

Case Report

Hydrocele of canal of Nuck in an adult female: a case report

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ABSTRACT

A hydrocele of canal of Nuck is a rare condition seen in females, commonly in the pediatric age group. The canal of Nuck is an extension of peritoneum into the inguinal canal through the deep ring, analogous to the processus vaginalis in males. Incomplete proximal obliteration and collection of serous fluid in the sac leads to the formation of a hydrocele of canal of Nuck. Here we present a rare case of hydrocele of canal of Nuck in an adult female.

Keywords: Female hydrocele, Canal of Nuck, Inguinal hernia

INTRODUCTION

A hydrocele of canal of Nuck is an unusual condition seen in young females. It is characterized by a painless cystic swelling in the inguinal and labia majora region, considered being analogous to an encysted hydrocele of the cord in males.^{1,2} While it is commonly seen in pediatric age group, here we present a rare case in an adult female.

CASE REPORT

A 20 year old female presented to outpatient department with history of a swelling in the right inguinal region since 2 months following a history of minor trauma to the region. The swelling was associated with mild, dull aching pain and a history of increase in size on straining and coughing. The patient had no significant surgical or obstetric history. On examination, a 2×2 cms cystic swelling was noted in the right inguinal region (Figure 1). Swelling became less prominent on leg raising and appeared to be partially reducible. There was clinical dilemma regarding diagnosis as clinical findings on cough impulse were equivocal.

Local ultrasonography was performed which showed the presence of a 2.7×2.3 cms anechoic cystic lesion at the superficial inguinal ring with no evidence of any solid component within.

Based on clinical findings and ultrasound report a provisional diagnosis of hydrocele of canal of Nuck was made.

The patient was posted for elective surgery under spinal anaesthesia. An incision was made 2 cm above and parallel to the right inguinal ligament, similar to that of an inguinal hernioplasty. Skin and subcutaneous tissue were opened in layers until the external oblique aponeurosis (EOA) was reached. EOA was split along the direction of fibers and the inguinal canal entered. A 2×2 cm cystic swelling was noted at the superficial inguinal ring (Figure 2). The round ligament was identified and by a combination of blunt and sharp dissection the swelling was isolated from it. After ensuring that there was no communication with the peritoneal cavity, the swelling was excised intact and sent for histopathological examination. The cut end of the round ligament was fixed to the pubic tubercle using 2-0 polyglactin sutures, and the posterior wall of inguinal canal plicated with 2-0

polypropylene sutures. EOA and layers of abdominal wall were closed appropriately.

The patient's post-operative recovery was uneventful with minimal pain and no complications. She was discharged the day after surgery. At 3 month follow up the patient was asymptomatic and had no evidence of a recurrence.

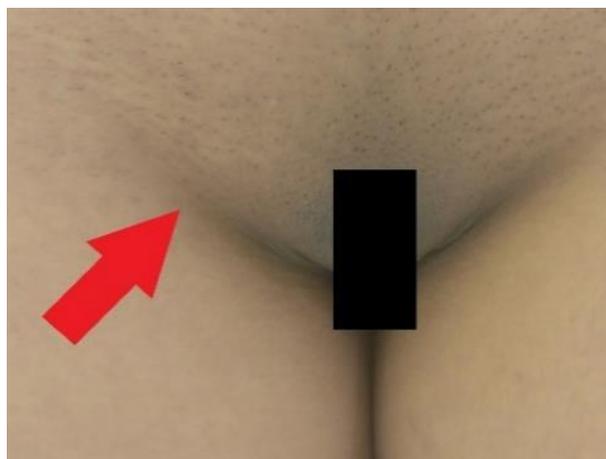


Figure 1: 2×2 cms swelling in left groin.

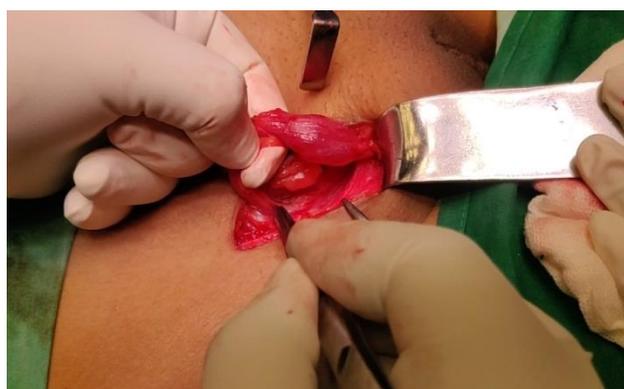


Figure 2: Cystic swelling at the superficial inguinal ring.

