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Giant Adult Abdominoscrotal Hydrocele Presenting as An Abdominal Lump with Inguinoscrotal Extension

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Conflicts of Interest: Nil

Abstract

Abdominoscrotal hydrocele (ASH) is a rare variant of hydrocele characterized by a dumbbell-shaped fluid-filled sac extending from the scrotum into the abdominal cavity through the inguinal canal. It accounts for less than 0.2% of all hydroceles, with very few cases described in adults¹⁻³. Giant ASH presenting with significant intra-abdominal extension poses considerable diagnostic and surgical challenges.

A 30-year-old man presented with a long-standing abdominal lump with left inguinoscrotal extension and dragging pain. Clinical examination revealed a large cystic abdominal lump continuous with the left hemiscrotum. Contrast-enhanced computed tomography demonstrated a well-defined dumbbell-shaped cystic lesion measuring 31×19×10 cm in abdomen, extending through the left inguinal canal into the left hemiscrotum, consistent with giant ASH. Surgical excision was initially attempted through an inguinal approach; however, conversion to exploratory laparotomy was necessary because of extensive intra-abdominal extension and dense adhesions to the transverse colon. Complete excision of the hydrocele sac with orchiectomy of the severely atrophic left testis was performed. Histopathological examination revealed an infected hydrocele sac with maturation arrest in the testis. The postoperative recovery was uneventful, and the patient was discharged on postoperative day six. At one-month follow-up, he remained asymptomatic with satisfactory wound healing and no evidence of recurrence.

Giant adult ASH should be considered in the differential diagnosis of a cystic abdominal lump with inguinoscrotal extension. Cross-sectional imaging is invaluable for diagnosis and operative planning, while complete surgical excision remains the treatment of choice.

Keywords: Abdominoscrotal hydrocele; Hydrocele; Giant hydrocele; Inguinoscrotal swelling; Exploratory Laprotomy; Case report.

Introduction

Abdominoscrotal hydrocele (ASH) is an uncommon form of hydrocele characterized by simultaneous abdominal and scrotal cystic components communicating through the inguinal canal, producing a characteristic dumbbell or hourglass configuration¹. The condition represents less than 0.2% of all hydroceles and occurs predominantly in the paediatric population². Adult presentations are exceedingly rare³.

The exact pathogenesis remains uncertain. The most widely accepted theory suggests progressive enlargement of a scrotal hydrocele due to increased intra cystic pressure, resulting in cephalad extension through the deep inguinal ring into the preperitoneal or abdominal space^{4,5}. Large ASH may produce pressure symptoms including abdominal distension, urinary complaints, bowel symptoms, lower limb oedema, hydronephrosis, infertility, or testicular atrophy^{2,6}. Surgical excision is considered the definitive treatment^{1,7}. We report a rare case of giant adult ASH successfully managed by inguinal exploration converted to exploratory laparotomy because of massive abdominal extension and dense adhesions.

Case Presentation

A 30-year-old male presented with complaints of huge abdominal lump and left inguinoscrotal swelling, progressively increased in size & associated with dragging type of pain since 15 years.

There was no history of bowel/bladder complaints, no trauma, fever, weight loss, chronic cough or previous abdominal surgery. The patient had no known comorbid illnesses.

Clinical Examination: General examination was unremarkable.

Local examination: Large well defined abdominal, non tender cystic, fluctuant lump in abdomen occupying almost all regions of abdomen. And translucent, fluctuant, cystic swelling extending into left inguinoscrotal region. Left testis was small and flabby. Penis deviated to right side. Rest of the abdomen soft, non-tender.

Investigations:

a) Ultrasonography - Gross left hydrocele extending through the inguinal canal into the abdomen

Features suggestive of giant left abdominoscrotal hydrocele

Mild right-sided hydrocele

b) Contrast Enhanced CT Abdomen and Pelvis - CECT demonstrated a large thick-walled homogenous non enhancing cystic lesion of 31x19x10 cm in lower abdomen compressing pelvic organs extending through the left inguinal canal into the left hemi scrotum, producing a characteristic dumbbell/hourglass configuration.

The superior extent reached the level of L2 vertebra.

No internal septations, mural nodules, or calcification were identified.

These findings were consistent with giant abdominoscrotal hydrocele.



Figure 1: Coronal CT scan showing giant left abdominoscrotal hydrocele extending through the inguinal canal into the abdominal cavity with characteristic dumbbell configuration.

