



Case report

Inguinal Bladder Hernia (IBH) managed by Lichtenstein technique: A case report[☆]Nafiza Martini^{a,b,*}, Majd Hanna^{a,b}, Afif Alshwaiki^{a,b}, Belal Alaa Aldeen^{a,c}^a Damascus University, Faculty of Medicine, Damascus, Syria^b Stemosis for Scientific Research, Damascus, Syria^c Lebanese University Hospital, Amarah, Iraq

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ABSTRACT

Inguinal bladder herniation (IBH) is an uncommon case, observed in only 1–5 % of all inguinal hernias. Obesity, the elderly, gender, and previous operations are vigorous determinants for IBHs. Symptoms depend on the size of the hernia. We report a case of an obese male aged 40 presenting with a bulge increasing gradually in the right groin with a history of two-stage micturition (Mery's sign). With imaging-assisted diagnosis modalities (US, CT, and MRI), the patient was diagnosed with IBH. Although IBH is not common, it should always be suspected in patients with Mery's sign and predisposing factors.

1. Introduction and importance

An inguinal herniation is a common operation where more than 800,000 operations are performed annually [1]. However, inguinal herniation of the urinary bladder is rare and involves less than 5 % of reports in the literature [2]. Bladder herniation is more likely to occur in males with (≥ 30) BMI (Body Mass Index), aged ≥ 50 years, and on the right side [3,4]. Bladder herniation has a wide range of hernia levels from a minor diverticulum to the all-inclusive bladder [2,4]. Patients with thorough bladder herniation, suffer from difficulties in urination which may orient us to the diagnosis [3]. It was manifested in this reported case, as the patient was pressing the right inguinal area to urinate. Bladder herniation may result in significant complications due to urine retention such as urinary tract infection, bladder infarction, and renal failure [3]. In most literature consulted, bladder herniation is usually managed with an open surgical approach [2,3]. We herewith report a case of a patient who was diagnosed with a bladder herniation inside the hernia sac and operated on with the Lichtenstein technique. This case report has been reported in line with the SCARE criteria [5].

2. Case presentation

A 40-year-old Arabic male with a BMI of 34.06 kg/m², non-smoker, and non-alcoholic, and has had diabetes treated by oral antidiabetic

drugs for five years, no family or surgical history, came with a complaint of a feeling of heaviness in the right inguinal region and a right inguinal bulge that started 4 months ago with gradual development in size.

The patient spoke of urination difficulties such as pressing on the right inguinal region to fully drain the urine. There were no other accompanying complaints for the patient.

A clinical examination led to suspecting the presence of a bladder within the inguinal hernia.

The Ultrasound imaging of the right inguinal region showed a bilobed cystic lesion extending from the right pelvic cavity (9 × 6 cm) to the right inguinal canal (12 × 5 cm) which develops in size on Valsalva maneuver, and is accompanied by omental fat herniation reaching the lower part of the right inguinal canal, with the rest being normal. A pelvic MRI (with IV contrast) was then recommended (Fig. 5).

MRI showed a herniation of the sac from the urinary bladder through the right inguinal canal and normal both testicles (Fig. 6).

The patient was given ceftriaxone half an hour before anesthesia and was sedated by lumbar spinal anesthesia. Then, the surgical intervention was performed through a right inguinal incision and dissection of the hernia sac. The bladder was returned to the abdominal cavity without any injury, a graft placed and the hernia repaired by applying Lichtenstein's technique (Figs. 1, 2, 3, 4).

After the surgery, the patient was transferred to the surgical department of the hospital and given ceftriaxone and a pain reliever.

[☆] This work is in line with the SCARE 2020 criteria.

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Fig. 1. After removing the external oblique aponeurosis, the hernia sac (star), and the seminal cord (thin arrow).

