 percent.[5] The patent canal of Nuck is a likely pathway for retrograde implantation of endometrial tissue in the extraperitoneal space.[6] Hydrocele of canal of Nuck is a rare differential for inguinolabial swelling in females. Occurrence of endometriosis and presence of fallopian tube in it is yet rarer.

Case Report

A 32-year-old female presented to the surgery out-patient department with a complaint of swelling in the right inguinal region since 2 years. The swelling was associated with mild discomfort and gradually increasing in size since past 2 months. She had no history of trauma. There was no history of fever , abdominal pain, vomiting, distension of abdomen, altered bladder and bowel habits. The patient was premenopausal and had regular menstrual cycles with average flow. Local examination revealed a single, soft, non-tender swelling of size 6 cm × 4 cm in the right inguinal region extending up to the labia majora. The swelling was reducible and cough impulse was present. The overlying skin was normal and free from the groin lump. A provisional diagnosis of right sided inguinal hernia or hydrocele was kept.

Ultrasonography findings were suggestive of ill-defined anechoic cystic lesion of size 2.9 cm × 5.9 cm × 3.5 cm in the right iliac fossa extending up to mons pubis. Contrast enhanced computed tomography (CECT) scan of the abdomen and pelvis was suggestive of a thin-walled, loculated, and cystic lesion with an approximate volume of 128 cc in the right inguinal region, extending inferiorly up to mons pubis and superiorly into the retroperitoneum up to the right iliac fossa. The CECT imaging findings were suggestive of hydrocele of canal of Nuck.

Surgical exploration and excision of cyst was done and sent en-block for histopathology.

Gross examination **:** An elongated tubular structure with cystic dilation near one end was received. Total measuring 15 x 5 x 1 cm. Cystically dilated part measuring 6 x 4 cm. On cutting open clear watery fluid was obtained from the cystically dilated portion.

Microscopic examination revealed a cyst wall composed of fibroconnective tissue lined by flattened epithelium. Few areas of the cyst wall showed foci of endometrial glands and surrounding stroma. Fallopian tube plicae lined by low columnar cells were seen. Areas of haemorrhage, congested vessels and mixed inflammatory infiltrate composed of lymphocytes and few neutrophils was also seen.

Discussion

In females, the round ligament is attached to the uterus near the origin of the fallopian tube and to the ipsilateral labia majora.[7] An evagination of the parietal peritoneum herniates through the anterior abdominal wall ventral to the gubernaculum forming the canal of Nuck.[2] Hydrocele of canal of Nuck also known as the cyst of Nuck[8] / female hydrocele[8] / forgotten diagnosis[9] is a rare entity in females. The imbalance of the secretion and absorption of the mesothelial lining the processus vaginalis is a likely cause of cyst formation.[10] Cyst of Nuck usually presents as a inguino-labial swelling. The differential diagnosis of inguino-labial swelling in a female patient are indirect inguinal hernia or femoral hernia, enlarged lymph lodes, bartholin’s cyst; post-traumatic

hematoma, hydrocele of canal of nuck, lipoma, vascular aneurysms and rarely cystic lymphangioma, leiomyoma, sarcoma and endometriosis of round ligament[.2,7,11] In the present case a provisional diagnosis of indirect inguinal hernia was kept as the swelling was reducible and cough impulse present. Imaging modalities like ultrasonography and CECT play a crucial role in establishing a pre-operative diagnosis. There are three types of cyst of Nuck.[2] Type 1 is an encysted hydrocele.It is formed when the proximal portion of canal of Nuck closes and fluid is trapped within the canal forming a cyst. In type 2 hydrocele the canal of nuck remains patent ,communicating with the abdominal cavity and fluid moves freely between the abdomen and labia. In the present case the cyst was of type 3 hourglass hydrocele where the inguinal ring constricts one portion, and one portion communicates with the peritoneal cavity.[12]

The common differential of hydrocele of canal of Nuck is an inguinal hernia, and both can coexist in about one-third of the cases. Hernial sac may contain free or encysted fluid, omental fat, bowel loops and ovary.[2,13,14] Rare cases of uterus, fallopian tube, urinary bladder as contents of the canal of Nuck sac have been reported.[11,15,16] Inguinal hernias are more common on the right side as the sigmoid colon may help prevent herniation through the left deep inguinal ring.[16] In the present case, histopathological examination confirmed the presence of fallopian tube plicae in the canal of Nuck.

