Cureus
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Open Access Case Report

Giant Abdominoscrotal Spermatic Cord Hydrocele Mimicking Inguinal Hernia and Urinary Retention: A Case Report

Review began 10/27/2026
Review ended 11/08/2026
Published 11/11/2026

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DOI: 10.7759/cureus.119500

Omar Nasir [1], Federico Rovegno [1], Azad Hawizy [1], Mahdi Rahim [1]

1. Urology, Ipswich Hospital, East Suffolk and North Essex NHS Foundation Trust, Ipswich, GBR

Corresponding author: Omar Nasir, omar.nasir@esneft.nhs.uk

Abstract

Abdominoscrotal hydrocele (hydrocele en bissac) is characterized by a dumbbell-shaped fluid collection with scrotal and abdominal components connected through the inguinal canal and deep inguinal ring. An encysted spermatic cord hydrocele with this configuration is rare in adults. We report the case of a 69-year-old man with a solitary right testis following a previous left orchidectomy, who presented with a one-month history of an enlarging right groin swelling. Initial general surgical assessment favored an inguinoscrotal hernia, as the examiner could not get above the swelling, which appeared to demonstrate a cough impulse. Transillumination was not assessed. Contrast-enhanced computed tomography (CT) subsequently demonstrated a 25 cm encysted spermatic cord hydrocele extending into the pelvis, without bowel involvement. At a later outpatient appointment for uroflowmetry, an automated bladder scanner recorded a volume exceeding 1,000 mL, prompting urgent referral for presumed urinary retention. Urethral catheterization yielded less than 15 mL of urine. Review of the CT images established that the scanner had measured the pelvic component of the hydrocele. The patient underwent elective hydrocele surgery through a scrotal approach, with drainage of approximately 2 L of clear fluid and eversion of the sac. No recurrence was identified at 12-week follow-up. This case highlights two important diagnostic pitfalls: an inability to get above an inguinoscrotal swelling does not distinguish a hernia from a hydrocele with abdominal extension, and automated bladder scanner readings may be falsely elevated by adjacent pelvic fluid collections. Clinical findings and existing imaging should be reconciled with unexpected bladder scan measurements before invasive intervention.

Categories: Urology, Radiology, General Surgery
Keywords: abdominoscrotal hydrocele, bladder scanner, case report, encysted spermatic cord hydrocele, false-positive urinary retention, inguinoscrotal swelling

Introduction

Hydrocele is a common benign condition characterized by fluid accumulation within the tunica vaginalis. An abdominoscrotal hydrocele, also known as hydrocele en bissac, describes a dumbbell-shaped fluid collection with scrotal and abdominal components connected through the inguinal canal and deep inguinal ring. The abdominal component is usually extraperitoneal [1,2]. First described by Dupuytren in 1834, its proposed pathogenesis involves increased intracystic pressure driving extension of the hydrocele sac through the deep inguinal ring into the extraperitoneal space [1]. The condition remains uncommon, with reported cases predominantly involving children [1,2]. Adult presentations are rare and may involve large groin or scrotal swellings [3].

Clinical examination can be challenging because both an inguinoscrotal hernia and a hydrocele extending into the abdomen may prevent the examiner from getting above the swelling. This finding alone is therefore not discriminatory. Transillumination and cross-fluctuation between the scrotal and abdominal components may help identify a fluid-filled communicating lesion [1,3]. Ultrasound can demonstrate the relationship between the components, while computed tomography (CT) or magnetic resonance imaging may be useful for large or atypical lesions and for defining their extent [1,3].

Automated bladder scanners are routinely used to estimate bladder volume and postvoid residual urine. However, they may incorrectly interpret adjacent fluid-filled structures as bladder contents, producing falsely elevated readings. Such errors have been reported with several pelvic and abdominal cystic lesions, particularly ovarian cysts [4,5]. We report the case of an adult man with a giant encysted spermatic cord hydrocele extending into the pelvis, initially suspected to be an inguinoscrotal hernia and subsequently mistaken for urinary retention by an automated bladder scanner.

Case Presentation

In 2025, a 69-year-old man presented to the emergency department of a district general hospital in the United Kingdom with a right groin swelling associated with discomfort. He had first noticed the swelling approximately one month earlier, with gradual enlargement since onset. He denied abdominal pain, nausea,

or vomiting and reported normal bowel function with continued passage of flatus. He had no acute urinary symptoms.

