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A Hydrocele report in an adolescense girl: Cyst of the Nuck canal

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ABSTRACT:
During the first years of life, the vaginal process closes, and when this process fails to close, it gives way to several conditions, including inguinal hernia and hydrocele. We report a case of hydrocele in a 10 year old girl who presented with inguinal swelling and in whom exploration revealed a hydrocele of the cana de Nuck. The treatment consisted of resection of the hydrocele and closure of the canal of Nuck. Hydrocele of the Nuck canal can be classified in 3 types. The treatment consists of a hydrocelectomy associated with a ligation of the canal of Nuck
In here, the incomplete closure of the Nuck canal gives way to a hydrocele in the girl. It must be differentiated from other differential diagnoses, which is often difficult to do based solely on clinical findings, hence the interest of complementary examinations, particularly ultrasound.
Key Words: Hydrocel, Girl, Nuck Canal

I. INTRODUCTION

In the first year of life, the processus vaginalis normally closes. When the closure fails, several abnormalities manifest as groin lumps. [1] The Nuck Canal was first documented in 1691 by Anton Nuck. [2] A hydrocele of the canal of Nuck is known as a "female hydrocele" since it is the female counterpart of a male spermatic cord hydrocele. It's important to separate these clinical manifestations from other groin masses. Although early detection of this form of inguinal area hydrocele is crucial, a hydrocele of the canal of Nuck is seldom diagnosed only on the basis of clinical signs. Additionally, since doctors are unfamiliar with this entity, comprehensive surgical and gynecologic textbooks miss to discuss it sufficiently. [3] We present a case of a hydrocele of the Nuck canal in 10 years old girl peroperatively diagnosed.

II. CASE PRESENTATION:

A 10-year-old girl without any notable pathological background, at the age of 4, her mother observed a right inguinal swelling with minimal pain. The evolution was marked by a slow increase in the volume of the tumefaction with no inflammatory or digestive symptoms.

The physical examination reveals a right inguinal swelling of 2 cm, immobile in relation to the deep plane, irreducible, with no inflammatory signs on the skin opposite. There was no history of local trauma documented, and the patient's vital signs and laboratory results were normal.

The ultrasound showed an oblong cystic pseudo bi-lobed formation of 37mm X 16mm, avascular and without any digestive intraluminal structure on the lateral part of the rectus abdominis muscle, suggesting a cyst of the rectus abdominis muscle.

The surgery was performed under general anesthesia and the patient was placed in dorsal decubitus and under a laryngeal mask by a transverse incision on the right lower abdominal fold. After subcutaneous dissection, we found a formation with fluid content on the trajectory of the inguinal canal that evoked a hydrocoele of the canal of Nuck, we proceeded to a proximal ligation of the canal of Nuck and resection of the cystic formation. the postoperative course was simple.

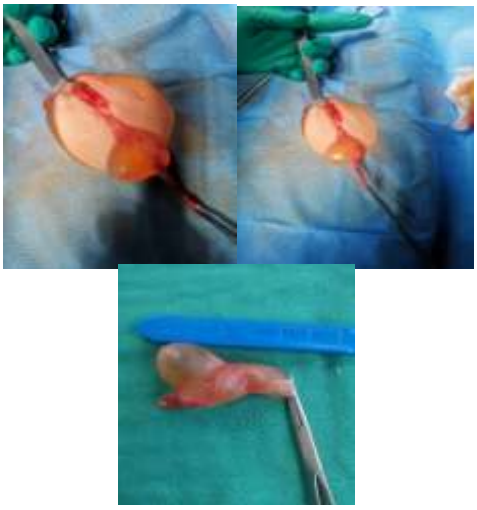

Figure 1:Intraoperative image of a surgery revealing a cystic formation on the path of the canal of Nuck evoking a hydrocele

The pathological study showed a cystic formation with clear content revealed by flattened or cubic non-ciliated endothelial cells. They rest on a smooth fibro-muscular connective tissue punctuated by small lymphocytes and crossed by congestive vessels. No sign of malignancy was noted.

III. DISCUSSION:

In a craniocaudal axis, the canal of Nuck often vanishes entirely between the eighth month of pregnancy and the first year of life. Failure to completely obliterate the Nuck canal results in a number of diseases. A patent canal of Nuck occurs from complete failure of closure. Hernia and communicating hydrocele are abnormalities that can result from this disease. The ovary may descend through the inguinal canal if the gubernaculum does not attach to the uterine cornua. [4]

Hydrocele develops as a result of incomplete canal of Nuck closure. The processus vaginalis, which is lined by mesothelial cells, secretes fluid that accumulates in the potential space when the proximal section of the processus vaginalis closes while the distal portion is still open. The hydrocele can be sausage-shaped or elongated, depending on how the inguinal canal is configured. The hydrocele gets more rounded as the imbalance between secreted fluid production and absorption persists. [5]

A classification of hydrocele of the canal of Nuck has been established: [6]

type 1: encysted hydrocele

type 2: communicating hydrocele

type 3: mixed form with a distal encysted portion and a portion in intra-abdominal communication

The hydrocele of Nuck's canal is manifested by a fluctuating mass at the inguinal area, sometimes painful without digestive signs, irreducible and so important that it can respond to the translumination test, during the Valsalva maneuver it does not increase in volume but can extend to the labia majora [1]

Ultrasound is the first line exam for the diagnosis of hydrocele of the canal of Nuck that appears as an anechogenic lesion with a posterior shadowing, occasionally can appear hypoechogenic due to the concentration of protein in the fluid content, and sometimes in the case of complications such as infection or hemorrhage can have echogenic images in the cystic formation, thickening of the wall or septa. [1]

CT is not the preferred imaging procedure because of its radiation exposure. It can be used due to its availability, doubts about the diagnosis of other causes of inguinal swelling, or when the patient presents with an atypical presentation of abdominal pain and the finding of a hydrocele of the canal of Nuck is fortuitous. [1]

When ultrasonography is unable to provide definitive results, an MRI is employed to understand more about the herniated structures. This imaging technique does not involve radiation. Because of its wider field of view, it is possible to determine with more anatomical accuracy how intraperitoneal structures relate to the disease in the canal of Nuck. On T1-weighted images, the canal of Nuck hydrocele is usually hypointense, however on T2-weighted images, it is hyperintense. If an inflammatory or infectious disease coexists, a faint interior septation may be present. [1]

First a hydrocelectomy would be done, then a hernioplasty. Lichtenstein hernioplasty and transabdominal preperitoneal repair are similar procedures that can be used interchangeably as therapies. Additionally, a potential alternative is the laparoscopic total extraperitoneal hernia repair method.[7]

IV. CONCLUSION:

In surgical and gynecological textbooks, the hydrocele of Nuck canal is rarely covered in detail, and doctors are still unfamiliar with this disease. In some situations, this condition may occasionally be mistaken for an abscess or an inguinal hernia. For the purpose of differentiating the hydrocele of the canal of Nuck from other disorders, ultrasonography is a helpful and first modality. The preferred medical techniques for treating hernias are hydrocelectomy and hernioplasty, both of which require surgery.

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