

## CASE REPORT

# Hydrocele of the Canal of Nuck in a Female: A Case Report

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### Abstract

Hydrocele of the canal of Nuck is a very rare condition in females. A 30-year-old female presented to our clinic with a palpable mass in her right inguinal groin. Ultrasonographic findings were consistent with the diagnosis of a hydrocele of the canal of Nuck. Surgical resection of the hydrocele was performed, and histopathological examination of the surgical specimen confirmed the diagnosis.

Keywords: Hernia; hydrocele of the canal of nuck; processus vaginalis.

The canal of Nuck is the patent embryological remnant of the processus vaginalis in females. It was first described by Anton Nuck a Dutch surgeon and anatomist in 1650 [1]. Incomplete obliteration of the processus vaginalis causes indirect inguinal hernia or hydrocele of the canal of Nuck [2]. Hydrocele of the canal of Nuck is a very rare condition in females. Here, we report a case of hydrocele of the canal of Nuck, which was diagnosed with preoperative ultrasonography and treated with surgery.

### Case Report

A 30-year-old female presented to our clinic with a palpable mass in her right inguinal groin, which was first noticed 4 months previously. There was no history of trauma, vomiting, abdominal pain, or change in bowel habits. Physical examination revealed an irreducible, translucent, and non-tender swelling in the right inguinal region. The remaining physical examination was unremarkable. Ultrasonographic examination of the right inguinal region demonstrated an

anechoic fluid-filled cystic structure measuring approximately 3 cm × 2 cm in the right inguinal region. The diagnosis of hydrocele of the canal of Nuck was confirmed, and the patient underwent surgical exploration. A 3-cm, fluid-filled cystic structure was located under the fascia of external oblique muscle and dissected down to the labia majora (Fig. 1).

Histopathological examination of the cyst revealed that the interior surface of the cyst was covered with mesothelial cells and that the cyst wall comprised fibrous tissue, including smooth muscle fibers. The patient was discharged on postoperative day 2 with uneventful recovery period.

### Discussion

The processus vaginalis, which is a homolog to the canal of Nuck in males, is usually obliterated after the seventh month of gestation. Although the exact process remains unclear, pathologies of the canal of Nuck are associated with incomplete obliteration. Incomplete obliteration of

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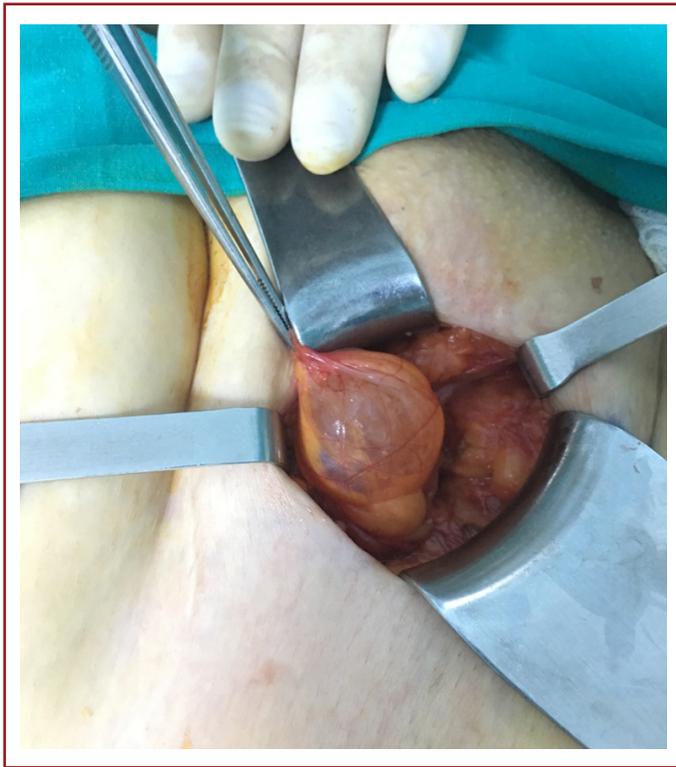
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**Figure 1.** Hydrocele of the canal of Nuck.

the processus vaginalis causes indirect inguinal hernia or hydrocele of the canal of Nuck. Hydrocele of the canal of Nuck is a very rare condition, and Wei et al.,<sup>[3]</sup> have reported that the number of cases in the studies until 2002 was only 400.

Because of its presentation as a painless, translucent, and irreducible mass in the inguinal region, hydrocele of the canal of Nuck may be misdiagnosed as incarcerated inguinal hernia. Transillumination is not always reliable due to the presence of the fascia of external oblique muscle. Differential diagnoses of inguinal swelling in a female patient include inguinal or femoral hernia, post-traumatic hematoma, lipoma, leiomyoma, sarcoma, hydrocele of the canal of Nuck, vascular aneurysms, endometriosis, or epidermal cyst<sup>[4]</sup>.

Clinical history and physical examination should be evaluated carefully. Imaging studies may be helpful to establish the diagnosis. High-resolution ultrasonography is the most

commonly used procedure because it is relatively easy, accessible, and accurate. Magnetic resonance imaging can give information regarding the anatomic relation of the cystic lesion with adjacent structures<sup>[5]</sup>.

Surgical resection of the hydrocele and high ligation of the processus vaginalis, followed by histopathological examination, are the most accurate therapeutic approaches for definitive diagnosis. Cyst aspiration or injection of sclerosing agent into the cyst is not effective. Moreover, hydrocele of the canal of Nuck associated with inguinal hernia can be managed by laparoscopic approach<sup>[6]</sup>.

Hydrocele of the canal of Nuck is a very rare condition that should be considered as a differential diagnosis in females presenting with swelling in the inguinal region. Physical examination and imaging studies may be helpful for diagnosis. Surgical resection is the treatment of choice.

**Informed Consent:** Approval was obtained from the patients.

**Peer-review:** Externally peer-reviewed.

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