Microscopic examination of a cyst of the canal of Nuck usually reveals a thick fibrous wall showing blood vessels and occasionally smooth muscle fibers. The wall is lined by a single layer of flattened mesothelial cells which reflect its peritoneal origin.[10]

Endometriosis is the presence of endometrial glands and stroma outside the uterus.[17] Most commonly it occurs in the ovaries, peritoneum, within the Pouch of Douglas, and along the uterosacral ligaments.[4] Endometriosis in the canal of Nuck is a rare condition. It may present as soft groin mass associated with cyclical pain during menstruation.[18] It has been proposed that extra-pelvic inguinal endometriosis distant to the uterus may lose its hormonal receptors and hence the response.[6] In present case our patient did not give any history of cyclic symptoms.Various theories of endometriosis have been proposed. The metastatic theory suggests that the patent canal of Nuck is a likely pathway for retrograde implantation of endometrial tissue in the extraperitoneal space.[6] The metaplastic theory asserts that peritoneal epithelial cells can differentiate into endometrial cells.[4] In the present case, histopathological examination revealed foci of endometrial glands and surrounding stroma in the wall of canal of Nuck.

Conclusion

A rare presentation of endometriosis and herniation of fallopian tube in hydrocele of canal of Nuck is reported here. Cyst of Nuck should be considered in the differential diagnosis in females presenting with inguino-labial swelling. Knowledge of various pathologies encountered in the canal of Nuck is essential. Surgical excision of cyst is the treatment of choice. Histopathological examination is crucial in establishing a final diagnosis and for further management.

References

1. Tubbs RS, Loukas M, Shoja MM et-al. Indirect inguinal hernia of the urinary bladder through a persistent canal of Nuck: case report. Hernia.

2007;11 (3): 287-8. Available from : https://doi.org/10.1007/s10029-007-0192-9

2. Holley A. Pathologies of the canal of Nuck. Sonography. 2018; 5(1):29-35.Available from : https://doi.org/10.1002/sono.12137
3. Acu L, Acu B. Cyst of the Canal of Nuck Mimicking Inguinal Hernia: A Case Report. OMICS J Radiol. 2017;6(1):251. Available from : doi:10.4172/2167-7964.1000251
4. Nasser H, King M, Rosenberg KH , Rosen A , Wilck E , Simpson WL. Anatomy and pathology of the canal of Nuck. Clinical Imaging. 2018; 51: 83–92. Available from : https://doi.org/10.1016/j.clinimag.2018.02.003
5. Kaushik R, Gulati A.Inguinal endometriosis: A case report. J Cytol.2008;25(2):73-75.
6. Bagul A, Jones S, Dundas S, Aly EH.Endometriosis in the canal of Nuck hydrocele:2. an unusual presentation. Int J Surg Case Rep.2011;2(8):288–289
7. Sarkar S, Panja S, Kumar S.Hydrocele of the Canal of Nuck (Female Hydrocele): A Rare Differential for Inguino-Labial Swelling.JCDR.2016;10(2):21-22. Available from: doi: 10.7860/JCDR/2016/16710.7284
8. Lucasa JW, Shetea KC, Schermerb C, Perosioc P, Steriousa S. Canal of Nuck hydrocele in an adult female.Urology Case Reports.2019;23:67-8. Available from : https://doi.org/10.1016/j.eucr.2019.01.004.
9. Benali F,Gooszen DA, Wetzels C,Peik JMJ. Cyst of Nuck: The Importance of Histopathological Evaluation.Obstet Gynecol Int J.2016;5(2):00152. DOI: 10.15406/ogij.2016.05.00152
10. Stickel WH , Manner M.Female Hydrocele (Cyst of the Canal of Nuck) Sonographic Appearance of a Rare and Little-Known Disorder. J Ultrasound Med.2004;23: 429-432.
11. Jedrzejewski G, Stankiewicz A, Wieczorek PA. Uterus and ovary hernia of the canal of Nuck. Pediatr Radiol.2008;38:1257–58. doi: 10.1007/s00247-008-0959-x
12. Heller DS.Lesions of the Round Ligament and Canal of Nuck - It's Not Always an Inguinal Hernia: A Review. Journal of Gynecologic Surgery.2015:31(5):245-249. Retrieved from doi:10.7282/T3154K88
13. Dholakia M, Singh G, Kore R, Ali I.Hernia of canal of nuck: Some considerations. Med J DY Patil Univ.2015;8:833-5. 10.4103/0975-2870.169929
14. Yang DM, Kim HC, Kim SW, Lim SJ, Park SJ,Lim JW. Ultrasonographic diagnosis of ovary containing hernias of the canal of Nuck.Ultrasonography. 2014;33(3):178-183.Available from : http://dx.doi.org/10.14366/usg.14010.
15. Derinkuyu BE, Affrancheh MR, Sönmez D, Koloğlu MB, Fitoz S. Canal of Nuck Hernia in a Female Infant Containing Uterus, Bilateral Adnexa and Bowel. Balkan Med J. 2016;33(5):566–568. doi:10.5152/balkanmedj.2016.150643
16. Chan D, Kwon JK, Lagomarsino EM, Veltkamp JG, Yang MS, Pfeifer CM. Canal of Nuck hernias. Acta Radiol Open. 2019;8(12):2058460119889867.doi:10.1177/2058460119889867.
17. Cervini P, Wu L, Shenker R, O'Blenes C, Mahoney J. Endometriosis in the canal of Nuck: Atypical manifestations in an unusual location. Can J Plast Surg. 2004;12(2):73–75. doi:10.1177/229255030401200202

