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Abdomino-Scrotal Hydrocele in Infants: A Case Report

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Abstract

Introduction: Abdomino-scrotal hydrocele (HAS) is a form of hydrocele in which there is an hourglass communication between a hydrocele and the abdominal cavity through the inguinal canal. We report in this study the first case of abdomino-scrotal hydrocele from our center, discovered incidentally intraoperatively and successfully treated, in a 14-month-old infant. **Case Report:** A 14-month-old infant with no previous history was admitted for an acute left scrotal swelling. Initial examination revealed a left scrotal swelling, painless and non-expansive, with a palpated testicle. The transillumination test was positive. Contralateral testis and scrotum were normal. Elsewhere, the physical examination was unremarkable. In view of these signs, we concluded that the patient had a left vaginal hydrocele and recommended surgery. No radiological examination was ordered. The preoperative work-up was normal. After a left inguinal incision, exploration revealed an inguinal pouch. The presence of a second intra-abdominal pouch was suspected, given the continuity of the scrotal sac through the inguinal canal. This was larger than the first. The pouches were resected, and the inguinal canal closed. The left testicle appeared normal. Postoperative follow-up was straightforward, with a 12-month postoperative follow-up. **Conclusion:** HAS is a rare pathology in children and is still little-known by some practitioners. It should be considered in infants presenting with a hydrocele.

Keywords

Abdomino-Scrotal Hydrocele, Child, Surgery

1. Introduction

Hydrocele in children is defined as a fluid-filled cystic mass that develops between the two layers of the tunica vaginalis, the serous membrane covering the testes [1].

Abdomino-scrotal hydrocele (ASH) is an atypical form. It is a hydrocele that extends into the abdominal cavity, forming two communicating sacs (one scrotal, the other abdominal) [2]. Its pathophysiology is poorly understood. It is a rare form of hydrocele. There are now more than 360 cases described in pediatrics. We report a case of HAS discovered incidentally intraoperatively in a 14-month-old boy who had been successfully treated.

2. Case Report

14-month-old infant admitted for acute left scrotal swelling (four days prior to admission). He had no previous medical history. Initial examination revealed a painless, non-expansive left scrotal swelling, with a palpated testicle. The transillumination was positive. The contralateral testis and scrotum were normal. Elsewhere, the physical examination was unremarkable. In view of these signs, we concluded that there was a hydrocele of the left vagina and decided to operate. No imaging was ordered. The blood test was normal. The patient was admitted to the operating room. After a left inguinal incision, surgical exploration revealed an inguinal pouch. The presence of a second intra-abdominal pouch was suspected in view of the continuity of the scrotal sac through the inguinal canal (**Figure 1(A)**, **Figure 1(B)**), which was larger than the first. The sacs were resected, and the roof of the canal reinforced. The left testicle appeared normal.

1) It was very easy to dissect and deliver the intraabdominal part.

2) There was no communication between the sacks and the peritoneal cavity.

3) Exactly, it is not a closing the inguinal canal but a reinforcement of the roof of the canal.

4) In our routine, we do not have imaging, likely ultrasound, for hydrocele.

Post-operatives' management was straightforward, with no recurrence at 12 months.

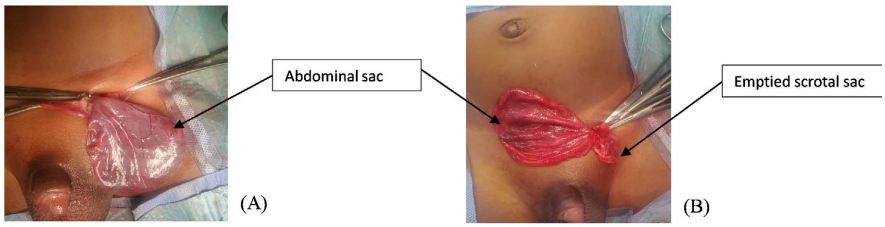

Figure 1. Abdominoscrotal hydrocele with abdominal sac (A) and 2 emptied sacs (B).

3. Discussion

HAS was first described by Dupuytren in 1834, and the first pediatric case was described by Syme in 1861 [2]. The condition has been described in both children and adults. In a systematic review, Doudt AD *et al.* in 2016 found 116 patients aged between 1 month and 27 months presenting 146 HAS [3]. It is thought to account for 0.4% to 3.1% of hydroceles in children, with no side predominance [3]. The rarity of this pathology makes it a little-known condition that can go unnoticed.

It is a congenital anomaly of the vaginal process, beginning as an inguino-scrotal hydrocele and progressively extending into the abdomen, forming a two-compartment inter-communicating hydrocele [2]. Three theories are most commonly proposed to explain the occurrence of a HAS: 1) cephalic extension of a simple hydrocele, 2) high obliteration of the vaginal process, 3) and the peritoneovaginal canal acting as a unidirectional valve with cephalic extension of the hydrocele sac [3]. However, the most widely accepted theory is the original Dupuytren's theory, which states that high intracystic pressure in the scrotal compartment leads to cephalic extension through the musculofascial inguinal canal and formation of the abdominal sac [4].

The diagnosis can be made by a rigorous and meticulous physical examination, then confirmed by radiological examinations such as ultrasound, CT and MRI [5]. In our case, no radiological examination was prescribed. During the examination, if one component is manually compressed, pressure and size increase in another component. This confirms the presence of a closed compartment without communication with the free peritoneal cavity in the HAS [5]. This cross-fluctuation can be easily palpated or observed on physical examination unless the hydrocele is very tense [4]. Fluid in the scrotal component can be pushed into the abdominal component, and the size of the scrotal component will remain reduced if manual pressure is applied to the inguinal canal to prevent reflux. When pressure is released, the scrotal component will refill, indicating distal transfer of fluid from the abdominal component to the scrotal component. This sign is called the "bouncing ball" sign [6]. A complementary sign may be evident when transilluminating the sac in a darkened room; an "hourglass transillumination" of both components can be obtained by correctly positioning the light source [5].

Thus, the physical examination remains an important means of accurate diagnosis. Such a precise examination was lacking in our case. This was certainly due to a lack of awareness of this form of hydrocele. It may be associated with other anomalies, notably: a homolateral undescended testicle, testicular dysmorphia, contralateral inguinal hernia, and compression of adjacent organs [3]. In our case, it was an isolated HAS. Treatment is surgical. It may be performed via a conventional inguinal approach or by laparoscopy [3].

4. Conclusion

HAS is a rare pathology in children and is still little-known by some practitioners. An infant presenting with a hydrocele should not be overlooked. Abdominal ultrasound can help in the diagnosis. Surgery allows definitive healing.

Informed Consent

Informed consent was obtained from the parent.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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