His medical history included atrial fibrillation treated with edoxaban, hypertension, cervical spondylosis, gastroesophageal reflux disease, and glaucoma. He had previously undergone left orchiectomy for chronic scrotal pain and testicular atrophy secondary to chronic epididymo-orchitis and therefore had a solitary right testis. He also had longstanding storage lower urinary tract symptoms attributed to benign prostatic hyperplasia.

Clinical examination and initial assessment

The general surgical team assessed the patient and found him to be hemodynamically stable, with a National Early Warning Score 2 (NEWS2) of 1 (Table *1*). Examination revealed a fluctuant, nontender right inguinoscrotal swelling associated with groin discomfort. The examiner could not get above the swelling, and it was felt to demonstrate a cough impulse. Transillumination was not assessed, and cross-fluctuation between any abdominal and scrotal components was not documented. The abdomen was soft and nondistended. An inguinoscrotal hernia was the initial clinical impression.

Parameter	Value	Reference range	NEWS2 score
Respiratory rate	18 breaths/min	12-20 breaths/min	0
SpO_2	95%	≥96%	1
Air or oxygen	Room air	Room air	0
Blood pressure	130/80 mmHg	SBP 111-219 mmHg	0
Heart rate	85 beats/min	51-90 beats/min	0
Level of consciousness (ACVPU)	Alert	Alert	0
Temperature	37.5°C	36.1-38.0°C	0
Total NEWS2		0	1

TABLE 1: Observations at presentation to the emergency department

Reference ranges are the parameter bands scoring 0 on NEWS2 (oxygen saturation scale 1). The total score of 1 reflects the oxygen saturation of 95%.

NEWS2, National Early Warning Score 2; SpO2, peripheral oxygen saturation; SBP, systolic blood pressure; ACVPU, alert, new confusion, voice, pain, unresponsive

Investigations

Blood tests showed a normal white blood cell count, electrolyte levels, and renal function for his age, with a mildly elevated C-reactive protein level. Urinalysis was positive for leukocytes but negative for nitrites and blood (Table *2*).

Investigation	Result	Reference range
White cell count	8.1×10⁹/L	4.0-11.0×10⁹/L
C-reactive protein	9 mg/L	<5 mg/L
Sodium	143 mmol/L	133-146 mmol/L
Potassium	4.6 mmol/L	3.5-5.3 mmol/L
Urea	7.1 mmol/L	2.5-7.8 mmol/L
Creatinine	80 µmol/L	59-104 µmol/L
eGFR	85 mL/min/1.73 m²	>90 mL/min/1.73 m²
Urinalysis: nitrites	Negative	Negative
Urinalysis: leucocytes	Positive	Negative
Urinalysis: blood	Negative	Negative

TABLE 2: Laboratory investigations at presentation

Urinalysis was performed by reagent strip (dipstick).

eGFR, estimated glomerular filtration rate

Contrast-enhanced CT of the abdomen and pelvis demonstrated a large, tubular, loculated cystic structure arising from the right hemiscrotum and extending through the right inguinal canal into the pelvis, producing a dumbbell-shaped configuration (Figures *1*-*3*). The lesion was blind-ending and measured approximately 25 cm in craniocaudal length. It displaced the right testis inferiorly (Figure *4*). The radiological diagnosis was an encysted spermatic cord hydrocele with intrapelvic extension. No bowel was present within the lesion, and there was no evidence of bowel obstruction, pneumoperitoneum, ascites, or lymphadenopathy. The patient was referred to urology for outpatient follow-up and elective management.

