

Encysted Hydrocele of Canal of Nuck: A Case Report With Review of Literature

Kimberly Janssen, Denise Klinkner, Tarun Kumar

Department of Surgery, Cardinal Glennon Children Hospital, Division of Pediatric Surgery, School of Medicine, Saint Louis University, Saint Louis, USA

INTRODUCTION

In females, a peritoneal fold usually accompanies the round ligament as it descends into the labia major through the inguinal canal. Typically, this extension of peritoneum obliterates into a fibrous cord by the first year of life. Failure of obliteration results in a communication with the peritoneal cavity through a persistent Canal of Nuck resulting in inguinal hernia or hydrocele. This is analogous to a patent processus vaginalis in the male.

CASE REPORT

A 3-year-old girl presented to clinic with a nontender palpable swelling in the right inguinal region. On detailed history, the swelling had reduced in size over the past year with no further signs of any regression or progression in size. On physical examination, the swelling was nontender, cystic, and transilluminating. Patient underwent surgical exploration of the swelling through a right inguinal skin crease incision [Figure 1a and b]. After careful dissection through skin, subcutaneous tissues, Scarpa's fascia, and external oblique aponeurosis, the inguinal canal was exposed. The cystic swelling of the cord was identified and isolated. The swelling was confirmed to be an encysted hydrocele of cord with no evidence of associated inguinal

ABSTRACT

The canal of Nuck is analogous to a patent processus vaginalis in a male, which normally loses its communication to the peritoneal cavity within the first year of life. Failure of obliteration of this tract can result in a hydrocele. We present a rare case of a 3-year-old girl with right-sided groin swelling over a year, diagnosed as hydrocele of canal of Nuck. Patient underwent surgical exploration and excision of hydrocele. This entity should be considered in young females presenting with an inguinal swelling.

Key words: Canal of Nuck, hydrocele, processus vaginalis

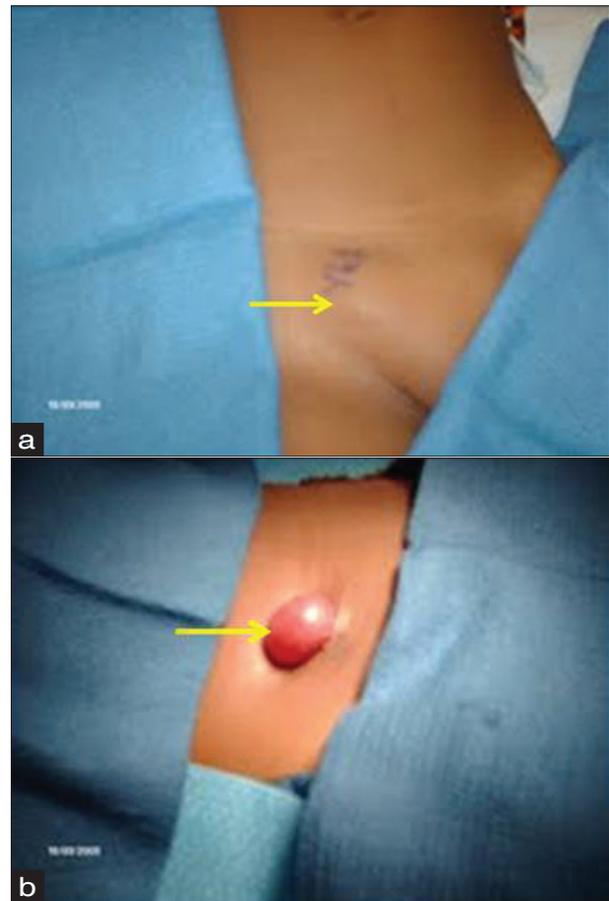


Figure 1: (a) Encysted hydrocele of canal of Nuck; (b) Operative finding—isolated cystic sac

hernia. After excision of hydrocele, the fibrous connection toward the deep inguinal ring was suture ligated and rest of the wound was closed in layers. Patient's postoperative

Access this article online

Quick Response Code:



Website:

www.jstcr.org

DOI:

10.4103/2006-8808.92803

Address for correspondence: Dr. Tarun Kumar, Department of Surgery, Pediatric Surgery, Cardinal Glennon Children Hospital, School of Medicine, Saint Louis University, Saint Louis, Missouri, USA. E-mail: tkumar@slu.edu

follow-up at 6 weeks and 6 months revealed normally healed incision with no recurrence.

