

The Hydrocele Of The Canal Of Nuck: An Ultrasound Diagnosis

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Citation

L Chandrasekharan, A Rajagopal. *The Hydrocele Of The Canal Of Nuck: An Ultrasound Diagnosis*. The Internet Journal of Radiology. 2005 Volume 4 Number 2.

Abstract

The congenital hydrocele in the female, also known as the hydrocele of canal of Nuck is rare and is rarely reported in children. This is a case of congenital hydrocele in an adolescent girl, which was diagnosed by an ultrasound scan.

INTRODUCTION

The hydrocele of canal of Nuck or congenital hydrocele is also known as hydrocele muliebris (from German mulebria of the female), as it is an inguino-labial cyst.

Though in the English literature there are anecdotal reports of hydroceles in women since the 6th century, they are rare in girls (1). This condition is hardly mentioned in the standard medical textbooks.

CASE REPORT

A healthy 14-year-old girl presented with an irreducible right groin swelling of two months duration. She had a history of mild pain in the swelling associated with an increase in size of the swelling by the end of the day. On physical examination there was an oval irreducible swelling, 3x4 cm in size, superior to the right inguinal ligament. The swelling was smooth and fluctuant but transillumination was negative. There was no cough impulse. The left groin was normal.

The ultrasound examination of the right groin was performed with a high frequency (7.5MHz) transducer.

Right inguinal region was scanned in the longitudinal and transverse planes. Ultrasound examination revealed a well defined, oval, anechoic cystic swelling superior to and along the inguinal ligament (Fig.1). It measured 3.3 x1.3 cm It was partially compressible. (Fig 2). There was no expansible cough impulse, peristaltic activity or abnormal vascularity.. There was no lymph node enlargement noted adjacent.

Figure 1

Figure 1: US of inguinal region – longitudinal view

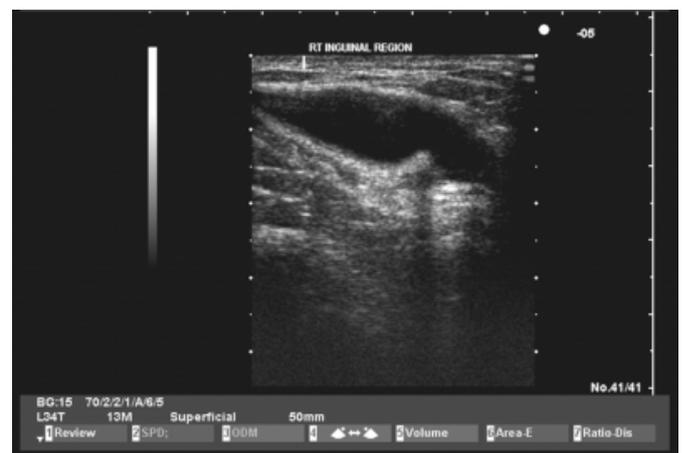
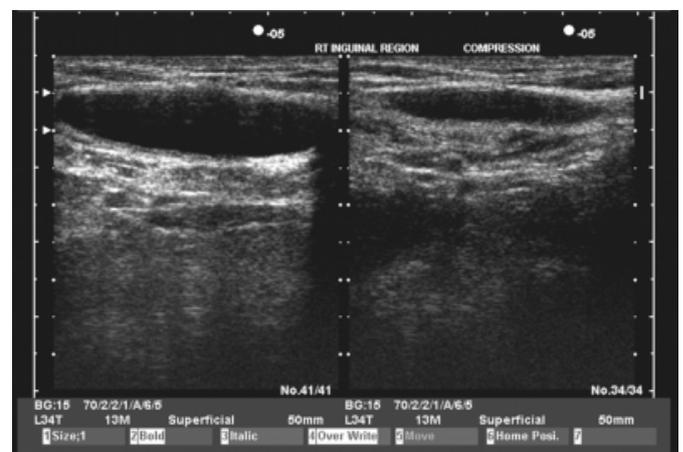


Figure 2

Figure 2: US of inguinal region - with compression



A diagnosis of an 'inguinal hygroma' probably a hydrocele of the canal of Nuck was made.