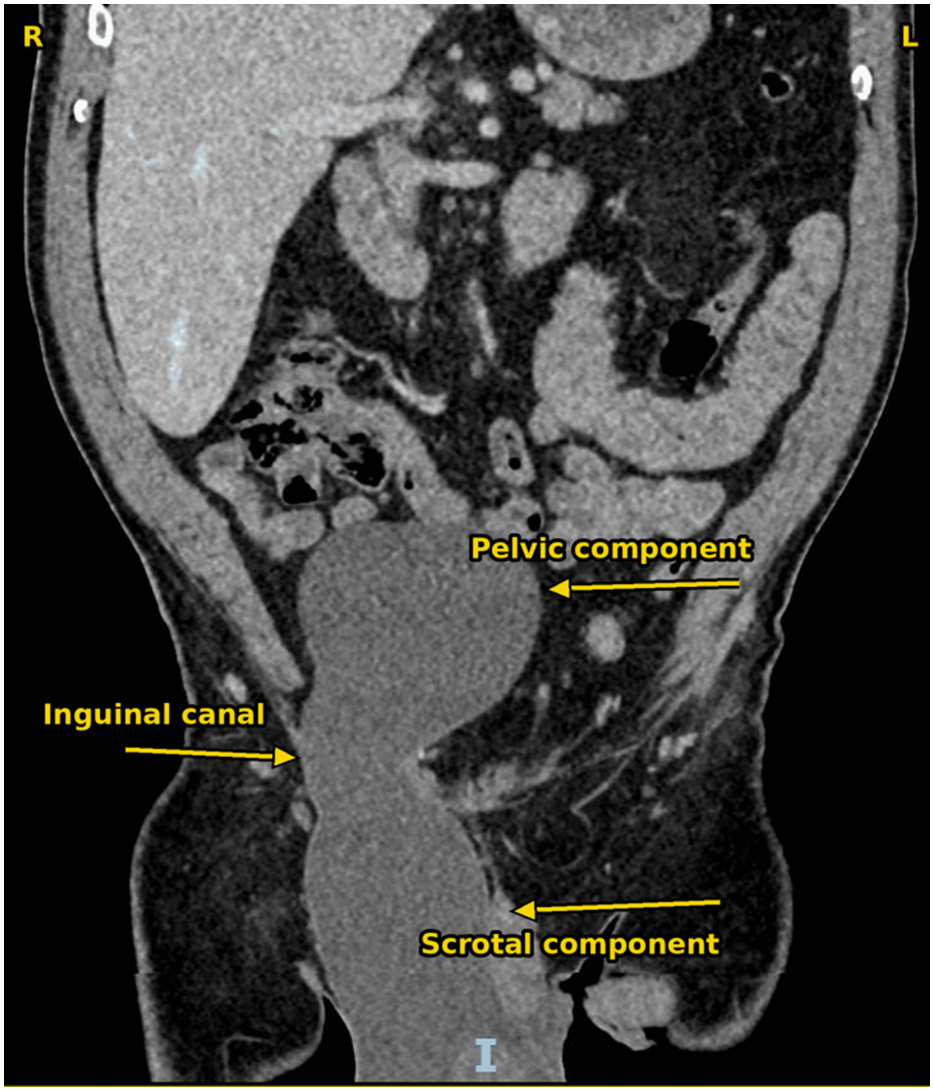


FIGURE 1: Coronal contrast-enhanced CT demonstrating a continuous, dumbbell-shaped cystic lesion extending from the right hemiscrotum through the inguinal canal into the pelvis. Arrows indicate the pelvic component, the narrow segment traversing the right inguinal canal, and the scrotal component

