

## Case Report

# Surgical Treatment of Bilateral Hydrocele of the Canal of Nuck: A Rare Entity for Inguinal Swelling in Adult Female

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## Abstract

A 47-year-old female was referred to our institution, she had been previously evaluated in other hospital and a bilateral lymphadenopathy was suspected. On physical examination, two soft elastic masses measuring 4 cm in diameter were confirmed in each inguinal canal, which did not modify with Valsalva maneuver. We decided to perform a Magnetic Resonance Imaging (MRI) with gadolinium, which showed bilateral cystic images of lobulated edges and internal septa of variable thickness which enhanced after the administration contrast.

## Case presentation

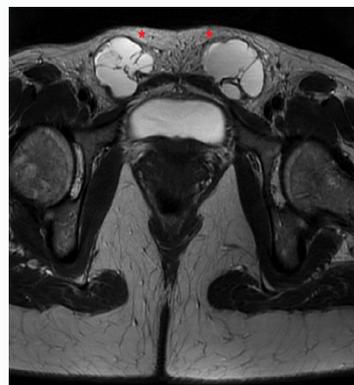
A 47-year-old female was referred to our institution, she had been previously evaluated in other hospital and a bilateral lymphadenopathy was suspected. A fine-needle aspiration biopsy was performed, that revealed indeterminate cystic content. At the time of consultation, she complained of painless swelling in both groins which had increased in size over the last 10 months. On physical examination, two soft elastic masses measuring 4 cm in diameter were confirmed in each inguinal canal, which did not modify with Valsalva maneuver. We decided to perform a Magnetic Resonance Imaging (MRI) with gadolinium, which showed bilateral cystic images of lobulated edges and internal septa of variable thickness which enhanced after the administration contrast (Figure 1). Bilateral Nuck hydrocele was the presumptive diagnosis, although based on the thickness of septa, other lesions with cystic degeneration could not be dismissed. Bilateral inguinal exploration was decided, and a dilated canal of Nuck with encysted polycystic swelling on each side was found (Figure 2). Both cysts were resected en-bloc, round ligaments were incised 2 cm cephalad from the deep inguinal rings, and 1 cm caudally from superficial inguinal rings. No hernia was found, the deep inguinal ring was closed, and the anatomic planes were restored with running sutures. She had uneventful postoperative period and was discharged on the same day of surgery. Histopathology analysis confirmed bilateral hydrocele of the canal of Nuck (Figure 3). After 2 months follow-up, patient remains asymptomatic.

## Discussion

First described by the Dutch anatomist Anton Nuck in 1691, the

process we vaginalis are created when the round ligament of the uterus descends through the inguinal canal to the ipsilateral labia majora. This canal obliterates from the seventh month of gestation to one year of age. Occasionally, it remains patent, creating a communication between the peritoneal cavity and the female inguinal canal, increasing the patient's chance to develop a hernia or hydrocele. The prevalence of Nuck hydroceles or inguinal hernias estimates in 9%-11% of infants born prematurely, however it is unknown in adult females, as only a few case reports and small case series have been published in the literature [1]. Anatomically, hydroceles of the canal of Nuck are classified into three types. Type 1 has no communication between hydrocele and peritoneal cavity, similar to encysted hydrocele. Type 2 freely communicates with the peritoneal cavity, mostly resulting in an indirect hernia and resembles congenital hydrocele in males. Type 3, the rarest type, is a combined type that has an encysted part that does not communicate with the peritoneal, it also may cause a hernia. In our case the patient had a bilateral type 1, highlighting the rarity of its presentation. Hence, only two previous reports of the canal of Nuck on adult females have been published [2].

Clinical presentation usually includes asymptomatic unreducible groin swelling. When associated with inguinal hernia, it may protrude with Valsalva maneuver. Inguinal hernia, lymphadenopathy and tumors such as lipoma, leiomyoma and sarcoma, should be rule out



**Figure 1:** Magnetic Resonance Imaging (MRI): T2weighted image (T2WI) shows bilateral cystic structures (\*) with contrast enhanced internal septa of variable thickness.

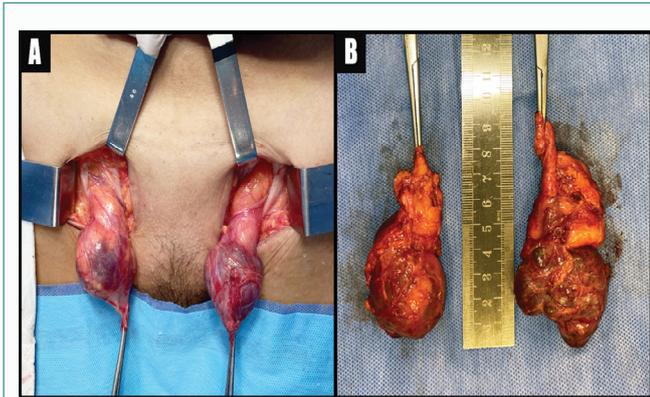
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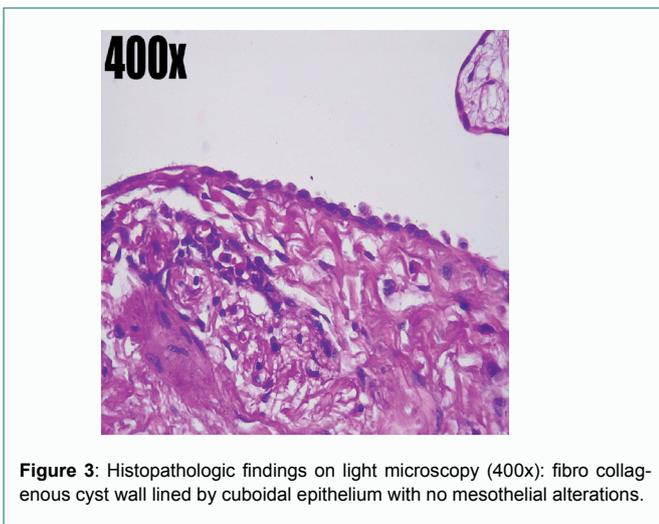
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**Figure 2:** (a) Intraoperative evidence of bilateral dilated canals of Nuck with encysted polycystic swelling. (b) Surgical specimen: en-bloc resection of both round ligaments along with the cysts of the canal of Nuck.



**Figure 3:** Histopathologic findings on light microscopy (400x): fibro collagenous cyst wall lined by cuboidal epithelium with no mesothelial alterations.

as main differential diagnosis. Usually, imaging studies are necessary for accurate diagnosis. A thin walled, well defined, anechoic, cystic structure is the main findings in ultrasonography. MRI can be requested to assess extension of the mass, and association with other organs. Overall, definitive diagnosis is made by histopathologic examination after excision. A complete resection is considered the treatment of choice, and it could be performed by open or laparoscopic approaches [1]. Laparoscopic approach is preferred because of its well-known advantages such as early recovery, shorter length of stay and cosmetic appearance [3], however cyst perforation and leak of its content could be more frequent with this approach. Based on these facts, and also on potential for malignancy in the preoperative MRI (lobulated edges and internal septa of variable thickness), we decided to perform a bilateral open approach in our case.

In conclusion, hydrocele of the canal of Nuck is an infrequent entity that has to be considered as a differential diagnosis of female inguinal swelling. When symptomatic, surgical approach should be advised, either with an open or laparoscopic technique.

### References

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