Surgery showed a 'cystic' patent processus vaginalis with minimal fluid and a very small communication with the peritoneum. It was excised along with the round ligament. Inguinal canal repair with closure of the deep ring and the canal was done.

On histological examination the wall of the cyst was lined by mesothelium surrounded by loose fibrous tissue and entrapped bundles of muscle fibers and a few blood vessels.

DISCUSSION

The canal of Nuck in the female is analogous to the processus vaginalis of the male, and is named after Anton Nuck, 17th century dutch anatomist. During embryological development the processus vaginalis is a peritoneal evagination into the inguinal canal and in the female it accompanies the round ligament or the gubernaculum. In both sexes it obliterates completely by the first year of life. When it fails to obliterate completely, it can result either in a congenital hernia or a hydrocele (2). Hydroceles are more common in the male probably because of the differences in migration of the gonads. A hydrocele can result from either a persistent patency of the processus vaginalis with peritoneal communication as in this patient, or with proximal obliteration at the deep ring with over-secretion and under-absorption in the distal segment. The canal of Nuck cyst is thin walled, contains clear fluid and is lined by cuboidal or flattened mesothelial cells (3).

Normally the hydrocele of the canal of Nuck presents as a painless, translucent, irreducible lump in the groin. However the overlying fascia of external oblique may not allow transillumination.

On Ultrasound, a hydrocele of the canal of Nuck is seen as an echo free, well-defined, cystic tubular structure in the groin (4,5).

Two forms are recognized. The usual smaller form as in our case, may be contained wholly within the inguinal canal. The larger giant form may extend beyond the level of inguinal canal.(6) For this, differential diagnoses like Femoral Artery aneurysm, and tuberculous abscess must be considered. However they can be differentiated by the pulsations (aneurysm) and internal echoes (tuberculous abscess).

Hydrocele of canal of Nuck is an important differential diagnosis for an Irreducible hernia in female patients.(7) Clinically these hydroceles may mimic both inguinal and femoral hernia, and even present as strangulation (8). An associated inguinal hernia is reported in one third of cases. They can also be mistaken for Bartholin's cyst of labium majus, which is more common.

The curative treatment of this condition is surgical excision of the cyst with closure of the neck at the deep ring.

As they are very rare, a sonological diagnosis is possible only with awareness of this condition.

References

1. Coley WB. Hydrocele in the female [with a report of fourteen cases]. *Ann.surg.*1892; 16:42-59.
2. Moore KL. *The developing Human: Clinically oriented embryology*, 3rd edn. Philadelphia: WB Saunders, 1982.
3. Sternberg SS. *Diagnostic surgical pathology*, 3rd edn. Philadelphia: Lippincott, Williams and Wilkins, 1999.
4. Anderson CC, Broadie TA, Mackey JE, Kopecky KK. Hydrocele of the canal of Nuck: Ultrasound appearance. *Am Surg.* 1995 Nov; 61(11): 959-61.
5. Dawam D,Kanu P. Giant hydrocele of the canal of Nuck.*Br.J.Urol.*1998; 81(4) : 636
6. Stickel.WH, Manner.M. . female Hydrocele (cyst of the canal of Nuck) sonographic appearance of a rare and little known disorder.*J Ultrasound. Med.* 2004. Mar 23(3);: 429
7. . Tiptaft RC Hydrocele.In *Banding-Rains aj*, Charles V eds, *Bailey and Love's Short Practice of Surgery*,20th edn. HL Lewis and coLtd, 1988; 1359-63
8. . Block RE.Hydrocele of the canal of Nuck. A report of five cases. *Obste.Gynecol*,1975; 45;464-66

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