

Abdominolabial hydrocele of the canal of Nuck: A rare entity

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Received - 28 November 2018

Initial Review - 13 December 2018

Accepted - 14 February 2019

ABSTRACT

Hydrocele of the canal of Nuck also called the “female hydrocele” is a rare entity in females. The processus vaginalis peritonei is a tubular fold of peritoneum that invaginates into the inguinal canal along with the round ligament. It usually gets obliterated by birth or during early infancy, but if this communication remains patent, it may lead to the development of an indirect inguinal hernia or hydrocele. Here, we present the case of a 32-year-old female who complained of swelling in the right inguinal region. Contrast-enhanced computed tomography scan of abdomen and pelvis was suggestive of a cystic lesion in the right inguinal region which was seen extending from mons pubis up to the right iliac fossa in the retroperitoneum likely suggestive of hydrocele of the canal of Nuck. Surgical excision of the cyst was done.

Key words: *Abdominolabial hydrocele, Encysted hydrocele, Female hydrocele, Processus vaginalis*

The Dutch anatomist Anton Nuck in 1691 described the processus vaginalis peritonei in the inguinal canal of a female and named it the “Canal of Nuck” [1]. Hydrocele of the canal of Nuck, also called the “female hydrocele,” is a rare entity in females and equivalent to a spermatic cord hydrocele in males [2]. We present the case of a hydrocele of the canal of Nuck diagnosed with contrast-enhanced computed tomography (CECT) scan which on surgical exploration was encysted, extending from mons pubis up to the right iliac fossa in the retroperitoneum.

CASE REPORT

A 32-year-old female presented to the department with a complaint of swelling in the right inguinal region for 2 years. The swelling was gradually increasing in size and was reducible on lying down. There were no complaints of abdominal pain, distension of abdomen, and vomiting. The patient did not have any history of trauma. On general examination, the patient was vitally stable. Local examination revealed a single, soft, and non-tender swelling of size 6 cm × 4 cm in the right inguinal region extending up to the labia majora (mons pubis) with regular margins. The swelling was reducible and cough impulse was present. The overlying skin was normal.

Routine pre-operative hematological parameters were within normal range. Ultrasonography suggested an 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. 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 (Fig. 1). A provisional diagnosis of the right-sided inguinal hernia was kept before coming to a final diagnosis of hydrocele of the canal of Nuck based on the CT findings.

Surgical exploration was done with a right inguinal incision. A thin-walled, en-bisac, containing clear fluid, was extending up to the right iliac region laterally and mons pubis medially. Complete sac was excised after separating it from round ligament (Fig. 2). Post-operative period was uneventful. The patient was followed up to 6 months and there were no complaints of pain or recurring swelling.

Gross and histopathological examination revealed a cystic structure, lined by flattened to cuboidal epithelium with few foci of endometrial glands and surrounding stroma. Fibroconnective tissue with a mild mixed inflammatory infiltrate composed of lymphocytes and few neutrophils were seen (Fig. 3).

DISCUSSION

Hydrocele of the canal of Nuck also called the “female hydrocele” is a rare entity in females. During embryological development of a female fetus, round ligament of the uterus descends down to the ipsilateral labia majora through the inguinal canal [3]. The processus vaginalis peritonei is a tubular fold of peritoneum that invaginates into the inguinal canal along with the round ligament [1,3]. It gets obliterated by birth or during early infancy, but if this communication remains patent, it may lead to the development of an indirect inguinal hernia or hydrocele. In surgical practice, congenital hydrocele



Figure 1: A loculated cystic density lesion of size 4.2 cm × 3.6 cm × 17 cm with approx. volume 128 cc in the right inguinal region which is seen extending inferiorly up to mons pubis and superiorly into peritoneal cavity up to the right iliac fossa likely suggestive of hydrocele of the canal of Nuck

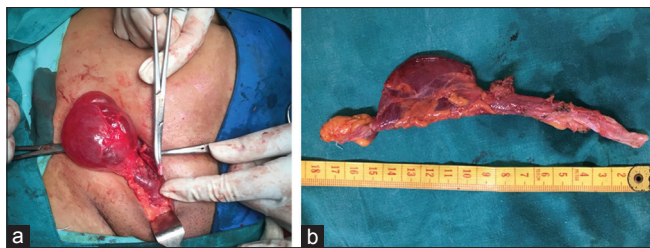


Figure 2: (a) Intraoperative picture showing extension of the swelling from the right iliac region to mons pubis (b) excised swelling measuring 17 cm in length

