

A Case Study on Nuck Hydrocele in Two-Month-Old Infant, Born Preterm at 36 Week Gestation

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ABSTRACT

Introduction: A female child's cyst of the canal of Nuck is an uncommon ailment. The canal of Nuck, which is similar to the processus vaginalis in males, and the round ligament (ligamentum teres uteri) that supports the uterus are both transmitted through the inguinal canal in females.

Case report: Two months old baby girl preterm 36-week gestation presented to the clinic with swelling in inguino-labial in on the right side. The swelling was noticed by her mother; but no changes were observed in color, size, and other symptoms. There was no complaint of abdominal pain; the girl was feeding well, active, no vomiting, no diarrhea, unremarkable anti-natal history. Conclusion: This case report concluded that a female child with inguinal swelling should be investigated for the rare condition hydrocele of the canal of nuck. Inguino-labial edema should be considered in the differential diagnosis when it occurs. Ultrasound and a physical examination are sufficient diagnostic methods for making the right clinical diagnosis. The suggested treatment is surgical cystectomy and high ligation of the processus vaginalis through an inguinal skin crease incision.

Key words: Gestation, Abdominal pain, Hydrocele

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INTRODUCTION

A female child's cyst of the canal of Nuck is an uncommon ailment. The canal of Nuck, which is similar to the processus vaginalis in males, and the round ligament (ligamentum teres uteri) that supports the uterus are both transmitted through the inguinal canal in females [1]. By the first year of life, this peritoneal extension usually disappears and transforms into a fibrous cord. In 1961 Anton Nuck coined the term female hydrocele or cyst of the canal of Nuck [2-4]. In humans, the canal of Nuck usually disappears completely during the eighth month of pregnancy and the initial year of life, following the Craniocaudal axis. When complete obliteration is not achieved, a hydrocele of the Canal of Nuck or an indirect inguinal hernia occurs [5,6].

CASE REPORT

Two months old baby girl, preterm 36-week gestation,

presents to clinic with swelling in right inguino-labial. Her mother noticed the swelling, but no changes were observed in color, size and other symptoms. There was no complaint of abdominal pain; the girl was feeding well, had normal bowel habits, no vomiting, and no diarrhea, and the antenatal history was unremarkable.

Physical examination

Local examination indicated a pear-shaped swelling of 2.0 x 1.5 cm in the right external labia region, as well as mobile, painless, transparent, and fluctuating swelling in the inguinal area and labia major. The swelling was covered by normal skin. There was no reducible swelling and no expansible impulse on straining. All the remaining physical examination was unremarkable.

Diagnostic examination

Ultrasonography (USG) of the right inguinal region was done. Ultrasonography revealed a cystic lesion measuring 2.5 x 1.3 cm was seen in the region of the right external labia major, with evidence of a connection to the abdominal cavity. Then the patient was referred to pediatric surgery and diagnosed with nuck hydrocele (Hydrocele of the canal of nuck).

Treatment

The open surgical removal of the cyst and closure of the neck of the processus vaginalis was proven to be successful treatment option. In addition to the commonly

utilized open excision for the canal of nuck hydrocele, laparoscopic excision has been recorded in the literature.

DISCUSSION

The term canal of Nuck was defined by Dutch anatomist Anton Nuck. Girls' uterine suspensory ligament, round ligament extends over the labium majus into the inguinal canal during the intrauterine period. The canal of the nuck is a circular ligament that reduces the peritoneal fold [7]. Only about 400 reported cases [8].

During the 12th embryonic week, the processus vaginalis appears as a peritoneal protrusion. The internal inguinal orifice, inguinal canal, and pubic tuberculum are all locations where it progressively emerges from. In females, it is placed into the pubic tuberculum. It extends to the scrotum in boys, where it creates the two layers of the tunica vaginalis, which partially encircles the homolateral testis. The testicular descent from the lumbar region to the scrotum is catalyzed by the processus vaginalis.

The cranial region of the gubernaculum develops into the ovarian ligament during the development of a female embryo, and the caudal region develops into the uterine round ligament.³ As the round ligament passes through the inguinal canal and into the labium majus, it is accompanied by the peritoneal fold "processus vaginalis," also known as the canal of Nuck [3,4,9,10]. If this communication does not close by the first year of life, it is possible that an indirect hernia or a hydrocele will develop [11,12].

In the Nuck canal, there are three different types of hydroceles. The most frequent type lacks an access point that would provide patency between the cyst and peritoneal cavity and instead forms an encysted hydrocele along the tract of descent, from the inguinal ring to the vulva. The second type develops when there is continuous contact with the peritoneal cavity. A third type (the hourglass type), which blends the two so that some of it is communicative and some of it is restricted, is created when the inguinal ring tightens the hydrocele like a belt. But any of these female hydroceles are exceedingly rare [13].

Because of the superficiality of the lesion, ultrasonography is the preferred investigation because it produces crisp images when employing a high-frequency linear array transducer. The most typical appearance of the lesion is a well-defined sausage- or comma-shaped mass in the inguinal canal, resting superficially and medial to the pubic bone with heightened posterior through translucency. As in our instance, it could appear cystic, or it might have septations inside the lesion [14].

Kochis, et al. [15] described a 12-month-old girl with a right inguinal mass resembling a canal of Nuck hydrocele and reviewed the literature to determine the normal appearance of this rare condition. She was delivered healthy at 36 weeks and 6 days gestation. A hydrocele was recommended as a differential diagnosis for a girl

with an inguinal lump. The conventional technique of treatment is open surgical excision [15].

A cystic mass in the female groin may be caused by round ligament cysts, round ligament varicosities, inguinal ovarian herniation, cystic lymphangiomas, epidermal inclusion cysts, abscesses, or pseudoaneurysms.¹⁶ The definite diagnosis is made during surgery, and a pathological examination is utilized to confirm it. The hydrocele should be surgically removed, and the neck of the processus vaginalis should be ligated [16].

CONCLUSION

According to the study's findings, a female child with inguinal swelling should be investigated for the rare condition hydrocele of the canal of nuck. Inguino-labial edema should be considered in the differential diagnosis when it occurs. Ultrasound and a physical examination are sufficient diagnostic methods for making the right clinical diagnosis. A definitive diagnosis can be made prior to surgery with the aid of high-resolution ultrasound or MRI scan imaging, as a diagnosis may not be attainable only by physical examination. However, surgical investigation allows for a firm diagnosis to be made, and surgical excision is the preferred course of action. The suggested treatment is surgical cystectomy and high ligation of the processus vaginalis through an inguinal skin crease incision.

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