



An Unusual Case of Inguinal Hernia: Herniation of an Enlarging Bladder by Enterocystoplasty

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Authors' contributions

This work was carried out in collaboration among all authors. Author OL is the corresponding author. Authors ZAEA and HA wrote the paper. Authors AS, HT, NT, OK and NC corrected the paper. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Bladder hernia is relatively rare (1 -4%), the diagnosis is often intra-operative. However, the Retrograde Cystography, the Excretory Urography, and the CT scan have proved their efficiency in diagnosis. We report the case of a 70-year-old patient with urogenital tuberculosis who had undergone bladder enlargement with enterocystoplasty. Currently the patient has a swelling in the folds of the groin, associated with disorders of the lower urinary tract. The CT scan confirmed the presence of a bilateral inguinal hernia, with bladder content in the left one.

Keywords: *Bladder hernia; enterocystoplasty; CT scan.*

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1. INTRODUCTION

Inguinal hernia of the bladder is a relatively rare condition, first described in the literature by Levine in 1951 [1], it accounts for 1-4% of all inguinal hernias, its incidence may increase to 10% in obese men over 50 years of age [2]. Risk factors for inguinal hernia include male gender, advanced age, and benign prostatic hypertrophy [3]. The diagnosis can be confirmed by ultrasound examination or cystography [2], but the majority of published cases have been diagnosed intraoperatively [4]. The case we report involves a bladder hernia on an enterocystoplasty enlargement bladder that was diagnosed by CT scan.

2. PRESENTATION OF CASE

This is a 70-year-old man who underwent bladder enlargement by enterocystoplasty in 2005 in the Urology Department of the Ibn Rochd University Hospital in Casablanca, following a urogenital tuberculosis, which caused a decrease in bladder compliance.

The patient presented to the emergency department with worsening urinary symptoms,

consisting of dysuria (abdominal thrust, weak and interrupted stream), pollakiuria (4 nocturnal awakenings), and mictional imperiousness that has been evolving for 3 years.

The clinical examination revealed a bilateral inguinal hernia, reducible on the right side and difficult to reduce on the left side.

The CT scan showed an indirect bilateral inguinal hernia as evidenced by the location (external to the epigastric artery). On the right, the neck is estimated to be 47mm with epiploic, gallbladder and right colonic contents. On the left, the neck measures 56 mm, with left bladder, epiploic and colonic contents (Figs. 1 & 2).

The patient was managed by a team of visceral surgeons, who performed a bilateral Bassini inguinal hernia repair technique with reintegration of the bladder into the abdominal cavity. The surgery was uneventful and the postoperative course was simple. The clinical evolution was marked by the resolution of the lower urinary tract disorders, and a regular follow-up was established.

