

Hydrocoele of Canal of Nuck, USG and Elastography Imaging

NIYATI SHARMA, SURESH VASANT PHATAK, NIPUN GUPTA, APURVA THAKRE

ABSTRACT

Hydrocoele of the canal of Nuck is a rare condition seen in females resulting from failure of canal of Nuck to completely obliterate. The canal of Nuck being an abnormal peritoneal pouch remains patent and extends into the labia majora anterior to the round ligament of the uterus. It usually presents as suspected inguinal hernia, with the diagnosis

often made on the operation table. Following is a case of 40 years old female patient who presented with swelling in the inguinal region since 4 months associated with pain since four days. Ultrasonography (USG) revealed a well-defined cystic lesion in left inguinal region. Elastography revealed a red-blue-green spectrum.

Keywords: Cyst, Inguinal hernia, Sonography

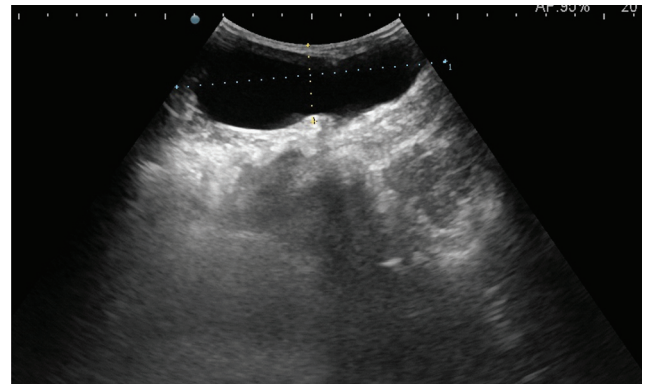
CASE REPORT

A 40-year-old female presented to the Surgery outpatient services with complaint of a painful swelling measuring approximately 8x5 cm in the left inguinal region [Table/Fig-1]. The swelling started four months ago and was painless initially. On local examination the swelling was tender, non-reducible and caused discomfort on coughing. A provisional diagnosis of left inguinal hernia was made.



[Table/Fig-1]: Clinical images showing prominent swelling in left inguinal region.

The patients consent was taken for radiological examination of the involved area. On ultrasonography, using a high frequency liner transducer in the longitudinal and transverse planes, we found a fluid filled cystic lesion of approximate size 9.2x6.2 cm lying in the subcutaneous plane in the left inguinal region extending from anterior superior iliac spine laterally to the symphysis pubis medially [Table/Fig-2]. There was no communication of the lesion with the peritoneum. There was no change in the size of the swelling with Valsalva maneuver.

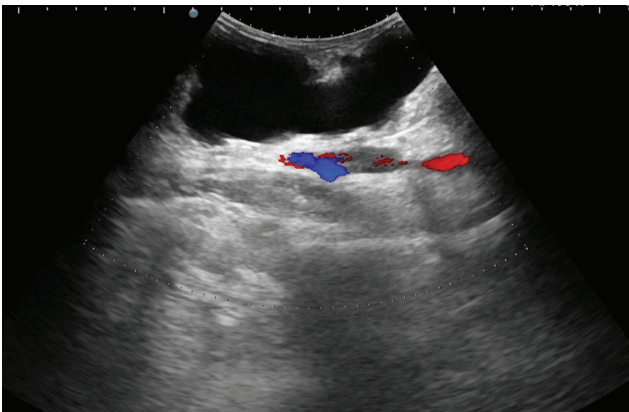


[Table/Fig-2]: Ultrasonography showing a fluid filled cystic lesion of approximate size 9.2x6.2 cm lying in the subcutaneous plane in the left inguinal region.

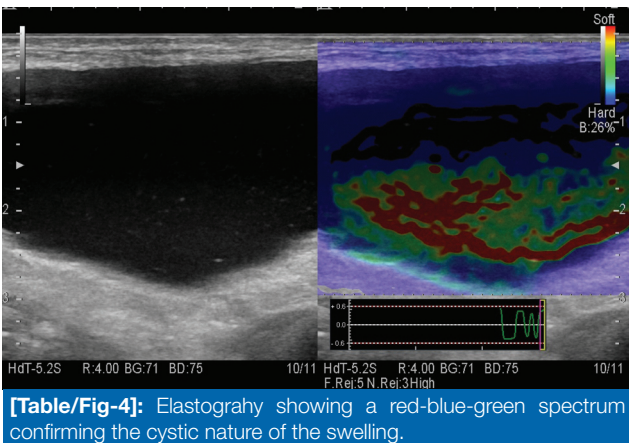
Colour Doppler showed an anechoic cystic lesion. Few internal echoes were noted within the cystic lesion [Table/Fig-3].