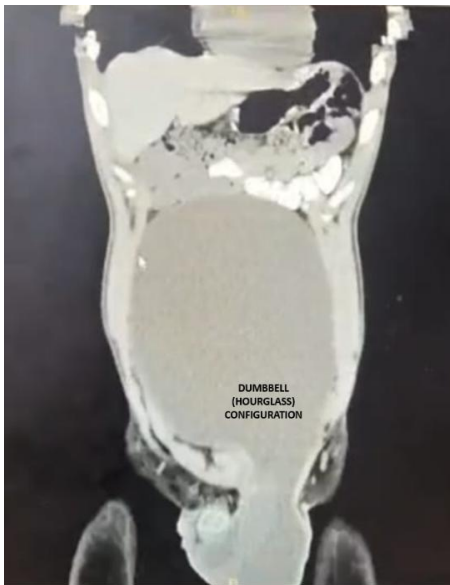


Figure 2: Sagittal CT scan showing giant left abdominoscrotal hydrocele extending through the inguinal canal into the abdominal cavity with characteristic dumbbell configuration.

Operative Management

After informed consent, the patient underwent surgery under general anesthesia.

An initial left inguinal approach was planned.

A left inguinal incision was made approximately 1.25 cm above and parallel to the inguinal ligament. Layers were divided until the external oblique aponeurosis was reached and opened in the direction of its fibers. The spermatic cord structures were identified and preserved.

A large tense translucent hydrocele sac extending into the scrotum and through the deep inguinal ring into the abdominal cavity was identified. Careful dissection separated the sac from surrounding cord structures.

Because of the huge intra-abdominal extension and inability to dissect safely & deliver the abdominal

component through the inguinal incision, conversion to exploratory laparotomy was undertaken.

A lower midline laparotomy was performed. Upon entering the peritoneal cavity, a giant transilluminant cystic mass occupying the lower abdomen was identified. The abdominal component measured approximately 30 × 20 × 10 cm.

The sac was fluid filled cystic intraoperatively and was densely adherent to the transverse colon and surrounding structures.

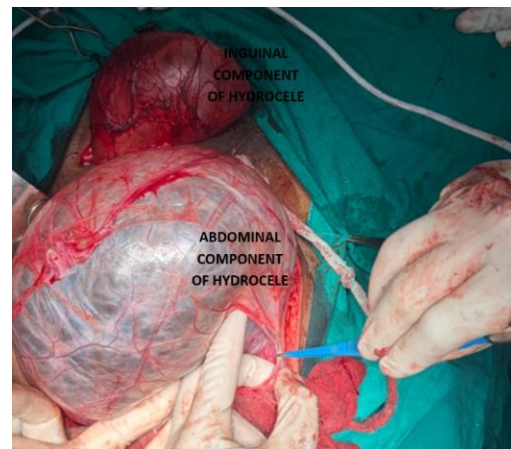


Figure 3: intra operative photograph showing the giant abdominal component of the hydrocele after exploratory laparotomy.

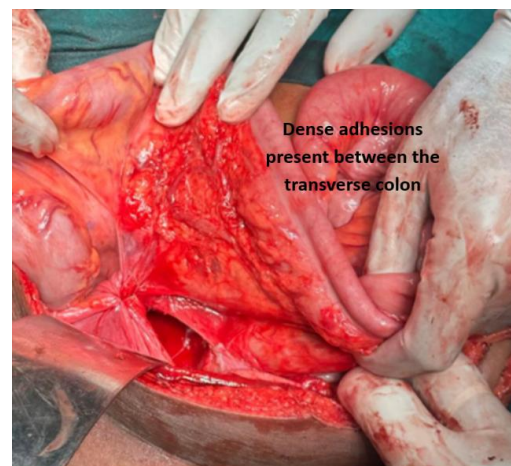


Figure 4: intra operative photograph dense adhesions to the transverse colon And surrounding tissue evident

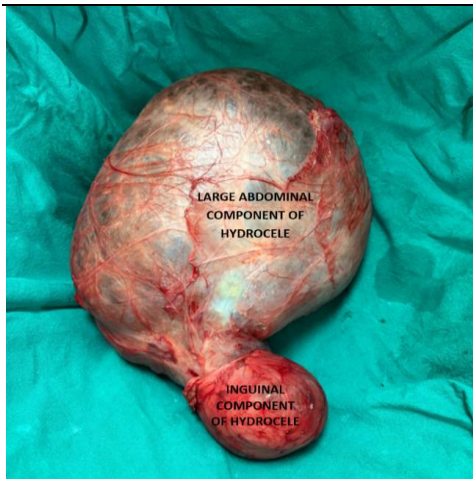


Figure 5: excised specimen of a large abdomino scrotal hydrocele with dumbbell/hourglass configuration

Meticulous sharp and blunt adhesiolysis done, complete circumferential mobilization of cyst done. The hydrocele sac was excised completely (in toto) with inguino scrotal component.

A small atrophic left testis was identified within the sac hence excised with the cyst .

Hemostasis was achieved.

