

## Rare Presentation of Hydrocele of the Canal Nuck with Myoma Uterus

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### Abstract

Hydrocele of the canal Nuck occurs due to a patent processus vaginalis and its occurrence in adults is very uncommon. The association of myoma uterus with Hydrocele of the canal Nuck is not reported in the literature so far. We report a case of 45 years old female presented with the history of swelling in the left inguinal region of 6 months duration. On physical examination, the swelling was non-tender, cystic and irreducible. Examination of abdomen also revealed a lump in suprapubic region suggestive of uterine mass. Ultrasonography revealed a cystic swelling with clear contents in the left inguinal region and multiple fibroids in the uterus. Abdominal hysterectomy, high ligation and excision of the canal of Nuck hydrocele sac was done. We report this case because of its rarity and referred to us as inguinal hernia. Careful clinical examination is needed to rule out other associated abdominal pathology.

**Keywords:** Vulval swelling, Hydrocele of canal of Nuck, Myoma uterus.

### Background

A small pouch of patent peritoneal fold extending along the round ligament into the inguinal canal through the

inguinal ring during development is called the canal of Nuck in women. 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. Our patient, a case of hour glass type of hydrocele of canal of Nuck with associated myoma uterus is a very rare entity. Thorough clinical evaluation to diagnose a myoma uterus pre-operatively and careful excision of the inner sac of hourglass type of hydrocele of canal of Nuck are important messages to the young surgeons.

### Case Presentation

A 45-year-old female presented with the history of swelling in the left inguinal region of 6 months duration. The swelling was insidious in onset, gradually increasing in size to about 6×3 cm. There was no history of trauma, vomiting, fever, abdominal distention and spontaneous regression in the size of the swelling. Bowel and bladder habits were normal. Menstrual history was normal. Family history was normal. There was no history of previous surgery. On clinical examination the swelling in the left inguino labial was non tender, cystic, fluctuant, trans illuminating, irreducible and with absent cough impulse.

In addition, there was a firm lump in the suprapubic region suggestive of uterine enlargement.

### **Investigations**

Haematological and biochemical investigations were normal. Ultrasonography of the abdomen and left inguinal region showed the following: Uterus found to be enlarged with multiple fibroids, both ovaries were normal and endometrial thickness was 6mm. There was an elongated, anechoic 7.6×2.8×2 cm fluid collection in the left inguinal region without any peritoneal communication. X-ray chest, ECG and echocardiogram were normal.

### **Differential Diagnosis**

Based on the clinical and ultrasonogram findings a diagnosis of myoma uterus with left hydrocele of canal of Nuck was made. Associated left inguinal hernia was ruled out due to absent cough impulse.

### **Treatment**

After getting informed consent patient was operated. Laparotomy showed enlarged uterus with multiple fibroids (Figures 1 and 2) and the ovaries were normal. In the left inguinal region, the cystic swelling was extending from the abdominal cavity through the deep ring, obliterated in the inguinal canal and extending as another cystic swelling into the left vulva. (Figures 3 and 4) After careful dissection, the cyst was separated from the round ligament, excision and high ligation of the sac was done. (Figure 5) There were no regional lymph nodes and other viscera were normal. All the excised tissues were sent for histopathological examination. (Figures 6 and 7)

### **Outcome and Follow-UP**

Post-operative period was uneventful. Patient was asymptomatic on regular follow up for the past two years. Histopathology report showed as multiple myomata of uterus with degenerative changes and the cystic swelling showed mesothelial lining suggestive of hydrocele of canal of Nuck.

### **Discussion**

We report a case of a rare condition of an hour-glass type of hydrocele of the canal of Nuck that is uncommon in adult females. The importance of this type is that it contains two communicating sacs, and the inner sac may be missed during excision. Associated myoma uterus along with hydrocele of the canal of Nuck is another rare finding not reported in the literature.

A hydrocele of the canal of Nuck is the female equivalent of a spermatic cord hydrocele in males; thus, this entity is called the “female hydrocele”. [1] The processus vaginalis arises as an evagination of the parietal peritoneum. [2] The seventeenth-century Dutch anatomist Anton Nuck described the processus vaginalis peritonei in the inguinal canal of a female and named it the canal of Nuck. [3] During embryogenesis, the processus vaginalis accompanies the round ligament as it passes through the inguinal canal into the labium majus. [4] 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. Hydrocele of the canal of Nuck is the cause of 5%–12% of vulval swellings in adult females. [5]