DISCUSSION

During fetal development in the male, the testicle descends through the inguinal canal into the scrotum pulling along a sac-like extension of the peritoneum. By the first year of life, this extension condenses into a fibrous cord—the processus vaginalis, preventing the communication of peritoneal cavity with the scrotum. A thin membrane of this original extension remains surrounding the testicle which is named the tunica vaginalis. If this extension of peritoneum fails to close, based on the size of the defect, fluid or abdominal contents may enter the inguinal canal, resulting in a hydrocele or hernia. Congenital hernia or hydrocele, though more common in males, is rarely seen in females. In the female fetal development, round ligament of the uterus descends into the inguinal canal to the labium major. The peritoneal fold that descends the round ligament is named the canal of Nuck. If by the first year of life this communication fails to close, it can also result in an indirect hernia or a hydrocele.^[1-3]

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.

However, any of these types of hydroceles are extremely rare in females.^[4]

The differential diagnosis for an inguinal mass in a female includes indirect hernia, lymphadenopathy, Cold abscess, Bartholin's cyst, post-traumatic hematoma, rarely cystic lymphangioma, neuroblastoma metastasis in groin and ganglion.^[1,5,6]

In conclusion, a hydrocele of the canal of Nuck though rare should be considered in the differential diagnosis in young females presenting with an inguinal swelling. Establishing a definitive diagnosis on clinical examination is challenging, radiological imaging may assist in diagnosis but surgical exploration is critical for final diagnosis.

REFERENCES

1. Ortenberg J, Collins S, Roth CC. Pediatric Hydrocele and Hernia Surgery. Available from: <http://emedicine.medscape.com/article/1015147-overview> [Last Updated on 2009 Sep 21].
2. Park SJ, Lee HK, Hong HS, Kim HC, Kim DH, Park JS, *et al.* Hydrocele of the canal of Nuck in a girl: Ultrasound and MR appearance. *Br J Radiol* 2004;77:243-4.
3. Jedrzejewski G, Stankiewicz A, Wieczorek AP. Uterus and ovary hernia of the canal of Nuck. *Pediatr Radiol* 2008;38:1257-8.
4. Counseller VS, Black BM. Hydrocele of the Canal of Nuck: Report of Seventeen Cases. *Ann Surg* 1941;113:625-30.
5. Poenaru D, Jacobs DA, Kamal I. Unusual findings in the inguinal canal: A report of four cases. *Pediatr Surg Int* 1999;15:515-6.
6. Pandit SK, Rattan KN, Budhiraja S, Solanki RS. Cystic lymphangioma with special reference to rare sites. *Indian J Pediatr* 2000;67:339-41.

How to cite this article: Janssen K, Klinkner D, Kumar T. Encysted hydrocele of canal of Nuck: A case report with review of literature. *J Surg Tech Case Report* 2011;3:97-8.

Source of Support: Nil, **Conflict of Interest:** None declared.

Announcement

iPhone App



A free application to browse and search the journal's content is now available for iPhone/iPad. The application provides "Table of Contents" of the latest issues, which are stored on the device for future offline browsing. Internet connection is required to access the back issues and search facility. The application is Compatible with iPhone, iPod touch, and iPad and Requires iOS 3.1 or later. The application can be downloaded from <http://itunes.apple.com/us/app/medknow-journals/id458064375?ls=1&mt=8>. For suggestions and comments do write back to us.