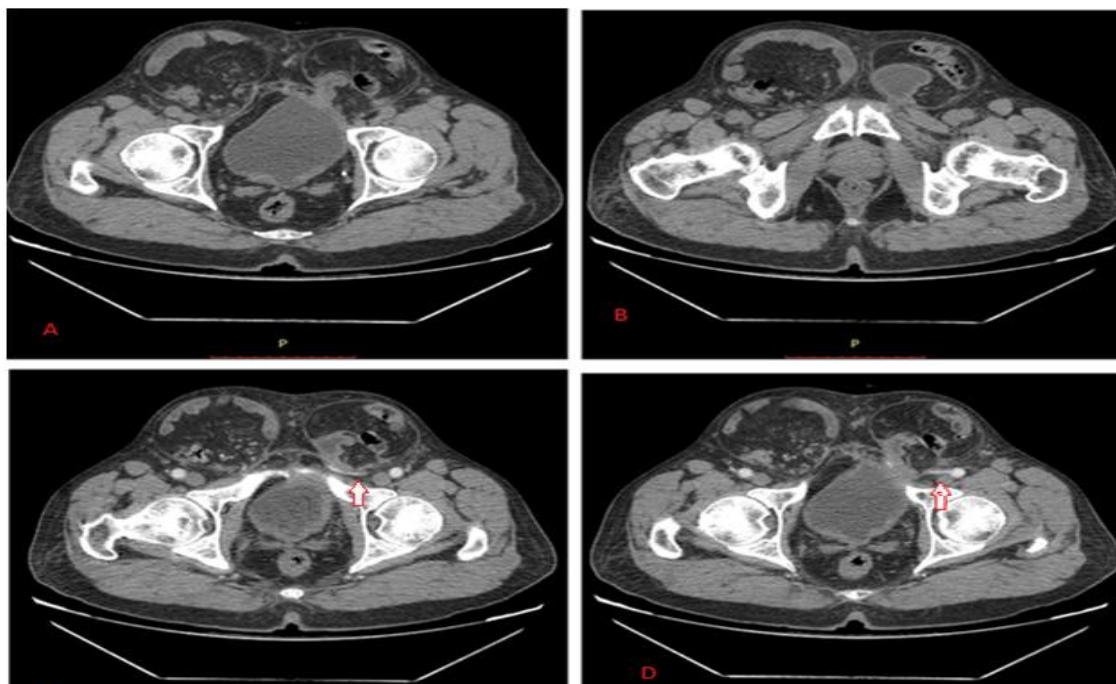


Fig. 1. Uroscan axial sections without iodinated contrast injection (A, B) and after iodinated PDC injection (C, D) showing bilateral inguinal hernia, with epiploic and digestive content; also, bladder on the left side. The left epigastric artery passing internally to the hernia (arrow)

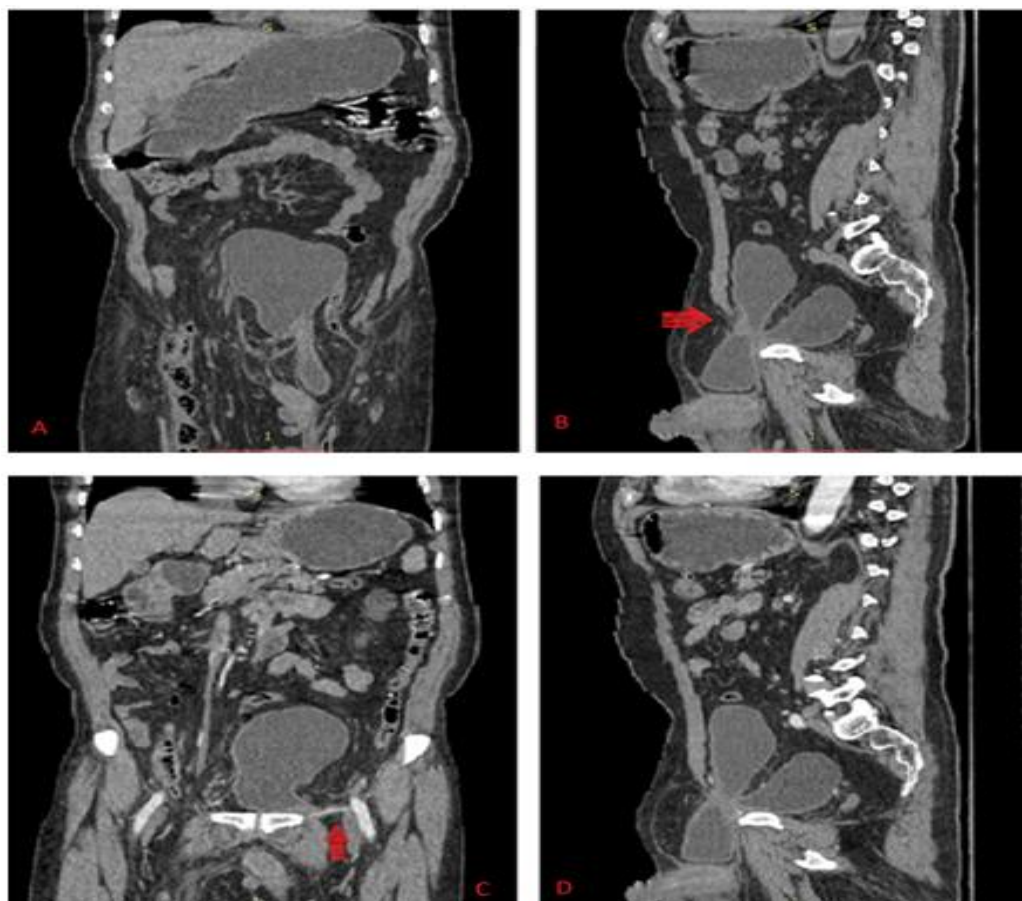


Fig. 2. Uroscan in coronal (A, C) and sagittal (B, D) reconstructions, without PDC injection (A, B) and with iodinated PDC injection (C, D) showing the disposition of the herniated part of the bladder at the level of the hernial sac (horizontal arrow). Interest of the CT scan and reconstructions in the study of anatomical relationships and neighboring vascular structures (vertical arrow: the left epigastric artery at its origin and passing behind and inside the hernia sac)

