

Case Report

CANAL OF NUCK- FEMALE HYDROCELE

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ABSTRACT

The hydrocele of canal of nuck is a rare entity with only few cases being reported that too in children. It is formed as result of persistence of processus vaginalis which fails to obliterate after birth. It usually presents as a painless inguinal swelling. We report a case of hydrocele of canal of nuck in a patient with ultrasound and Magnetic resonance imaging (MRI) findings which was later on confirmed with surgical findings.

Keywords: *Hydrocele, Canal of Nuck, Ultrasound, MRI*

INTRODUCTION

The canal of Nuck is the persistence of the small processus vaginalis which usually obliterates and disappears long before birth. It is homologous to hydrocele of the spermatic cord in male and has been a rare cause of inguinal canal swelling in women (Stickel *et al.*, 2004). The round ligaments of uterus pass through the inguinal canal and terminate in the labia majora (Moore and Persaud, 2006). The peritoneal fold that descends within inguinal canal is known as canal of nuck. It undergoes complete obliteration during the first year of life. Hydrocele of canal of Nuck is the result of partial obliteration of the peritoneal remnant with fluid trapped within it. Failure of obliteration may further complicate into an inguinal hernia (Manjunatha *et al.*, 2012).

CASES

A 45 year old lady presented to the department of gynaecology with polymenorrhoea x 6 months, ill-defined swelling in the region of mons pubis on the right side causing vague discomfort x 8-10 years. On examination per abdomen uterus was 6 weeks and the swelling in the right inguinolabial region was present which was 4x4 cm, non-tender, fluctuant however no signs of inflammation were appreciated. The patient was afebrile and did not have any abdominal complaints. The patient was referred for ultrasound pelvis.

High resolution ultrasonography (Philips HD11XE) for swelling over mons pubis was performed using curvilinear (2-5MHz) and linear probe (3-12MHz). The ultrasound showed a large well defined multiloculated collection measuring approximately 10.2cm x 8.5cm having an approximate volume of 250-300cc in the right inguinal region and superior half of right labia majora. The collection was seen to extend into right hemipelvis following the course of round ligament.

MR Pelvis (Plain + contrast) was performed using 1.5T G Signa machine with body coil- T1W, T2W, T2FATSAT axial, coronal and sagittal, T1W post i/v gadolinium axial, sagittal and coronal images sections of the pelvis and bilateral inguinal regions were taken. The study showed a well-defined cystic lesion appearing hyperintense on T2W and hypointense on T1W images and was seen extending from right labia majora till the right hemipelvis through the inguinal canal along the course of round ligament. Few internal septations were seen however no contrast enhancement noted. No evidence of omentum or bowel loop herniation was seen. The diagnosis of cyst of canal of Nuck was made. The patient was taken up for surgery which showed a hernial sac along the course of round ligament extending from the indirect ring traversing along the inguinal canal entering into the superficial ring reaching upto the mons pubis. The sac contained straw colored fluid.

DISCUSSION

Only few case reports have been published in literature regarding this uncommon entity named Hydrocele of canal of Nuck (Mandhan *et al.*, 2013). Infection is one of the rare complications of hydroceles in

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children, and until now only 5 cases have been reported that too all in boys (Ameh *et al.*, 2003; Kutin *et al.*, 1986).

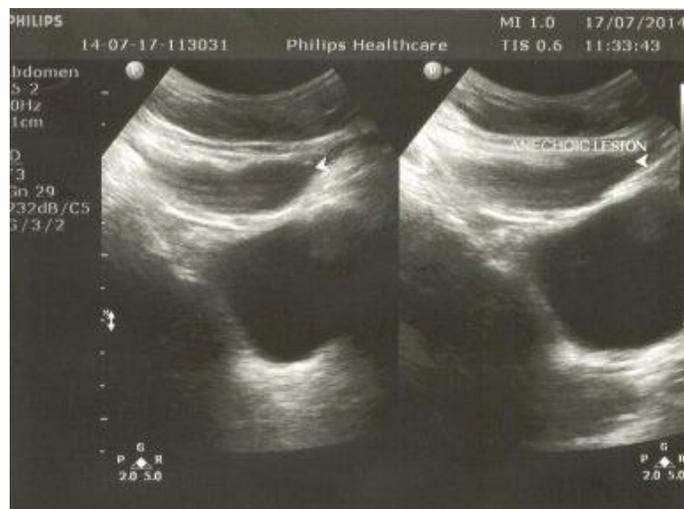


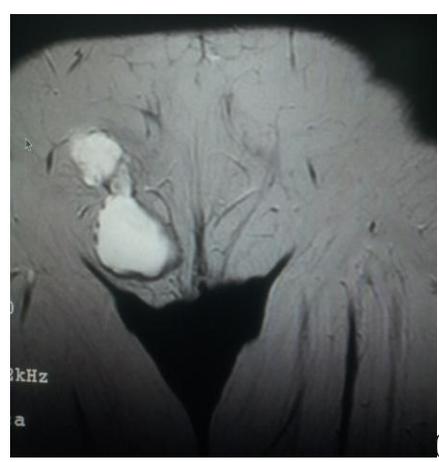
Figure 1: Ultrasound images showing anechoic cystic lesion anterior to urinary bladder in the right inguinal canal



(a)



(b)



(c)

Figure 2: (a)T2W axial, (b) T2W Saggital and (c) T2W Coronal images demonstrating lesion with cystic contents in right inguinal canal with inferior end at the level of labia majora and cranially extending to reach the peritoneal cavity representing persistence of processus vaginalis

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The obliteration of the processus vaginalis usually occurs after the seventh month of gestation however the exact mechanism is not clear, thus as a result premature infants have been found to have higher incidence of inguinal hernias. There is heredity factor associated with the occurrence of hernias which is more frequent in twin gestations and in infants who have a family history of hernias however the relationship between the two has not been clearly defined (Choi *et al.*, 2012).

In females, the round ligament is attached to the uterus close to the origin of the fallopian tubes, and the extension of the parietal peritoneum follows the round ligament as it passes to the inguinal canal through the internal ring. This evagination of the parietal peritoneum, named the canal of Nuck is known as the female counterpart of the processus vaginalis in men.

The commonest differential considerations for an inguinal mass in a female patient includes indirect hernia, lymphadenopathy, cold abscess, bartholin's cyst, post-traumatic hematoma while cystic lymphangioma, neuroblastoma metastasis in groin and ganglion can be a rare entity (Janssen *et al.*, 2011).

Conclusion

Therefore it can be concluded that hydrocele of canal of Nuck should be considered as a differential for inguinal swelling in children as well as adults. The most common differential for it is inguinal hernia however the definitive preoperative diagnosis is essential. We recommend ultrasound as an excellent imaging and if required MR pelvis can be done for characterization of lesion however role of surgery is inevitable for confirmation of diagnosis and management.

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