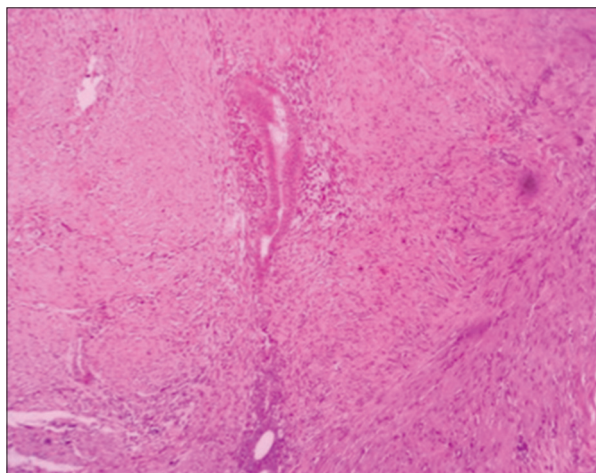


Figure 3: Histopathological image showing fibroconnective tissue with mild mixed inflammatory infiltrate composed of lymphocytes and few neutrophils

or hernia cases are usually seen in a male and it is uncommon in female [3]. Female hydrocele or hydrocele of the canal of Nuck in a female is equivalent to a spermatic cord hydrocele in males [2].

The cyst formation is due to the imbalance of the secretion and absorption from the secretory membrane lining the processus vaginalis. Trauma and infection may cause disruption of lymphatic drainage, which can lead to imbalance, but mostly, it is idiopathic [4]. In the previous studies, some cases of the hydroceles of the canal of Nuck were of an hourglass type with

the larger loculus located within the abdomen. In these cases, rather large cysts were found, without free communication with the peritoneal cavity [5]. In our case, the cyst was of an hourglass type extending up to the abdomen but not communicating freely with peritoneum.

It has been proposed that extrapelvic endometrium, distant to the uterus loses its hormonal receptors and hence response. The canal of Nuck cyst is a thin walled, contains clear fluid and lined by cuboidal or flattened mesothelial cells [6,7].

Clinically, hydrocele of the canal of Nuck can appear either as a painless or a moderately painful fluctuant inguinal mass, with no accompanying nausea or vomiting. These masses are usually not reducible and, if large enough, can be trans-illuminated [2].

The differential diagnosis of an inguinolabial swelling in females is an indirect inguinal hernia or a femoral hernia, buboes, Bartholin's cyst, post-traumatic hematoma, hydrocele of the canal of Nuck, lipoma, vascular aneurysms and rarely cystic lymphangioma, and endometriosis of round ligament [3]. In our patient, the initial clinical diagnosis was kept as an inguinal hernia due to reducibility and cough impulse.

Cyst of the canal of Nuck demonstrates varied appearances in sonography. In literature, sonographic appearance of hydrocele of the canal of Nuck shows thin-walled, well-defined, echo-free, cystic structure varying from an anechoic, tubular, sausage, dumbbell or comma-shaped, and "cyst within a cyst" to a multicystic appearance. CT findings are not described in literature [6,8]. In our case, CT findings suggested a thin-walled, cystic density lesion in the right inguinal region, extending inferiorly up to mons pubis and superiorly into peritoneal cavity up to the right iliac fossa. A laparoscopic approach can also be used for diagnostic purpose and treatment [8].

CONCLUSION

A hydrocele of the canal of Nuck is a rare entity. It should be differentiated from other inguinolabial swellings with the help of imaging studies. The treatment of choice for hydrocele of the canal of Nuck is complete surgical excision of the cyst.

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Funding: None; Conflict of Interest: None Stated.

How to cite this article: Gedam BS, Soni N, Sonarkar R, Mundle A. Abdominolabial hydrocele of the canal of Nuck: A rare entity. Indian J Case Reports. 2019;5(1):73-75.

Doi: 10.32677/IJCR.2019.v05.i01.025