On elastography, a red-blue-green spectrum was found, which is specific for cystic lesions [Table/Fig-4].

The differentials for this clinical presentation include abscess, lymphadenopathy, cysts and tumours such as lipoma, leiomyoma and sarcoma. The most important differential, considered was inguinal hernia where bowel herniates instead of fluid. Hernioplasty was planned under spinal anesthesia. Horizontal incision was taken below left inguinal canal. Layers were separated. Fluid filled cystic cavity was present. Swelling was then separated from the surrounding structures and drained. Sac was excised and transfixed. Hemostasis



[Table/Fig-3]: Color Doppler showing an anechoic cystic lesion with few internal echoes. No color flow within the lesion, confirming the cystic nature of the lesion.



[Table/Fig-4]: Elastography showing a red-blue-green spectrum confirming the cystic nature of the swelling.

achieved. external oblique aponeurosis was opened to open the left inguinal canal. Closure was then done in layers.

The patient was asymptomatic on follow-up.

DISCUSSION

The canal of Nuck in females is formed by six months of gestation. The process involved is that through the inguinal ring into the inguinal canal. Canal of Nuck is the female counterpart of processus vaginalis in males [1]. Canal of Nuck gets completely obliterated by first year of life [2]. However, hydrocoele of canal of Nuck may result due to patency, usually partial with the peritoneum, allowing collection of fluid within the processus vaginalis counterpart in female [3]. Etiology could be physiological as a result of intraperitoneal fluid seepage or under absorption or hypersecretion of distal segment epithelium. Various causes involved are [4,5] -

- Trauma,
- Impairment of lymphatic drainage,
- Idiopathic nature,
- Inflammation,

- Rarely as a complication of ventriculo-peritoneal shunt and meconium hydrocoele, and
- Endometriosis

Processus vaginalis can remain patent and have either bowel within it if a communication with the peritoneal cavity is present or it may contain only fluid, thus resulting in hydrocoele of canal of Nuck.

Hydrocoele of the canal of Nuck most commonly presents as a small painless, non reducible fluctuating, translucent swelling in the inguinal area and labium majus [4,5].

There are three types of hydrocoele of canal of Nuck. Encysted hydrocoele, the most common one, where there is no communication with the peritoneal cavity. A persistent communication with the peritoneal cavity is the second type. The third one is the hour glass type where the hydrocoele gets constricted by the inguinal ring resulting in one part being communicating and the other part which is enclosed. However, any of these types of hydrocoeles are extremely rare in females.

High resolution real time sonography is an important tool in diagnosing hydrocoele of canal of Nuck as mentioned in pervious literatures and therefore it serves and an efficient and the principal diagnostic modality to separate the various differentials associated with this entity [5]. Various magnetic resonance and ultrasound findings have been documented for hydrocoele of canal of Nuck. On ultrasound hydrocoele of canal of Nuck is seen as a well defined, thin walled, hypoechoic to anechoic cystic structure. Cyst within a cyst appearance denoting multicystic hydrocoele may be seen [6-8]. Colour Doppler reveals no vascularity within the cyst. Inguinal or femoral hernias, the most common differentials have a predominantly hyperechoic component that's protrudes out into the inguinal sac through the hernia orifice and the size of the hernia varies with Valsalva manoeuvre.

An algorithm consisting of Doppler USG and elastography, along with knowledge of this entity can help us differentiate the various differentials presenting with swelling in the inguinal region in females.

CONCLUSION

Hydrocoele of canal of Nuck though being a rare entity should still be kept as a differential in female presenting with a complaint of inguinal swelling. Radiology can help in diagnosing the entity with elastography, helpful in confirming the cystic nature of the lesion and excluding other diseases. Once the diagnosis is confirmed, the treatment of choice is surgical excision.

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