

Nuck Cyst Presenting as a Recidive Inguinal Hernia: A Rare Case Treated in Plastic Surgery

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Summary: The canal of Nuck is the female equivalent to the male processus vaginalis. Due to its rarity and the lack of awareness among physicians, a cyst in the canal of Nuck is a seldom-encountered entity in clinical practice and is commonly misdiagnosed. We report on a case of 42-year-old woman who presented with a painful swelling at her right groin and skin hypertrophy of the abdomen. The patient underwent successful open herniorrhaphy with excision of the cyst and mesh repair of the inguinal canal. The results were excellent both in the aesthetic and functional terms. In 1 month, there was a complete recovery with a return to social life. The 3-month healing score was 3 of 13 on the Vancouver Scar Scale. The technique is effective and reproducible. The patient's aesthetic and functional outcomes were excellent. In the following 6 months of follow-up, there were no recurrences or late complications. (*Plast Reconstr Surg Glob Open* 2023; 11:e5335; doi: 10.1097/GOX.0000000000005335; Published online 30 October 2023.)

The canal or duct of Nuck in female individuals is considered the counterpart of the peritoneal-vaginal duct in male individuals. During embryonic development, it elongates toward the inguinal canal while remaining connected to the abdomen. Subsequently, it undergoes closure before birth in both sexes.

Incomplete obliteration of the vaginal process can lead to various pathological conditions. Partial closure of the proximal portion creates a narrow passage, which does not allow herniation of the intestine but permits the passage of peritoneal fluid into the vaginal process, resulting in the formation of a hydrocele of the canal of Nuck.

Hydrocele of the canal of Nuck is an exceedingly rare condition in female individuals, typically observed in children but occasionally occurring in adult women. Due to its rarity and limited awareness among physicians, misdiagnosis is common.^{1,2}

The classification commonly used for cysts of the canal of Nuck was established by Counsellor and Black, who categorized them into three distinct types.³ In our case we found a type 1 Nuck cyst.

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Ultrasonography is commonly used as the first-line imaging modality to confirm the presence of a cystic mass and assess its characteristics. It helps in differentiating Nuck cyst from other groin pathologies and in evaluating its size and contents.⁴

The primary treatment for Nuck cyst is surgical excision. The surgical approach may vary depending on the size and location of the cyst. It can be performed through open surgery or minimally invasive techniques such as laparoscopy or endoscopy. The goal of surgery is complete removal of the cyst and the cystic lining to prevent recurrence. Histopathological examination of the cyst wall confirms the diagnosis of Nuck cyst and excludes other potential pathologies.⁵ In this specific case, a traditional surgical approach was preferred due to the patient's need for abdominoplasty. After surgical excision, regular post-operative follow-up visits are essential to monitor wound healing, assess for any complications, and evaluate the patient's recovery. Accurate diagnosis, surgical excision with complete removal of the cyst, and appropriate post-operative follow-up are key factors in the management of Nuck cyst, aiming to achieve successful outcomes and prevent recurrence.

CASE PRESENTATION

A 39-year-old woman presented to our institution with a 1-month history of a right-sided groin mass. The patient had a history of smoking 10 cigarettes per day. The mass exhibited occasional pain and was more prominent during standing and straining. There were no concurrent symptoms of abdominal or pelvic pain, vomiting, constipation, dysuria, or vaginal discharge. The patient had

Disclosure statements are at the end of this article, following the correspondence information.

a satisfactory overall health status and a surgical history notable for right inguinal hernioplasty and a previous cesarean section.

Routine blood tests, ECG, and chest X-ray yielded normal results. Ultrasound examinations (Figs. 1 and 2) revealed a 3-cm diastasis recti and a Nuck canal cyst measuring 8 cm in maximum diameter with a thickness of 1.3 cm. A contrast-enhanced computed tomography scan of the lower abdomen demonstrated a polylobed cystic formation measuring approximately 57×40 mm, extending cranio-caudally for approximately 78 mm.

Clinical examination confirmed the presence of a mass located laterally to the right pubic tubercle, measuring approximately 5 cm in diameter. The mass exhibited mobility, fluctuation, and irreducibility. Although more pronounced in the upright position, no cough impulse was observed. The overlying skin appeared

Takeaways

Question: This case report describes a rare case of Nuck canal hydrocele with wall defect treated in plastic surgery.

Findings: In our case, we obtained an excellent aesthetic and functional result in combined treatment of diastasis of the rectus and defect of the abdominal wall.

Meaning: Plastic surgeons could expand their surgical knowledge to treat wall defects historically of interest to the general surgeon.

nonerythematous, and there was no associated regional lymphadenopathy. Under general anesthesia, the incision was made as per the preoperative abdominoplasty drawing. Dissection of the underlying planes was carried out until reaching the fascia. Cystic formation was



Fig. 1. Preoperative photograph.