CT, computed tomography; R, right; L, left

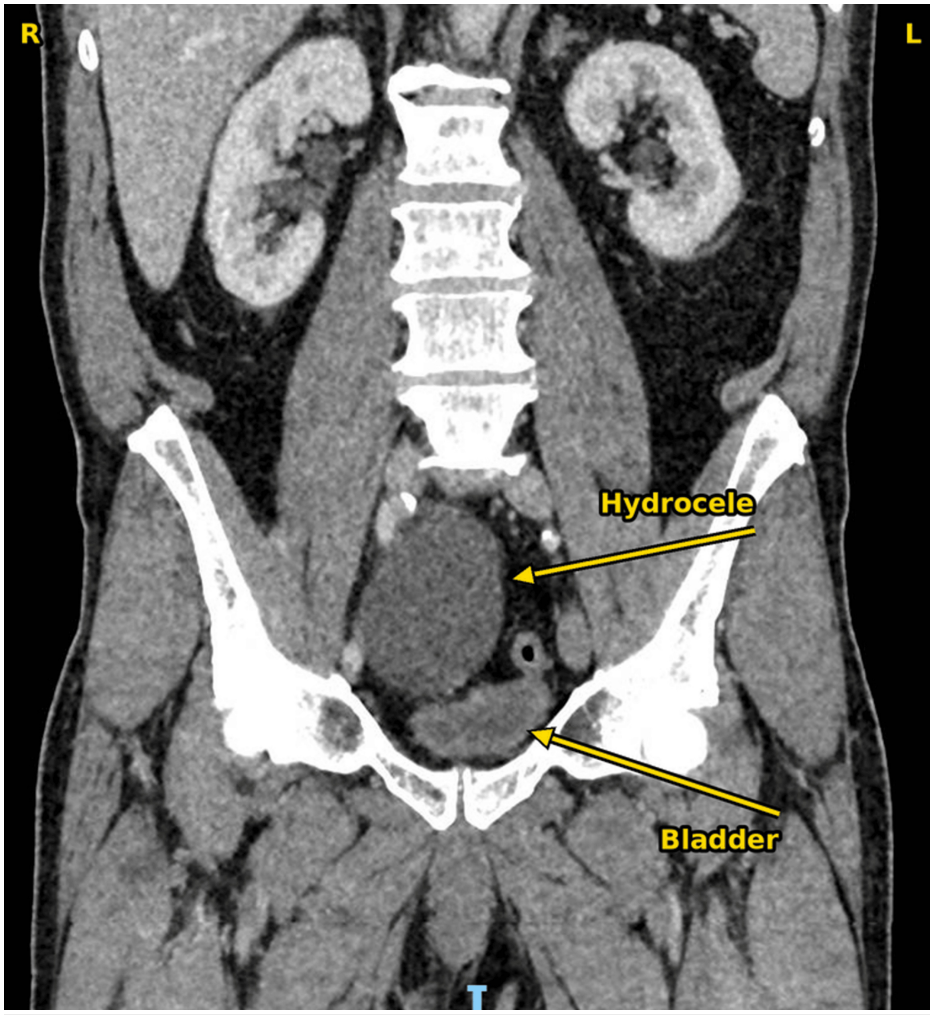


FIGURE 2: Coronal contrast-enhanced CT showing the pelvic component of the hydrocele adjacent to the bladder, which was subsequently mistaken for bladder contents by the automated scanner. Arrows indicate the hydrocele and the adjacent bladder