18. Thomas J.A., Kuruvilla R, Ramakrishnan, K.G. Endometriosis of the Canal of Nuck—an Unusual Case of Inguinal Swelling. Indian J Surg.2019; https://doi.org/10.1007/s12262-019-02012-0

Legends Figures

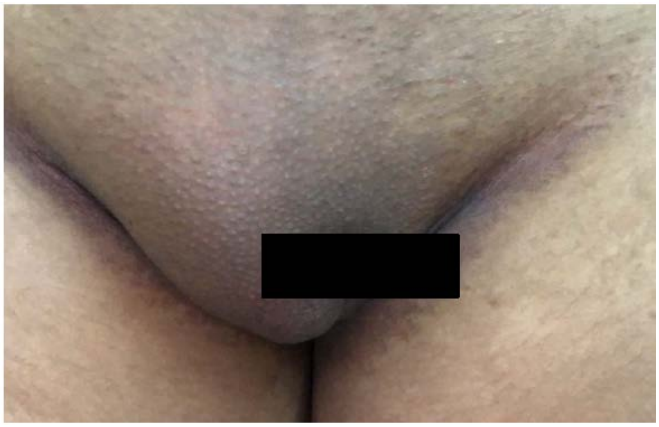


Figure 1 : Swelling in the right inguinal region measuring 6 x 4 cm and extending to the upper part of labia majora.

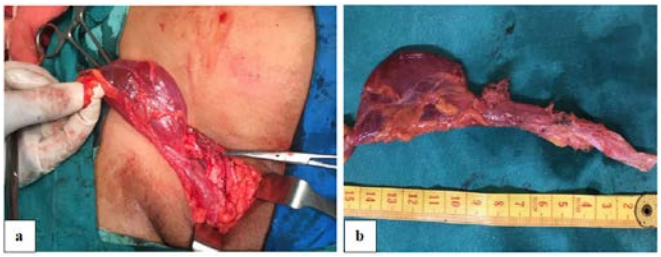
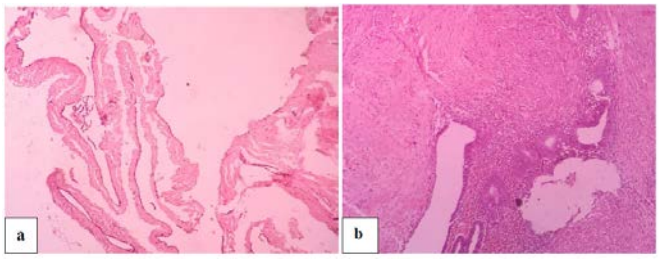


Figure 2 : (a) Intraoperative image showing extent of the swelling from right inguinal region laterally to the mons pubis medially. (b) the excised sac measuring 15 x 5 x 1 cm , showing cystic dilation near one end.



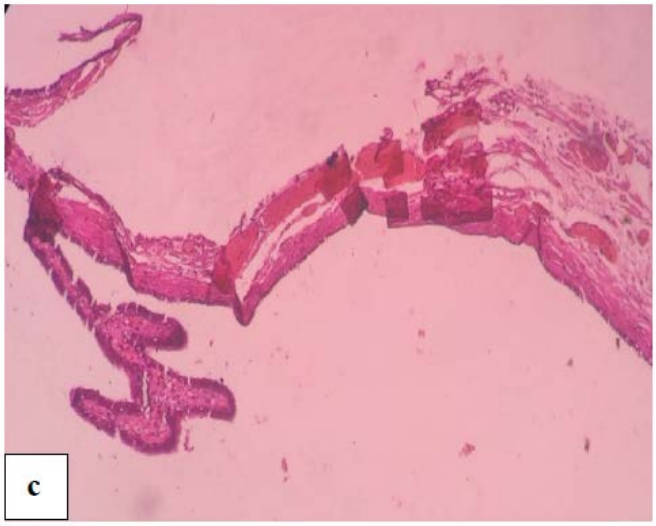


Figure 3 : (a) Cyst wall composed of fibroconnective tissue lined by flattened epithelium.(H&E 10x) (b) showing foci of endometrial glands and surrounding stroma in fibroconnective tissue wall.(H&E 40x) (c) Fallopian tube plicae lined by low columnar cells.(H&E 10x)