Counseller and Black classified hydroceles of the canal of Nuck into three types: the most common type, which may be found anywhere along the course of the round ligament from the internal ring to the vulva, without any communication with the peritoneal cavity. The second type, in which there is persistent communication between the hydrocele and the peritoneal cavity, similar to congenital hydroceles in males. The third type or hour-glass type, where there is a constriction at the internal ring so that the upper sac is intra-abdominal but outside of the peritoneum, and the lower sac is in the inguinal canal and simulates a hernia. [6] Clinically it presents as a painless or moderately painful (when tense cystic or infected),

translucent, irreducible lump in the inguino-labial region.[7] However, the overlying fascia and thick aponeurosis of the external oblique muscle may not allow transilluminate in older patients. High index of suspicion is essential to make a provisional diagnosis. The usual differential diagnosis of inguino-labial swelling in a female patients are indirect inguinal hernia or femoral hernia; buboes; Bartholin's cyst; post-traumatic hematoma; hydrocele of canal of Nuck; lipoma; vascular aneurysms and rarely cystic lymphangioma, neuroblastoma metastasis in groin; ganglion; leiomyoma; sarcoma; endometriosis of round ligament or epidermal cyst.

The mesothelial cells that line the canal secrete fluid that is reabsorbed through venous channels or the lymphatics.[8] Inflammation, trauma or blockage of lymphatic channels could lead to an imbalance in the rate of secretion and absorption, resulting in a hydrocele, though in most cases the occurrence is idiopathic. In our case, the probable etiology could be blockage of lymphatic channels due to pressure from the large fibroid.

To establish a definitive diagnosis only by history and clinical examination is challenging. Imaging studies may help in preoperative diagnosis but most of the cases of hydrocele of canal of Nuck finally diagnosed on surgical exploration. On ultrasound, it appears as a thin walled, tubular or dumbbell shaped, well-defined, anechoic or hypoechoic, unilocular or multilocular cystic structure.[9] Dynamic evaluation on Valsalva shows no change in size or shape. On colour Doppler, it does not show any internal vascularity.[10] On CECT, it appears as a thin walled peripherally enhancing homogeneous fluid-filled unilocular cyst extending along the course of the round ligament. Extension across the inguinal canal may be demonstrated. CECT is also useful in unusual cases where visceral structures such as the ovary, fallopian tube or

bladder could have herniated into the patent sac. [11,12,13]

Surgery is necessary for final diagnosis and treatment and considering common association with indirect inguinal hernia, dissection must be done up to the deep inguinal ring along with high ligation of the neck of the peritoneal pouch.[14] Hydrocele of canal of Nuck with associated inguinal hernia and type III cysts can also be managed by laparoscopic approach.[15]

We reported this case for the following reasons: the patient was referred to us as inguinal hernia from the OBG department. We had difficulty in convincing the patient for abdominal hysterectomy as the myoma could be the cause for increased intra-abdominal pressure leading on to formation of hydrocele of the canal of Nuck. Very few cases of hourglass type of hydrocele of canal of Nuck and myoma uterus are reported in the literature.

#### **Learning Points**

- Hour-glass type of hydrocoele of the canal of Nuck is uncommon in adult females.
- Careful clinical examination is needed to diagnose associated myoma uterus.
- Ultrasonography is a very essential diagnostic tool to rule out other causes of swellings in female inguinal region.
- Surgical excision is the treatment of choice for hydrocele of canal of Nuck

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### Legends Figure



Figure 1: Intra operative exploration showing enlarged uterus.



Figure 2: Multiple myomas with part of the hydrocele of canal of Nuck cyst.

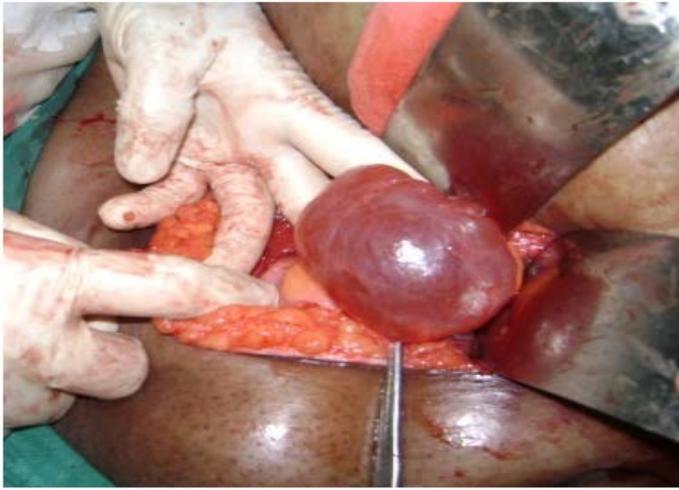


Figure 3: Dissection hydrocele of canal of Nuck cyst at the internal inguinal ring level.



Figure 4: Excision of cyst from the labial region



Figure 5: Excised specimen showing hourglass type of hydrocele of canal of Nuck



Figure 6: Macroscopic appearance of intraabdominal cyst at deep ring of inguinal canal.



Figure 7: Macroscopic appearance of cyst at left labial region

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