CT, computed tomography; R, right; L, left

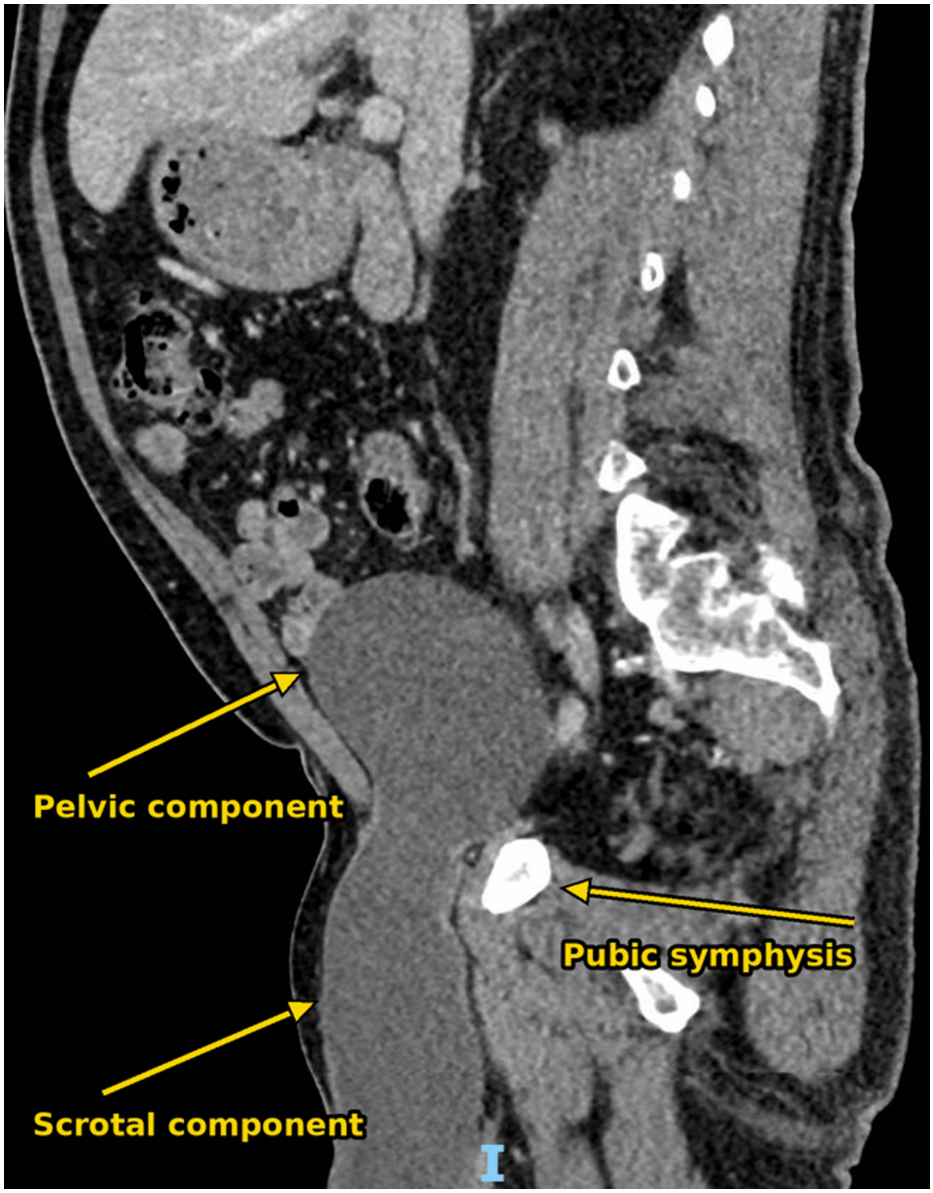


FIGURE 3: Sagittal contrast-enhanced CT demonstrating continuity between the pelvic and inguinoscrotal components of the hydrocele, which passes anterior to the pubic symphysis. Arrows indicate the pelvic and scrotal components and the pubic symphysis

CT, computed tomography

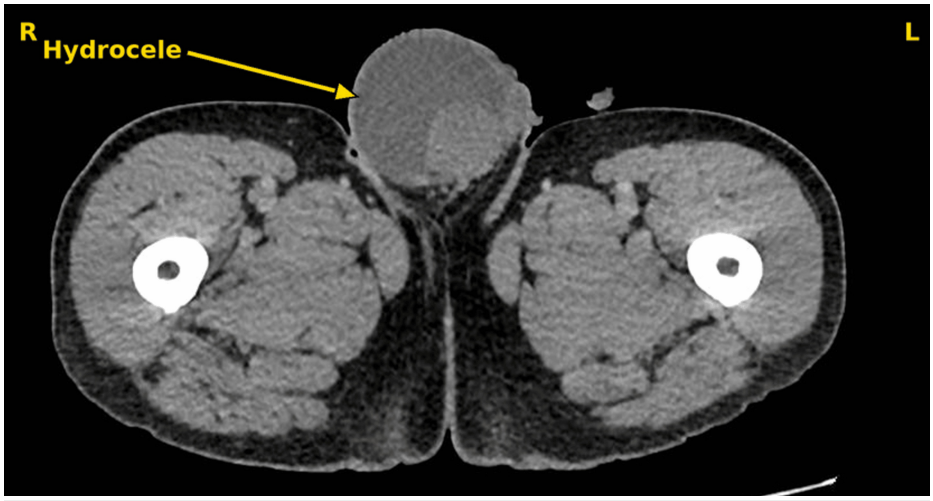


FIGURE 4: Axial CT at the level of the scrotum showing the scrotal component of the hydrocele (arrow)

CT, computed tomography; R, right; L, left

False-positive bladder scan

The patient subsequently attended for outpatient uroflowmetry. A postvoid automated bladder scan recorded a volume exceeding 1,000 mL, prompting urgent referral to the surgical assessment unit for presumed urinary retention. Urethral catheterization was attempted but yielded less than 15 mL of urine.

