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CASE REPORT

Abdominoscrotal hydrocele: A case report of a young adult treated with laparoscopy

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Abstract

Abdominoscrotal hydrocele (ASH) is a rare condition characterized by interconnected abdominal and scrotal components, resembling the appearance of an hourglass, which can occur in both pediatric and adult populations. Although its pathophysiology remains incompletely elucidated, it involves an increase in fluid pressure within the tunica vaginalis, resulting in the progression of fluid along the inguinal canal towards the abdomen and the formation of an abdominal sac. Due to the potential for various complications such as hydronephrosis and lymphedema in the leg secondary to compression effects, early surgical intervention is generally recommended. The presentation aims to demonstrate a case of ASH successfully managed through laparoscopic excision.

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Introduction

Abdominoscrotal hydrocele (ASH) is a rare medical condition characterized by interconnected, fluid-filled scrotal and abdominal sacs, constituting approximately 0.4-3.1% of all hydroceles.[1] While ASH predominantly affects children, it can also impact adults. Despite its low incidence, it can lead to serious complications due to compression effects.[2] Surgical intervention stands out among treatment options. Laparoscopic surgery has emerged as a preferred method for ASH treatment in recent years.[3] This approach offers a minimally invasive option, resulting in reduced postoperative pain and shorter recovery times for the patient. This report aims to present a case of ASH successfully treated using laparoscopic techniques.

Case

An 18-year-old male patient presented to the urology outpatient clinic of a tertiary hospital with a complaint of left-sided scrotal swelling for the past 8 years and abdominal pain for the last 3 years. He had no other symptoms such as changes in bowel or bladder habits, and no known comorbidities. Examination revealed a left-sided scrotal hydrocele and a large swelling covering the left lower abdominal region (Figure 1).

Figure 1

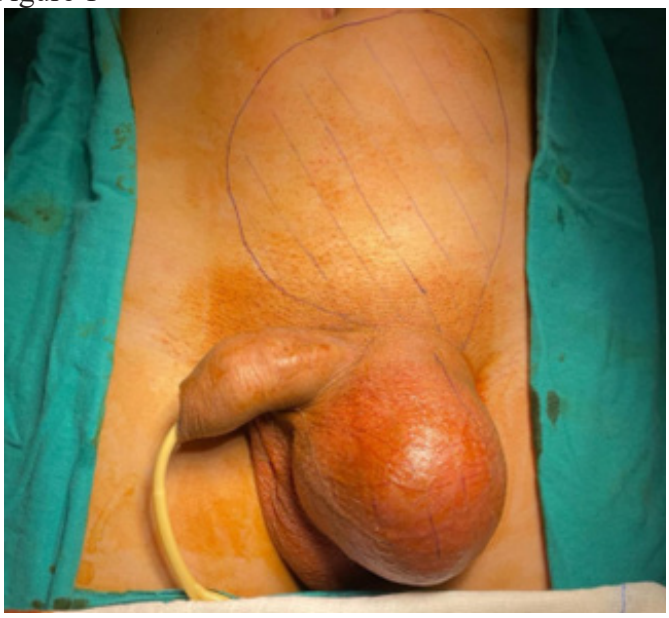

Figure 1: The marked area showed the boundaries of the hydrocele sac palpated during the physical examination.

The abdominal swelling was soft, non-tender, and had a smooth surface. Ultrasonography of the abdomen and scrotum revealed a large hypoechoic collection extending from the left lower abdomen to the left inguinoscrotal region, originating from the umbilicus. Bilateral testes appeared normal, and levels of AFP, total hCG, and LDH were within normal limits. Abdominal computed tomography showed a large hypodense retroperitoneal cystic lesion, measuring 26 x 14 cm, extending from the left side of the abdomen to the scrotum via the inguinal canal (Figure 2).

Figure 2

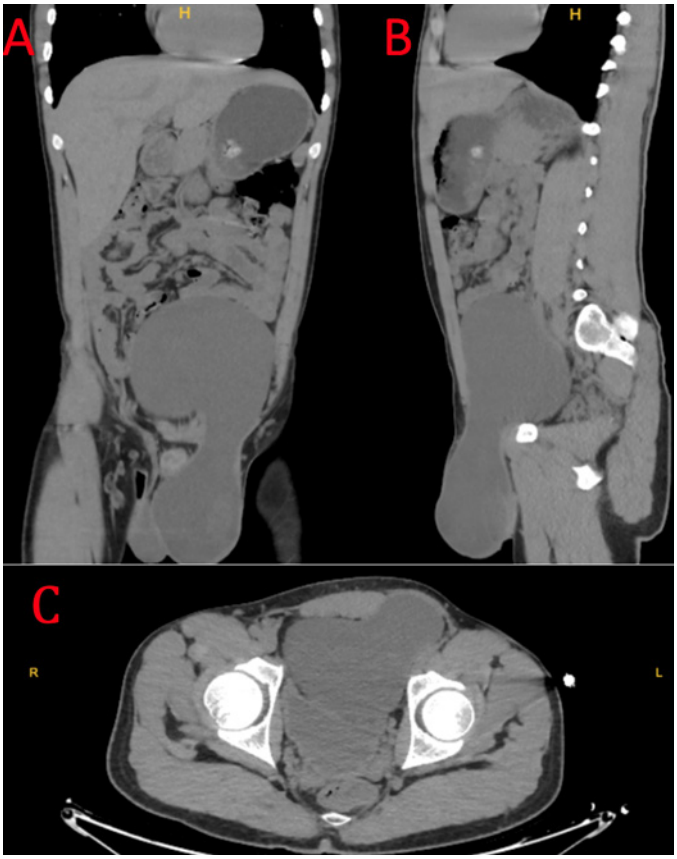

Figure 2: The hourglass appearance of the abdominoscrotal hydrocele sac in the coronal (A) and sagittal (B) section and the bladder displaced by the abdominal hydrocele sac in the transverse (C) section image of the computed tomography.

