

An Unusual Inguinal Swelling: Large Hydrocele of Canal of Nuck

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Abstract

The hydrocele of the canal of Nuck is a rare entity. Often referred as 'female hydrocele', it results from patent processus vaginalis. Though a preoperative diagnosis is difficult to ascertain, operative evaluation confirms this entity. Surgical excision remains the standard of care. Here, we present a case of 36 year old lady who presented with left inguinal swelling and evaluation revealed large Hydrocele of Canal of Nuck.

Keywords: Canal of Nuck; Female hydrocele; Inguinolabial swelling; Patent processus vaginalis

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Introduction

The hydrocele of the canal of Nuck is an unusual entity that can present as an inguinal swelling in a female. Hydrocele of the canal of Nuck is analogous to encysted hydrocele of the spermatic cord in men [1]. Often called as 'Female Hydrocele', it was first studied by Dutch anatomist Anton Nuck, who named the processus vaginalis peritonei in the inguinal canal as 'Canal of Nuck'. This evagination of the parietal peritoneum accompanies the round ligament into the labium during embryogenesis. This processus gets obliterated normally by one year of life [2]. However, patent processus vaginalis may lead to inguinal hernia or hydrocele. Though a preoperative diagnosis is difficult to ascertain, operative evaluation often confirms this entity. Here, we present a case of a 36 year old female who presented with hydrocele of Canal of Nuck and managed successfully with surgery.

Case Report

A 36-year-old lady presented with swelling in left inguinal region. The patient had no significant history except the Lower Segment Caesarian Section (LSCS) 4 years ago. On examination, there was a soft oval mass extending from the left inguinal region to the labia majora. There were no signs of inflammation. The mass increased on standing position but did not disappear on lying down. An ultrasonography and Computed Tomography (CT) scan was done for further evaluation. CT scan revealed well defined lobular homogenous fluid-filled cyst approximately 10 cm × 3 cm seen in the left inguinal region extending up to the left labia. Operative findings included a cystic mass in the left inguinal canal extending into the ipsilateral labia majora with clear fluid in

the cyst. The swelling was confirmed to be the encysted hydrocele with no evidence of an associated inguinal hernia. The cyst was adherent to the round ligament but could be dissected from the surrounding tissues and high ligation of the canal was done after excision of the cyst. The fluid cytology was unremarkable and histopathology of the excised cyst wall revealed histiocytic infiltration and inflammatory granulation tissue with no evidence of malignancy. This affirmed the diagnosis of hydrocele of the canal of Nuck and the postoperative course was uneventful. The patient had completed three months of follow-up with no evidence of recurrence or any other complication.

Discussion

Canal of Nuck is an extension of the peritoneal fold to the labia majora through the inguinal canal. Failure of obliteration of this peritoneal fold might lead to fluid collection or herniation. This sac might contain peritoneal fluid, omental fat, bowel loop, or even rarely ovary or fallopian tube. A hydrocele of the canal of Nuck is a collection of fluid within processus vaginalis [3].

Clinically, the hydrocele of the canal of Nuck can appear as painless or painful, reducible or irreducible swelling in the inguinal region. As per a review by Prodromidou et al. [1] the mean age of presentation is 35 years with 80% patients in the reproductive age group. Right side hydrocele was more common as compared to left. Our patient belonged to the reproductive age group but had a left-sided hydrocele.

Though a preoperative diagnosis is difficult to ascertain, preoperative imaging including ultrasonography and CT scan are the most common modalities, which can point towards the diagnosis. Ultrasonography, which is often the first modality of imaging, might show a comma-shaped lesion with its tail towards the inguinal canal, calling it a 'cyst within a cyst' appearance [4]. However, ultrasonography is rarely conclusive and CT scan or Magnetic Resonance Imaging provides a higher resolution

and reproducibility. Kono et al. [2] showed the role of MR hydrography in the diagnosis and preoperative planning of this female hydrocele. In our patient, a CT scan showed features suggestive of the canal of Nuck cyst (**Figures 1-3**).

