

## FEMALE HYDROCELE- A RARE CASE

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### CASE PRESENTATION

We present to you a 30-year-old female with swelling in the right inguinal region since 6 months, which gradually increased in size and was not associated with any other complaints. The swelling becomes prominent on standing, coughing or straining on lifting weights, and disappears on lying down. There was no complaint of any chronic cough or constipation or bladder outlet obstruction. On physical examination, there was a single 3 x 4 cm round to oval swelling in the right inguinal region which was extending from the inguinal region upto the labia majora. Swelling was soft cystic in consistency.

The Canal of Nuck is the abnormal patent pouch of the parietal peritoneum into the Labia majora in the females; analogous to the patent processus vaginalis to the scrotum in males. Thus, called as the "female hydrocele." It was first described by Anton Nuck in 1691. It is attached to the uterus by the round ligament through the internal inguinal ring into the inguinal canal. The pouch accompanies the gubernaculum during development of the urinary and reproductive organs, more specifically during the descent of the ovaries and normally obliterates. The Canal of Nuck normally undergoes complete obliteration during the first year of life, and its failure to do so may result in an inguinal hernia or a hydrocele.

### DIFFERENTIAL DIAGNOSIS

There are many causes of swelling in the female inguinal region including inguinal hernia, tumours (lipoma, leiomyoma and sarcoma), cysts, abscesses and lymphadenopathy. When a hydrocele occurs in the vulva, the differential diagnosis should include a Bartholin's cyst and a Gartner duct cyst. The hydrocele of the Canal of Nuck is now believed to be more common than in previous reports; however, it is still an unfamiliar problem for surgeons and some cases are preoperatively misdiagnosed as inguinal hernias, Bartholin's cysts or Bartholin's abscesses.<sup>[1,2,3]</sup>

### CLINICAL DIAGNOSIS

To establish a definitive diagnosis only by history and clinical examination is challenging. Clinically, we diagnosed it as an Inguinal Hernia. Thus, we took to ultrasonography. On ultrasonography of abdomen and pelvis, there was a cystic swelling in the distal part s/o Hydrocele of Canal of Nuck.<sup>[4]</sup>

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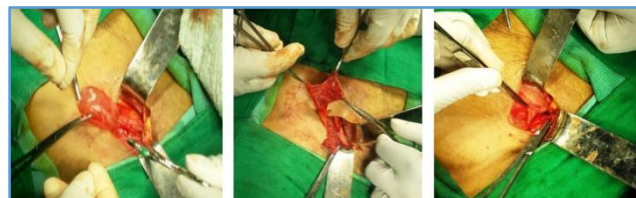
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### PATHOLOGICAL DISCUSSION

Surgery revealed that the cystic mass included a serous component extending from the right inguinal canal to the pubis adherent to the round ligament of the uterus. High ligation at the deep inguinal ring and excision of the cystic lesion was performed. The repair of the hernia defect was done by mesh plasty. Pathologically, the excised sac correlated with the findings of Hydrocele of Canal of Nuck. A final diagnosis of hydrocele of the Canal of Nuck was made. Postoperative recovery was uneventful and the patient was eventually discharged. No recurrence of a mass in the inguinal region has occurred as noted during the follow-up.



**Figure1. Hydrocele Sac. Figure2. Carnal of Nuck opened  
Figure 3. Meshplasty over the defect done.**

### DISCUSSION OF MANAGEMENT

During the embryonic development, the round ligament is derived from the gubernaculum, which is attached to the uterus near the origin of the fallopian tube. The cranial part of the gubernaculum becomes the ovarian ligament, whereas the caudal part forms the round ligament of the uterus. The round ligament runs through the internal ring, inguinal canal and external ring, attaching terminally to the abdominal wall muscles.<sup>[5]</sup> The processus vaginalis accompanies the round ligament through the inguinal canal into the labia majora.<sup>[6]</sup> This abnormal pouching of the parietal peritoneum is the Canal of Nuck in the female and corresponds to the patent processus vaginalis in the male. In males, this structure accompanies the spermatic cord into the inguinal canal before it reaches the scrotum. Normally, this peritoneal pouch undergoes complete obliteration and fibrosis during the first year of life. When the processus vaginalis fails to close, the patient may develop a hernia or hydrocele. A hydrocele of the Canal of Nuck, which is a collection of fluid within the processus vaginalis in females is a rare entity and it is analogous to a spermatic cord hydrocele in males.<sup>[1,2,6]</sup> Clinically, a hydrocele of the Canal of Nuck can appear either as a painless or a moderately painful fluctuant inguinal mass with no accompanying nausea or vomiting; therefore, it is not easy to diagnose this entity on clinical findings alone. These masses are at times not reducible and if large enough can be transluminant. When the peritoneal pouch remains completely patent, it forms a site for an indirect inguinal hernia. Partial proximal obliteration which leaves the distal portion of the processus vaginalis open, creates the anatomic prerequisite for a hydrocele of the Canal of Nuck.<sup>[2-6]</sup> In adults, a hydrocele of the Canal of Nuck should be first treated by

surgical excision of the mass without puncturing it. Aspiration of a hydrocele of the Canal of Nuck is inadequate and results in high recurrence rates.

#### FINAL DIAGNOSIS

We have presented a case of hydrocele of the Canal of Nuck. It should be considered as one of the differentials for inguinal swellings in females, though it being rare.

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