3. DISCUSSION

Inguinal bladder hernia is often asymptomatic, usually discovered intraoperatively. In a series of 347 cases [5], 279 cases of bladder hernia were diagnosed intraoperatively. However, urinary signs can be revealing and lead to the diagnosis, especially when the patient describes a two-stage micturition, which is accompanied by a reduction in the volume of the hernia after micturition [6]. In our case, the diagnosis was suspected by urinary signs and confirmed by CT scan.

Several factors may contribute to the development of inguinal bladder hernia, including subvesical urinary obstruction responsible for elevated intravesical pressure, weak pelvic

musculature, decreased bladder tone and obesity [4,7]. Risk factors include male gender, advanced age and benign prostatic hypertrophy [3].

Right inguinal hernia is more common, with men being 10 times more affected than women [8]. Direct right inguinal hernia of the bladder is the most common [2]. In our patient the inguinal bladder hernia was left-sided and indirect. However, obturator, ischiorectal and abdominal wall hernias have been described [9].

Bladder hernia has been classified into three types according to its coverage by the peritoneum: paraperitoneal hernia is the most common type, in which the extraperitoneal part of the hernia lies along the medial wall of the hernia

sac. There are two types of hernia: intraperitoneal hernia, where the herniated bladder is completely covered by the peritoneum; and extraperitoneal hernia, where the bladder is not covered by the peritoneum [10–12].

In cases of suspected bladder hernia, preoperative imaging is essential, as it not only confirms the diagnosis, but also guides the surgeon in the surgical exploration and thus limits the risk of bladder injury during surgery.

Standard radiography has no role in the diagnosis, but intravenous urography (IVU) or retrograde cystography may be sufficient to confirm the diagnosis and eliminate differential diagnoses.

On IVUS images, the bladder hernia appears as a large, rounded, downwardly directed projection of the bladder wall. The differentiation between a cystocele and a bladder hernia is based on the location of the wall protrusion and its direction; cystoceles are usually triangular in shape and project along the midline, whereas bladder hernias protrude laterally and downwards, and this can be easily seen on oblique projections [12].

Retrograde cystography is generally considered the best technique for identifying a bladder hernia. However, the hernia may only become visible during micturition, due to increased intravesical pressure [12]. Anterior abdominal wall defects can be easily identified with this technique using oblique or lateral projections.

Usually only large scrotal defects can be well visualized on ultrasound. A fluid-filled hernial sac in continuity with the bladder is visible. Sometimes this continuity is difficult to demonstrate, where it is considered to be the appearance of a beak of the fluid-filled hernia sac [9].

The scannographic sign of a bladder hernia is the deviation of the bladder to the side of the hernia, i.e. the angulation of the bladder base anteriorly and inferiorly, especially in patients with large defects. Even in the absence of contrast in the herniated bladder, identification of its thick wall surrounding unopaque urine may suggest the diagnosis [9]. It has been shown that CT of a procubitus patient facilitates the passage of contrast into the herniated bladder [10]. Reconstructions in the sagittal or coronal planes are useful and very helpful.

MRI findings are similar to the CT features of the bladder hernia, but coronal and sagittal planes can provide a better appreciation of the bladder hernia especially in patients with large defects. In addition, adjacent vascular relationships can be well identified, particularly with the epigastric artery, which can classify it as a direct or indirect hernia.

4. CONCLUSION

The clinical diagnosis of a bladder hernia is always difficult due to the non-specificity of the symptoms. However, imaging plays an important role in its positive diagnosis. Ultrasound is an easy and reproducible examination, allowing the content of the hernia to be characterized. CT is the examination of choice, giving better results thanks to MPR reconstructions and studies of the different anatomical relationships, which are very useful for the surgeon (approach and surgical technique).

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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