

■ Case Report

Female hydrocele

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Abstract

The processus vaginalis is an evagination of parietal peritoneum which accompanies the round ligament through the inguinal ring into the inguinal canal. The portion of processus vaginalis within the inguinal canal in women is called 'the canal of Nuck'. When the processus vaginalis fails to close, it can result in a hernia or hydrocele in both men and women. Female hydrocele of the canal of Nuck is uncommon. A literature search revealed that little has been published on this condition. We present a case of a hydrocele of the canal of Nuck in a 23-year old female who had an irreducible swelling over the left groin for three months and increasing in size on straining. The cyst was excised with round ligament and a repair of inguinal canal with closure of deep ring was done.

Keywords: hydrocele, female hydrocele, canal of Nuck

Introduction

The canal of Nuck in the female is analogous to the processus vaginalis of the male, and is named after Anton Nuck, of the 17th century dutch anatomist. During embryological development the processus vaginalis is a peritoneal evagination into the inguinal canal and in the female it accompanies the round ligament or the gubernaculum. In both sexes it obliterates completely by the first year of life. When it fails to obliterate completely, it can result either in a congenital hernia or a hydrocele.¹

The hydrocele of canal of Nuck or congenital hydrocele is also known as hydrocele muliebris (from German mulebria of the female), as it is an inguino-labial cyst. Though in the English literature there are anecdotal reports of hydroceles in women since the 6th century, they are rare in girls.² We report this case because of its rarity.

During female embryological development the ovaries move caudally and laterally along the female

gubernaculum which is bent into an angular form. Cephalic to bend it becomes round ligament of the ovary (ligamentum ovarii proprium) and caudal to it, the round ligament of the uterus (ligament teres uteri). Thus, the round ligament is the remainder of the distal portion of the female gubernaculum and is the continuation of the ligamentum ovarii proprium. The round ligament reaches the anterior abdominal wall via the ligamentum latum. There, it runs over the ramus superior ossis pubis through the inguinal canal and ends just outside the external ring, with neither attachment nor extension to the caudal labium.

During fetal male development, the testicle descends along the gubernaculum through the inguinal canal and into the scrotum. The testicle is enveloped in a sac like extension of the peritoneum, known as Processus Vaginalis. When the testis has come to rest in the scrotal sac the processus vaginalis closes. The same evagination of the parietal peritoneum along the round ligament, through the inguinal ring and into the inguinal canal can be found in females. That portion of processus vaginalis within the inguinal canal in women is called the 'canal of Nuck'.

If it does not close, it is refer to as a patent processus vaginalis. If the patent processus vaginalis is small and only allows fluid to pass, the condition will lead to peritoneal fluid accumulation or a communicating

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hydrocele. If the patent processus vaginalis is larger and allows abdominal organs to protrude, the condition is referred to as a hernia.

Case report

A young female presented with an irreducible swelling over the left groin for three months. She had a history of mild pain in the swelling associated with an increase in the size on straining and standing. On physical examination an oval irreducible swelling, 3x2 cm in size, above the left inguinal ligament was palpated. It was smooth, fluctuant but transillumination was negative. The cough impulse was present, overlying skin was normal. The right groin was normal and the following investigations were normal: blood sugar-89mg/dl, urea- 24, creatinine- 0.7mg/dl, total count-5700/cmm, neutrophils-63, lymphocytes-32, monocytes-5, haemoglobin- 12.7 mg/dl, B negative.

A differential diagnosis of an inguinal hernia or hydrocele was made.

At the operation a 'cystic' patent processus vaginalis (Fig.1) with a minimal amount of fluid and a very small communication with the peritoneum was found. It could be mobilised and easily dissected from the surrounding structure and freed upto the deep ring (Fig.2). It was excised along with the round ligament. Inguinal canal repair with closure of the deep ring and the canal was done by polypropylene suture.

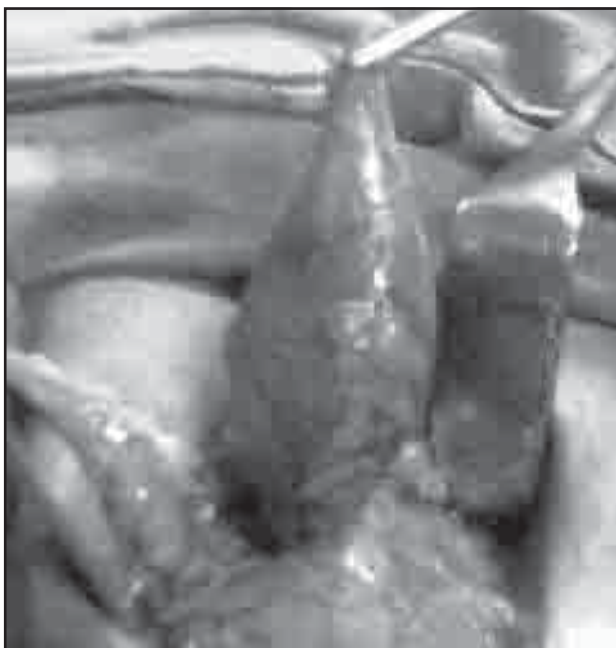


Fig: 1 The female hydrocele



Fig: 2 The mobilized cyst upto the deep ring



Fig: 3 A cystic and patent processus vaginalis.



Fig: 4 The cyst with the round ligament

Discussion

Hydroceles are more common in males probably because of the differences in migration of the gonads. A hydrocele can result from either a persistent patency of the processus vaginalis with peritoneal communication as in this patient, or with proximal obliteration at the deep ring with over-secretion and under-absorption in the distal segment. The canal of Nuck cyst is thin walled, contains clear fluid and is lined by cuboidal or flattened mesothelial cells.³

Normally the hydrocele of the canal of Nuck presents as a painless, translucent, irreducible lump in the groin. However the overlying fascia of external oblique may not allow transillumination; we did not find it in our case.

Hydrocele of canal of Nuck is an important differential diagnosis for an irreducible hernia in female patients.⁴ Clinically these hydroceles may mimic both inguinal and femoral hernia, and even present as strangulation.⁵ Our patient had a relatively new swelling and she did not have any features of strangulation. An associated inguinal hernia is reported in one third of cases. They

can also be mistaken for Bartholin's cyst of labium majus, which is more common.

The curative treatment of this condition is surgical excision of the cyst with closure of the neck at the deep ring.

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