On urological review, there was no palpable bladder distension. Re-examination of the recent CT images demonstrated that the scanner had measured the pelvic component of the hydrocele as bladder volume. The markedly elevated reading was therefore inconsistent with the catheter output, clinical examination, and known pelvic anatomy.

Management and outcome

Given the size of the hydrocele and the associated symptoms, elective surgical treatment was planned. Preoperative counseling covered the risks of infection, hematoma, recurrence, chronic scrotal pain, testicular injury or atrophy, venous thromboembolism, and possible orchiectomy. The potential consequences of testicular injury were particularly important because the patient had a solitary testis. Edoxaban was withheld perioperatively.

As the hydrocele extended through the inguinal canal and the deep inguinal ring might have been widened, the case was discussed with the general surgical team in case an associated inguinal defect required repair. Surgery was completed through a scrotal approach, without inguinal exploration, high ligation of the sac, or hernia repair. A scrotal approach was chosen because it provided more direct access to the distal sac and the testis, whereas inguinal dissection was anticipated to be complex because of the large abdominal extension. A combined procedure with the general surgical team, such as laparoscopic excision of the abdominal component with repair of the deep inguinal ring, was not pursued. No inguinal hernia was demonstrated on CT, so prophylactic repair was not considered justified, and limiting the extent and duration of surgery was preferred given his comorbidities and anticoagulation. A staged approach was therefore agreed upon, with general surgical review should a hernia develop.

A right vertical paramedian scrotal incision was made, and the hydrocele sac was mobilized and opened. Approximately 2 L of clear fluid was drained, decompressing the pelvic component. A large sac extending approximately 10 cm cephalad toward the groin was identified. The sac was everted and secured using 3-0 polyglactin (Vicryl) sutures, and a Robinson drain was left in place. The procedure was uncomplicated.

The patient recovered well and was discharged on the day of surgery. The drain was removed after 72 hours, and edoxaban was restarted on postoperative day three. At urology outpatient review 12 weeks after surgery, there was no clinical evidence of recurrence. He was also scheduled for general surgical review six months after the procedure to assess for the development of a right inguinal hernia.

Written informed consent was obtained from the patient for publication of this case report and the accompanying images.

Discussion

This case illustrates two diagnostic pitfalls associated with a giant encysted spermatic cord hydrocele: confusion with an inguinoscrotal hernia and false-positive bladder volume measurement caused by the pelvic component of the lesion.

Diagnostic considerations

An encysted spermatic cord hydrocele arises from incomplete obliteration of a segment of the processus vaginalis, leaving a fluid-filled sac along the spermatic cord that communicates with neither the peritoneal cavity nor the tunica vaginalis [6-8]. Although such lesions are more commonly encountered in children, they also occur in adults. Abdominoscrotal hydrocele describes the configuration of a fluid collection extending through the deep inguinal ring into the abdomen or pelvis. A systematic review by Doudt et al. identified 116 patients with 146 abdominoscrotal hydroceles across 18 case series, with the majority occurring in children [2].

In the present case, CT demonstrated a blind-ending encysted spermatic cord hydrocele, separate from the inferiorly displaced testis, with the characteristic transinguinal, dumbbell-shaped extension into the pelvis. The lesion measured approximately 25 cm and contained approximately 2 L of fluid. These features made the case unusual in an adult and provided the anatomical explanation for both the initial clinical impression and the subsequent bladder scanner error.

The initial diagnosis of inguinoscrotal hernia was understandable in the context of a large swelling that the examiner could not get above, and that appeared to demonstrate a cough impulse. However, neither finding is specific to a hernia. Fluid displacement between the connected scrotal and pelvic components may produce movement resembling a cough impulse. Transillumination and assessment for cross-fluctuation may have provided additional diagnostic clues, although their absence from the initial assessment means their potential contribution in this case cannot be established retrospectively [1,3]. Encysted spermatic cord hydroceles can closely resemble irreducible or incarcerated inguinal hernias, and such misdiagnoses have been described [6,9,10].

Cross-sectional imaging was particularly valuable in this patient because it established the cystic nature and full extent of the lesion, demonstrated its relationship to the testis and surrounding structures, and excluded bowel involvement. CT is therefore a useful investigation when a large or atypical inguinoscrotal swelling cannot be confidently characterized clinically [1,3,11].