Surgical treatment involving excision of cyst and repair of the defect remains the standard of care, the preservation or ligation of round ligament is variable. Open excision has been more popular, however, few authors have reported laparoscopic

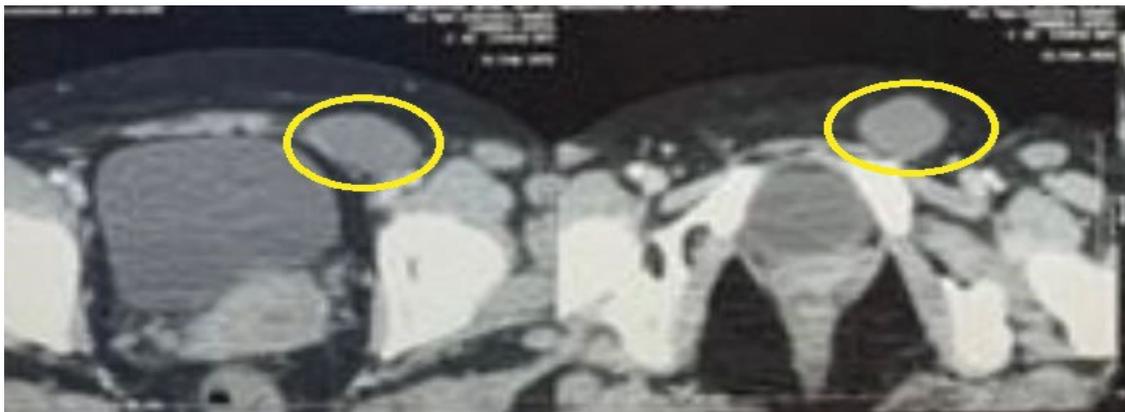


Figure 1 Axial section of computed axial tomography showing hydrocele in canal of nuck (Highlighted in circle).



Figure 2 Sagittal section of computed axial tomography showing hydrocele in canal of nuck (Highlighted in circle).

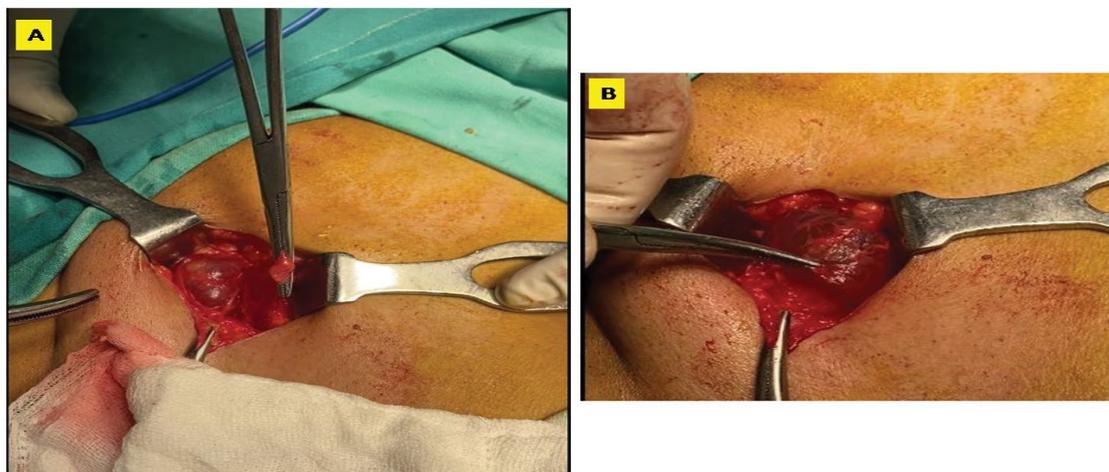


Figure 3 (A and B) Intraoperative photograph showing Hydrocele in the canal of Nuck.

approach as well [1]. The patent canal of Nuck can often present in an emergency. Scott et al. [5] reported a case of hydrocele of canal of Nuck with features of peritonitis. The patient was managed with emergency surgical exploration. In another case by Noguchi et al. [6], the canal of Nuck cyst was complicated with the development of ectopic pregnancy which was managed with laparotomy. Rarely, the canal of Nuck has been reported to be associated with endometriosis. Okoshi et al. [7] described a rare case of isolated endometriosis in the canal of Nuck in a patient with prior history of intrapelvic endometriosis. The patient was managed with open surgical excision and immunohistochemical staining of calretinin and podoplanin confirmed the diagnosis.

The prognosis of the female hydrocele is good and complete excision rarely leads to recurrence. Prodromidou et al. [1] in a review of 16 cases showed no recurrence of the lesion in a follow-up period ranging between 2 months-24 months.

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Conclusion

The hydrocele of the canal of Nuck is a rare and unusual entity and with increasing awareness in both surgeons and gynecologists, this differential diagnosis should be kept in mind during the evaluation of inguinolabial lump. The clinical diagnosis is difficult to ascertain and surgical management remains the definitive diagnostic as well as the therapeutic procedure.

Conflicts of Interest

None to mention.

Patient Consent

Informed consent was taken from the patient.