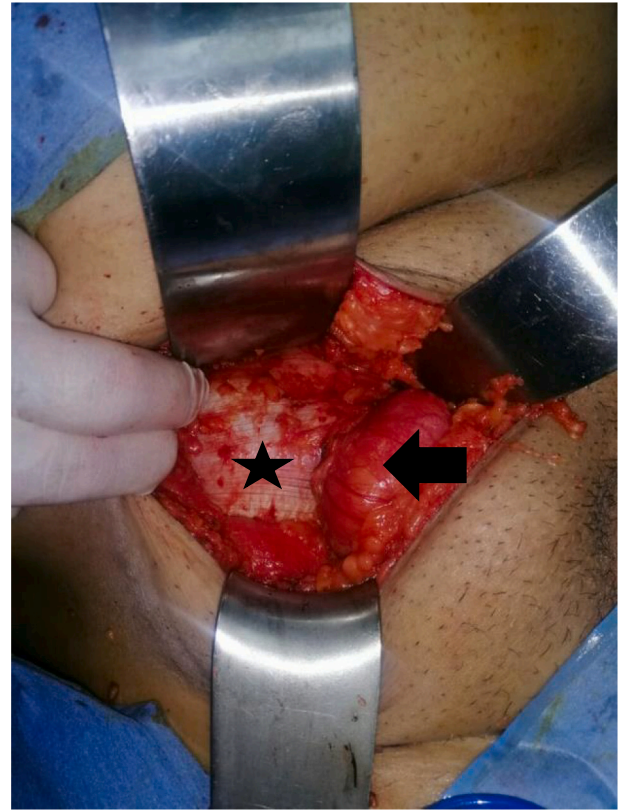


Fig. 3. An inguinal incision. The external oblique aponeurosis (star). The hernia sac (arrow).

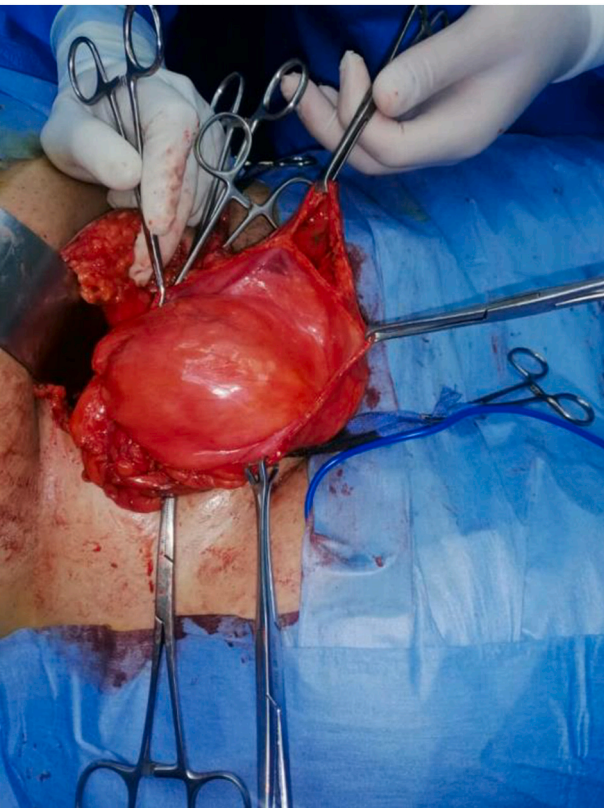


Fig. 2. Dissected hernia sac including the urinary bladder.

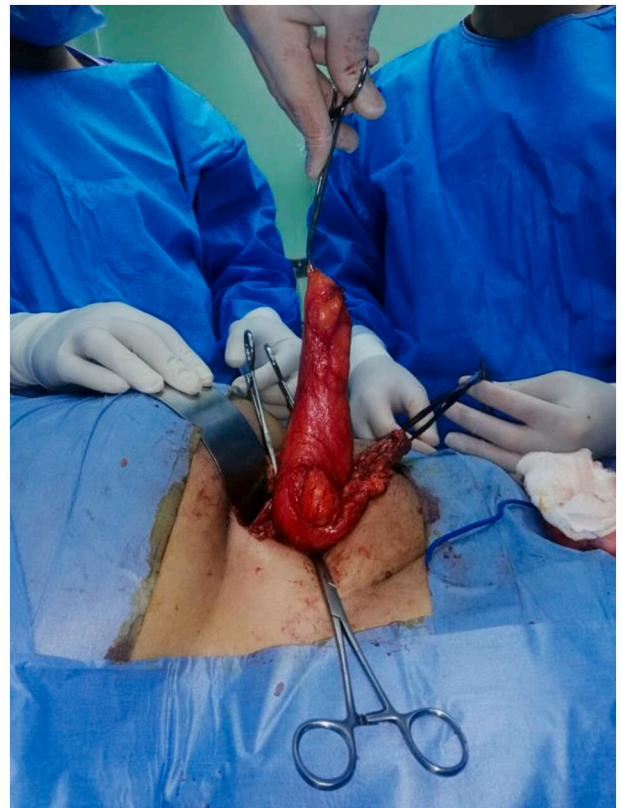


Fig. 4. The bladder after Foley catheter insertion and urine drainage.