False-positive bladder scanning

The second learning point concerns the interpretation of automated bladder scanner measurements. These devices estimate volume from ultrasound signals within the scanning field and may incorrectly include adjacent fluid-filled structures in their calculations. False-positive readings have been reported with pelvic and abdominal cystic lesions, including ovarian cysts [4,5].

Bhatia et al. identified 23 published cases of falsely elevated bladder scanner readings associated with abdominal or pelvic pathology [4]. Chigrinskiy et al. described repeated catheterization for presumed urinary retention in a patient whose elevated readings were ultimately attributed to an ovarian cyst [5]. Reports involving a giant spermatic cord hydrocele in an adult man appear uncommon, although the available literature does not establish the true frequency of this complication.

In the present case, a bladder scan reading exceeding 1,000 mL prompted urgent referral and catheterization, but the catheter yielded less than 15 mL. The absence of palpable bladder distension and the presence of a large pelvic cystic lesion on recent CT were important discordant findings. Review of the existing imaging identified the cause of the discrepancy and prevented the scanner measurement from being accepted as a true estimate of bladder volume.

The lesson is not that bladder scanners are unreliable, but that their readings must be interpreted in the clinical context. When a very high estimated volume is inconsistent with symptoms, examination findings, or catheter output, clinicians should reassess the patient and consider alternative pelvic pathology. Reviewing recent imaging may be particularly useful when a large pelvic lesion is already known. In this case, reconciling the reading with the clinical findings and available CT images before catheterization could have avoided an invasive intervention and urgent referral for presumed retention.

Surgical management

Surgical treatment is the definitive management for symptomatic abdominoscrotal hydrocele. The optimal approach depends on the lesion's anatomy, extent, and relationship to the inguinal canal and surrounding structures. In the systematic review by Doudt et al., an inguinal approach was most frequently reported (67.2%), followed by combined laparoscopic and inguinal approaches (11.2%) and a scrotal approach (10.3%) [2]. Other authors have advocated inguinal or inguinoscrotal approaches to facilitate excision of the

abdominal component [1,3].

In this case, a scrotal approach with drainage and eversion of the sac was selected. A combined laparoscopic approach, which allows excision of the abdominal component and repair of the deep inguinal ring in a single procedure, is a recognized alternative [2]. The operation successfully decompressed the pelvic component while avoiding inguinal dissection around the spermatic cord of the patient's solitary testis. General surgical input had been arranged in case an associated inguinal defect required repair, but no hernia repair was performed. Because a large sac traversing the deep ring may leave it widened, the patient remains at risk of developing a right inguinal hernia. There was no recurrence at urology review 12 weeks after surgery, and a general surgical review six months after the procedure was arranged to assess for hernia formation. Nevertheless, this relatively short follow-up is a limitation of this report, and follow-up of at least one year is needed to assess for recurrence and hernia formation, particularly because the abdominal component of the sac was not separately excised.

Conclusions

A giant encysted spermatic cord hydrocele with abdominoscrotal and intrapelvic extension is a rare cause of inguinoscrotal swelling in adults and may be mistaken for an inguinal hernia. An inability to get above the swelling is not sufficient to distinguish between these conditions; transillumination and assessment for cross-fluctuation may provide additional clinical information, while cross-sectional imaging can clarify the diagnosis and extent of large or atypical lesions.

The pelvic component of a large hydrocele may also be misinterpreted by an automated bladder scanner as urinary retention. Bladder volume estimates should be interpreted alongside symptoms, clinical examination, catheter output, and existing imaging. When the findings are discordant, reassessment and review of alternative explanations should precede further intervention, where clinically appropriate.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Omar Nasir, Mahdi Rahim, Federico Rovegno, Azad Hawizy

Acquisition, analysis, or interpretation of data: Omar Nasir, Mahdi Rahim, Federico Rovegno, Azad Hawizy

Drafting of the manuscript: Omar Nasir

Critical review of the manuscript for important intellectual content: Omar Nasir, Mahdi Rahim, Federico Rovegno, Azad Hawizy

Supervision: Azad Hawizy

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

Acknowledgements

Claude AI (Anthropic, San Francisco, CA, USA) was used solely to assist with language refinement and polishing of the manuscript.

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