It extended anteriorly up to the anterior abdominal wall and displaced the bladder to the right side. Therefore, surgical intervention was planned. Due to its minimally invasive nature, laparoscopic technique was preferred. Pneumoperitoneum was created by entering the intraperitoneal space through an open technique from the supraumbilical region. A large retroperitoneal cystic lesion extending from the umbilicus to the inguinal canal, covering a significant portion of the left half of the abdomen, was observed (Figure 3).

Figure 3

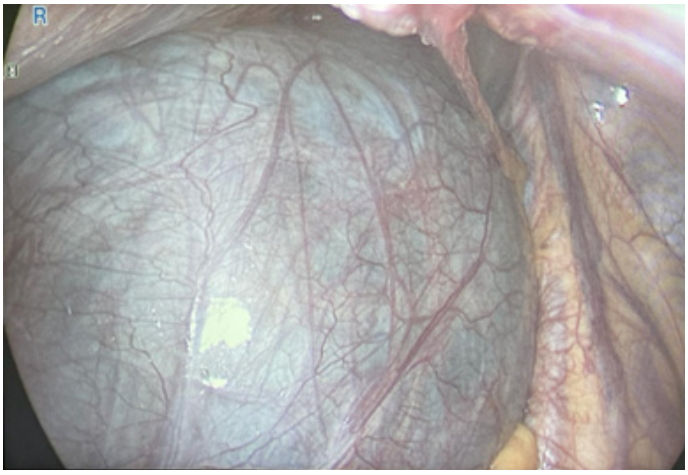

Figure 3: The laparoscopic view of the extension of the hydrocele sac into the inguinal canal.

Due to the size of the cyst and inadequate access for dissection, decompression of the cyst was decided. Using a needle inserted transcutaneously from the scrotum, 3000 mL of clear yellow fluid was aspirated. The wall of the cyst was dissected from the lateral abdominal wall, preserving testicular vascular structures and vas deferens, and separated from the spermatic cord. The scrotal portion of the cyst was excised through a subinguinal incision, completely removing the hydrocele sac. The patient was discharged without complications two days later. Histopathological examination revealed no neoplasm. There was no recurrence observed in the abdomen or scrotum during one year of follow-up.

Discussion

Hydrocele is defined as the accumulation of fluid between the visceral and parietal layers of the tunica vaginalis.[4] It occurs in different pathophysiological conditions, including primary hydrocele, secondary hydrocele, and cord hydrocele. ASH represents a rare subgroup, characterized by its connection between the abdominal component and the scrotum through a narrow neck covering the inguinal canal, resembling an hourglass appearance. It was first described by Dupuytren in 1834 as "hydrocoele en bissac".[5] This rare condition can occur in both children and adults. While the exact pathophysiology of ASH remains incompletely understood, several hypotheses exist.[6,7] The most plausible hypothesis involves an increase in intraluminal pressure within the proximal processus vaginalis associated with scrotal hydrocele, leading, in accordance with Laplace's law, to progression along the spermatic cord to the inguinal canal and expansion into the abdomen. Other hypotheses suggest upward extension of the hydrocele sac due to excessive intrascrotal pressure resulting from a one-way valve mechanism directing abdominal fluid towards the inguinal canal, causing obliteration of the processus vaginalis at a higher level.

Diagnosis is typically based on clinical examination, including palpation of a mass above the inguinal ring and observation of fluid movement between the abdomen and scrotum upon compression. The presence of the "springing back ball" sign and hourglass transillumination are diagnostic for ASH.[8] The abdominal and scrotal sacs may contain liters of fluid. Differential diagnosis may include mesenteric and enteric duplication cysts, massive hydronephrosis extending into the pelvis, bladder diverticulum, and cystic neoplasms. Imaging techniques such as ultrasonography, CT, and MRI may be utilized in the differential diagnosis.

Open scrotal surgery is commonly employed in the treatment of scrotal hydrocele. Due to its rarity, there is a lack of guideline information regarding treatment options for ASH. Complications associated with ASH, such as hydronephrosis, leg edema, testicular atrophy, and rarely, testicular and paratesticular malignancy, have been reported.[2] Although displacement of the bladder was observed in this case, the patient remained asymptomatic. Early surgical intervention is generally considered an appropriate treatment option to prevent complications resulting from mass effect on the testis and intra-abdominal organs.[9] While cases of conservative management have been reported in children, most eventually underwent surgery.[10] Spontaneous regression is not expected in adults. While initial reports described open surgical excision of scrotal and abdominal components, laparoscopic surgical options have become increasingly preferred in recent times.[3] Adhesion of the hydrocele sac to the spermatic cord due to thickening requires careful dissection during surgery.

In conclusion, ASH, although rare, is a condition that warrants clinical attention. Standardized guidelines for its treatment are lacking, necessitating a case-by-case approach. Diagnosis relies on a combination of clinical examination and imaging modalities. The use of laparoscopic technique as a minimally invasive approach may be preferred for surgical management. Further research is needed to determine optimal management strategies and guidelines for ASH.

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