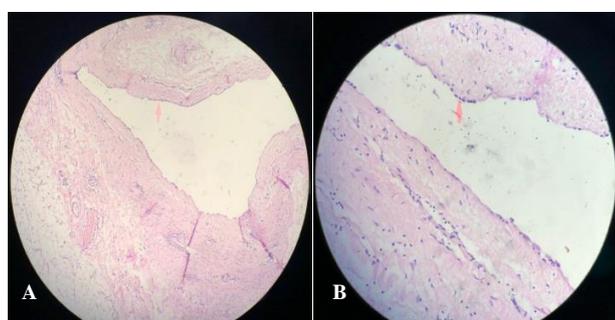


Figure 3 (A and B): Fibro-collagenous wall lined by flattened to cuboidal epithelium, (10X, 40X).

Histopathological examination revealed a soft, greyish white cystic mass with serous yellow fluid on cut section.

Microscopic examination revealed adipose tissue and fibro-collagenous wall lined by flattened to cuboidal epithelium (Figure 3A and B).

DISCUSSION

The inguinal canal in the female transmits the round ligament and sometimes a finger-like extension of the peritoneum called the canal of Nuck, analogous of the processus vaginalis in males. It was first described by Dutch anatomist, Anton Nuck in 1691.¹ Normally, the canal of Nuck gets obliterated at birth or during early infancy, but sometimes it does not disappear completely. Limited proximal obliteration, with accumulation of serous fluid in the remnant sac due to an imbalance between secretion and reabsorption is called a hydrocele of the canal of Nuck.² This condition is analogous to an encysted hydrocele of the spermatic cord in males. A completely patent canal of Nuck may lead to the development of an indirect inguinal hernia in females.³

There are three types of a hydrocele of canal of Nuck. The most common type is one with no communication with peritoneal cavity forming an encysted hydrocele along the tract of descent, from the inguinal ring to the vulva. Second type results when there is a persistent communication with the peritoneal cavity. A third type is a combination of the two as a result of the inguinal ring constricting the hydrocele like a belt so that part is communicating and part is enclosed, giving this the name of 'hour glass type'.^{4,5}

Hydrocele of canal of Nuck is an extremely rare condition most commonly presenting in the pediatric age group, however an increase in presentation in adult age groups has been noted.⁶ In adult females, a hydrocele of canal of Nuck may present after the patient is made aware of a pre-existing swelling following a history of trivial trauma to the region. Coley, in 1892, reported 14 cases of a hydrocele in women.⁷

A hydrocele of canal of Nuck presents as a painless, fluctuant, translucent, irreducible swelling in the inguinal region and labia majora. Differential diagnoses for a cystic swelling in female groin include mesothelial cyst of the round ligament, varicosity of the round ligament, cystic lymphangioma, epidermal inclusion cyst, abscess, pseudoaneurysm, and herniation of the ovary.³ Inguinolabial masses include indirect inguinal hernia, endometriosis of the round ligament, adenopathy, Bartholin's cyst, lipoma, etc.³ Occasionally, hydrocele of canal of Nuck may present as a painful swelling, in cases where trauma to the swelling leads to hematoma or abscess formation.⁶ In present case, patient presented with a partially reducible swelling with equivocal findings on cough impulse. In males encysted hydrocele of the cord can be confirmed clinically by traction test, however, in females there are no specific tests to confirm the diagnosis clinically.

On ultrasound imaging, a hydrocele of canal of Nuck appears as an anechoic, fluid filled, cystic lesion with smooth borders. It is most typically described as sausage shaped but also has been documented as a comma-shaped lesion with the tail projected toward the inguinal canal. The cysts are small, averaging 3 to 5 cm in length and typically less than 0.5 cm in diameter, although larger cysts have been reported.⁸

Diagnoses of a hydrocele of canal of Nuck can thus be made on clinical examination and ultrasonography findings. In cases where diagnosis is still in doubt, magnetic resonance imaging may provide additional information.⁸

Treatment of a hydrocele of canal of Nuck consists of surgical excision of the cyst with ligation of the neck of processus vaginalis and closure of the fascial defect.³ There are cases in literature where laparoscopic excision has been attempted but then converted to an open approach, hence direct open surgical excision should be the procedure of choice.⁶ Ultrasound guided aspiration of the cyst is a minimally invasive option, but may lead to recurrence or infection of the cyst.

Histopathological features of a hydrocele of canal of Nuck reveal a cystic lesion filled with serous fluid and a fibro-collagenous wall lined by flattened cuboidal epithelium, similar to that of a benign hernia sac.⁶

CONCLUSION

In conclusion, a hydrocele of canal of Nuck is a rare condition seen in young females presenting with painless, fluctuant swelling in the inguinal region. Thorough clinical examination with a high degree of suspicion, aided by ultrasound imaging provides a reliable diagnosis. Open surgical excision of the cyst, followed by histopathological examination confirms the diagnosis and is the treatment of choice.

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