Hydrocoele of the Canal of Nuck: A Case Report

L Roop, P Seetahal-Maraj

ABSTRACT

Hydrocoele of the canal of Nuck occurs due to failure of obliteration of the processus vaginalis in females. It is a rare cause of groin swellings in these patients, and diagnosis can be easily confirmed with ultrasound imaging. Surgical excision and high ligation of the patent processus vaginalis (PPV) is the standard of care. A case of a paediatric patient with hydrocele of the canal of Nuck is presented, in whom successful surgical treatment was performed, with confirmation of the pathology by histology.

Keywords: Canal of Nuck hydrocoele, patent processus vaginalis

From: San Fernando Teaching Hospital/San Fernando General Hospital, Independence Avenue, San Fernando, Trinidad, West Indies.

Correspondence: Dr P Seetahal-Maraj, San Fernando General Hospital, San Fernando, Trinidad, West Indies. Email: panduseetahal@gmail.com

INTRODUCTION

In females, the presence of the canal of Nuck is due to persistence of the PPV and can give rise to a hydrocele or cyst. We present a case of an 18 month old female with a painful swelling in the right groin, diagnosed by ultrasound scan, and treated by surgical groin exploration and excision.

CASE REPORT

An eighteen-month-old female presented to our department with a three-week history of a painful grape-sized swelling in the right groin. She had no prior history of groin swellings and was otherwise well. No change was noted on coughing/straining or activities that increased intra-abdominal pressure. Initially a General Practitioner treated her privately, and needle aspiration of the mass was performed. Straw-coloured fluid was obtained, but the swelling recurred within 24 hours. Subsequently she was referred to Paediatric Surgery.

On examination, a 3cm spherical, cystic mass was palpated in the right inguinal region. It was irreducible, and there were nil signs of inflammation. No cough impulse could be elicited. An ultrasound scan of the groin was done, and it demonstrated a right inguinal cyst. The ovaries were not positively identified, but the remainder of the scan was unremarkable.

The patient was booked for an elective right inguinal exploration, and intraoperatively the findings were consistent with a cyst of the canal of Nuck. There was no intraabdominal extension, and the cyst was excised in-toto. The external oblique aponeurosis was plicated. Post-operative recovery was swift and uneventful, and histology revealed a benign cyst.

Fig 1: Mobilisation of cyst.

Fig 2: Preparation for ligation and excision.

Fig 3: Ligated PPV, prior to closure.

DISCUSSION

Anton Nuck first described persistence of the processus vaginalis peritonei or canal of Nuck in 1691. In females, an extension of the parietal peritoneum follows the round ligament as it enters the inguinal canal, via the internal ring, and can extend into the labia majora. This mimics the processus vaginalis in males. If it does not undergo obliteration, patency can allow formation of an inguinal hernia or hydrocele.

80 – 94% of newborns have a patent processus vaginalis. Obliteration only occurs after the seventh month of gestation, and this explains the increased incidence in premature infants. The incidence was reported to be 1% of children with inguinal hernias (1).Counseller and Black classified hydrocele of the canal of Nuck into three types (2). No communication with peritoneal

cavity, and forms an encysted fluid collection, from inguinal ring to vulva (most common). Communication with peritoneal cavity

Combination of both, with inguinal ring constricting the hydrocele so that part is communicating and part is encysted (hourglass type)

Clinically, patients present with a painless, sometimes translucent, irreducible swelling in the inguinal region and/or labia majora. Fluctuance may be elicited. The swelling can become painful and erythematous if infected.

Ultrasound imaging can reveal a cystic mass lying at the level of the superficial ring (3). Communication with the peritoneum may be noted, but usually no change is seen with a Valsava manoeuvre. Exclusion of bowel, as may be seen in a hernia, is another advantage of ultrasound imaging. CT and MRI investigation is rarely performed.

Differential diagnosis includes hernia, tumour (lipoma, leiomyoma), cysts, herniated ovary, abscesses, post-traumatic haematoma, lymphadenopathy and cystic lymphangioma.

Curative surgical management is performed via an inguinal skin crease incision, excision of the cyst and high ligation of the patent processus vaginalis. Aspiration of the cyst is not recommended, as recurrence is likely, and there is a risk of infection.

In conclusion, hydrocele of the canal of Nuck should be considered in the differential diagnosis of any groin swelling in females, and it can be easily confirmed by ultrasound imaging. Treatment involves surgical excision, and prognosis is excellent.

REFERENCES

1. Huang, C.S., Luo, C.C., Chao, H.C., Chu, S.M., Yu, Y.J., and Yen, J.B. The presentation of asymptomatic palpable movable mass in female inguinal hernia. Eur J Pediatr. 2003; 162: 493–495

2. Counseller, V.S. and Black, B.M. Hydrocele of the canal of Nuck: report of seventeen cases. Ann Surg. 1941; 113: 625–630

3. Park, S.J., Lee, H.K., Hong, H.S., Kim, H.C., Kim, D.H., Park, J.S. et al. Hydrocele of the canal of Nuck in a girl: ultrasound and MR appearance. Br J Radiol. 2004; 77: 243–244