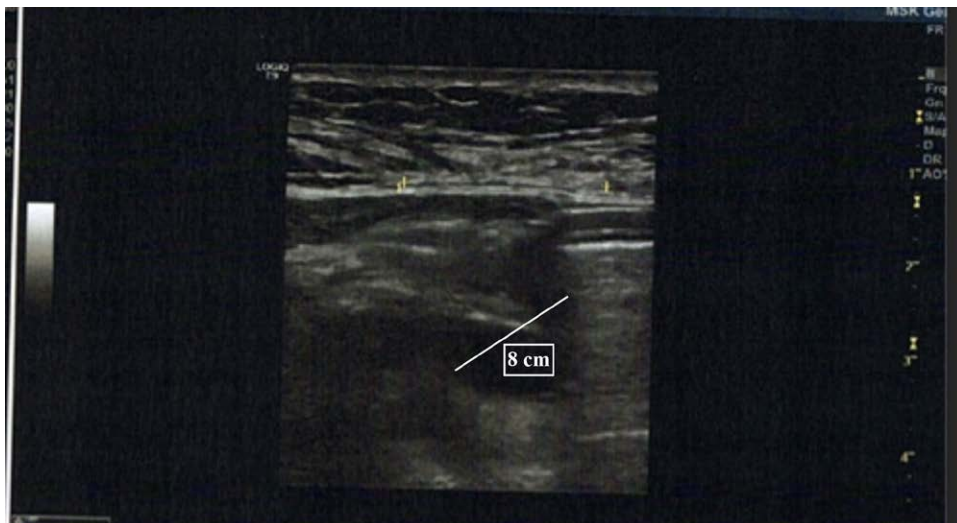


Fig. 2. Ultrasound image.



Fig. 3. Immediate intraoperative image illustrating the exposure of the fascial plane and Nuck cyst.

evident superior to the inguinal ligament and posterior to the external oblique muscle (Fig. 3). The drainage of the cyst was accompanied by the disconnection of the vaginal process from the peritoneal cavity and the plication of the inner ring of the inguinal canal. The simultaneous presence of a recurrence of indirect hernia of 3 cm required repair with folded mesh repositioning of omental contents. Using the same incision, a suprafascial dissection was performed with dermolipectomy, and repair of the diastasis recti was done with vertical and horizontal imbrication (Fig. 4).

RESULTS

The results obtained in the postoperative period, assessed at the 6-month follow-up, demonstrated highly favorable outcomes in terms of both aesthetic appearance and functional restoration. During the follow-up, the patient underwent regular ultrasound checks at 1, 3, and 6 months, which showed no recurrence. In the



Fig. 4. Follow-up: 7 days after surgery.

2 months after the operation, the patient wore a containment girdle and did not require any surgical revisions. Immediate improvement in postoperative pain was observed, with a substantial reduction in the visual analog scale score from 7 to 2 within 14 days. The evaluation using the Vancouver Scar Scale at the 6-month mark yielded a score of 2 out of 13, indicating excellent scar healing. Patient satisfaction, a key metric assessed through a questionnaire, revealed a high rating of 9 out of 10. Notably, no major complications were encountered, and the postoperative course proceeded without any significant issues.

DISCUSSION AND CONCLUSIONS

A groin mass located in the inguino-femoral region is a common clinical presentation and can be classified into various categories, including hernias, infectious conditions, neoplasms, vascular abnormalities, or congenital pathologies.⁶ Ultrasonography is recommended as the initial imaging modality, whereas histopathological examination is necessary for a definitive diagnosis.⁷ In this particular case, the patient presented with an excess of adipose and cutaneous tissue in the abdominal region, along with a groin mass that restricted walking and caused psychological distress.

The selection of this surgical approach proved to be advantageous from a scientific standpoint, as it allowed us to address multiple aspects in a single procedure. Through a single access, we were able to effectively address the rectus diastasis, excise and drain the cyst, and repair the abdominal wall utilizing a mesh. Additionally, this approach yielded a satisfactory aesthetic outcome by eliminating the excess dermolipidic tissue.

After the surgical intervention, an immediate and remarkable improvement in both aesthetic and functional outcomes was observed. The positive results achieved through the surgery had a significant psychological impact on the patient, enabling her to better cope with daily life and alleviate the psychological burden associated with the condition. The patient's satisfaction questionnaire yielded an excellent rating of 9 out of 10 points.

The surgical intervention for the present case was performed by our department's head surgeon, who possesses dual training in both general and plastic surgery. This case report holds significant importance for our department because it contributes to the learning curve of plastic surgeons, who frequently encounter complex situations necessitating advanced surgical skills.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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The study was set up according to the ethical principles reported in the Helsinki declaration. The patient followed up over time was informed about the nature of the study and gave their consent.

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