The abdomen was closed in layers:

Rectus sheath: Loop Prolene

Subcutaneous tissue: Vicryl 2-0

Skin: Staples

The inguinal wound was similarly closed in layers.

The specimen was sent for histopathological examination.

The patient tolerated the procedure well

Histopathological Examination

Gross examination revealed an orchidectomy specimen with attached multiloculated hydrocele sacs. The specimen measured $20 \times 9 \times 5$ cm. The largest cyst measured $13 \times 9 \times 2$ cm, while another measured $6 \times 4.5 \times 1$ cm. The testis measured $5 \times 3 \times 2$ cm.

Microscopic examination demonstrated:

Fibrocollagenous hydrocele sac lined by flattened mesothelial cells

Atrophic seminiferous tubules with markedly thickened basement membrane

Focal maturation arrest with only occasional tubules showing spermatogenesis

The overall histopathological diagnosis was infected hydrocele sac with maturation arrest in the left testis

Postoperative Course

The postoperative period was uneventful.

The patient resumed oral feeding without difficulty.

No wound complications or urinary complaints occurred.

He was discharged on postoperative day six in stable condition.

At follow-up, the patient remained asymptomatic with satisfactory wound healing.



Figure 6: post operative healed scar

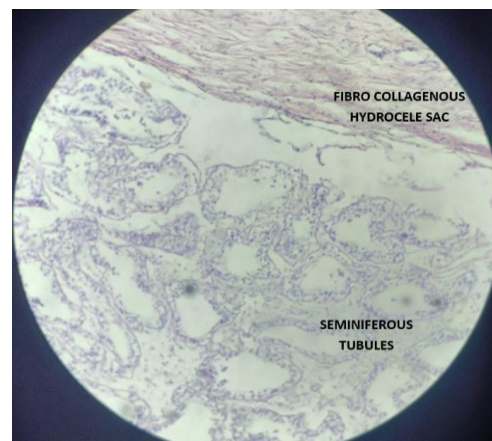


Figure 7: [20x][H&E] Fibro collagenous cyst wall along with seminiferous tubules showing maturation arrest

Discussion

ASH remains one of the rarest varieties of hydrocele².

Although several mechanisms have been proposed, Dupuytren's theory of cephalad extension of a tense hydrocele through the deep inguinal ring remains the most accepted explanation⁴.

Adult ASH differs from pediatric cases by presenting with larger lesions, delayed diagnosis, adhesions to intra-abdominal structures, and a greater likelihood of testicular atrophy^{3,6}.

Characteristic CT findings include⁸:

- Dumbbell/hourglass configuration
- Continuity through the inguinal canal
- Homogeneous cystic lesion
- Compression of adjacent viscera

Differential diagnoses include^{1,8}:

- Giant inguinal hernia
- Spermatic cord lymphangioma
- Mesenteric cyst
- Pelvic cyst
- Bladder diverticulum
- Undescended testis with associated cyst

Several operative approaches have been described^{1,5,7}:

- Inguinal approach
- Scrotal approach
- Combined inguinal-scrotal approach
- Laparoscopic excision
- Open laparotomy

Our patient demonstrated several features that make this case particularly noteworthy. Firstly, adult giant abdominoscrotal hydrocele is itself extremely rare. Secondly, the hydrocele reached 31 cm in craniocaudal dimension extending to the L2 vertebral level with large abdominal component and small inguio scrotal component with significant compression of pelvic organs. Thirdly, dense adhesions between the hydrocele sac and

transverse colon necessitated conversion from an inguinal approach to exploratory laparotomy, a situation infrequently reported in literature⁹⁻¹¹. Finally histopathological examination demonstrated maturation arrest with an atrophic rudimentary testis, suggesting longstanding compression induced impairment of spermatogenesis^{3,12}.

Conclusion

Giant adult abdominoscrotal hydrocele is an exceptionally rare surgical entity^{2,3}.

Cross-sectional imaging is indispensable for diagnosis and operative planning⁸.

Although inguinal exploration remains the preferred initial approach, surgeons should anticipate conversion to laparotomy in patients with giant intra-abdominal extension or dense adhesions.

Early diagnosis and complete excision offer excellent outcomes while preventing complications such as testicular atrophy, urinary obstruction, and bowel compression^{1,7}.

Learning Points

Giant adult abdominoscrotal is an exceptionally rare clinical entity.

CT imaging clearly demonstrates the characteristic dumbbell/hourglass configuration with huge intra abdominal component.

Giant intra abdominal extension may require conversion from an inguinal approach to exploratory laparotomy.

Dense adhesions to bowel should be anticipated in chronic giant lesions.

Long standing cases can result in testicular atrophy and maturation arrest.

Complete surgical excision remains the treatment of choice with excellent postoperative outcomes, is curative with low recurrence.

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