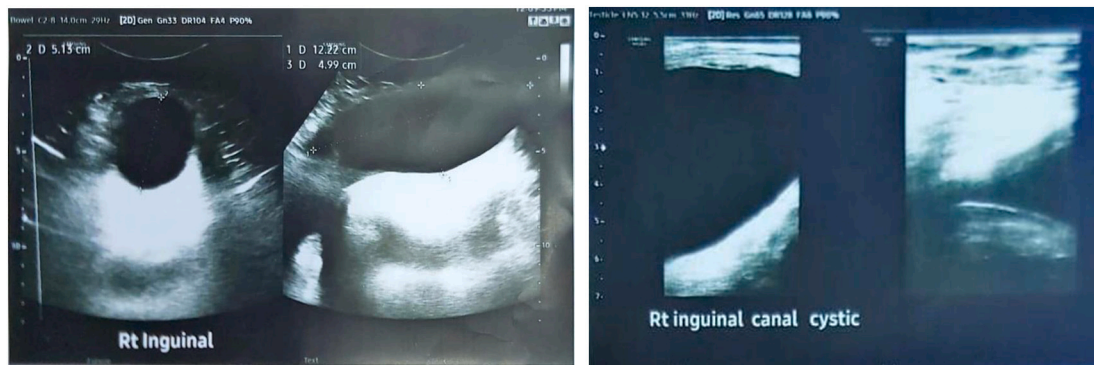


Fig. 5. Ultrasound images of the right inguinal canal showing the hernia sac that contains the urinary bladder.

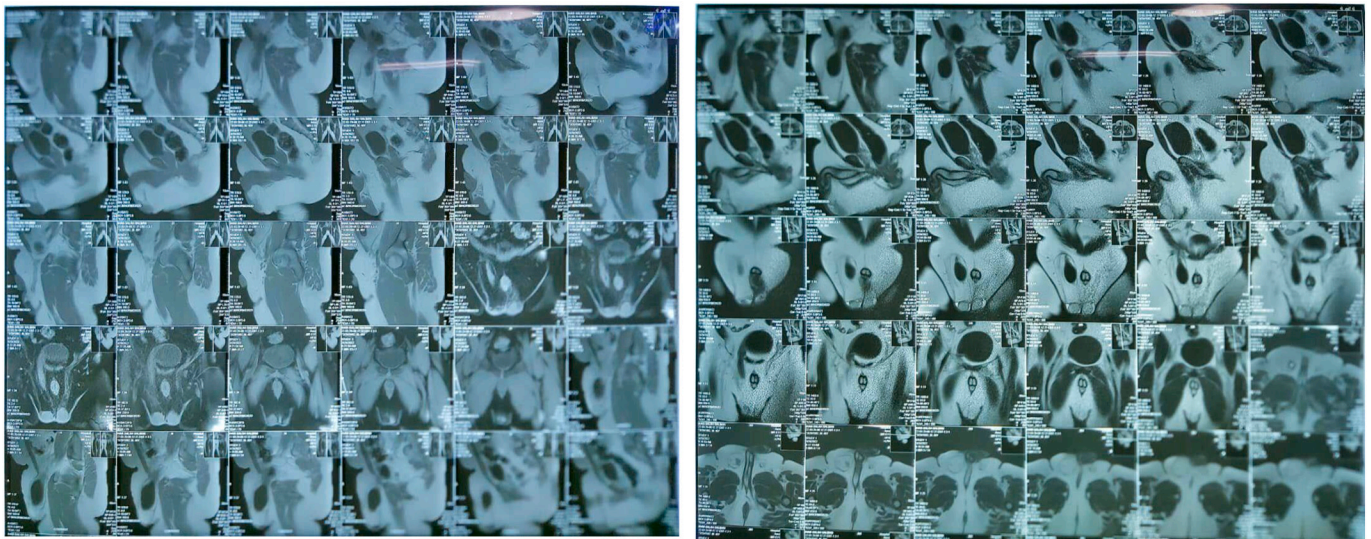


Fig. 6. Sagittal and transverse views of MRI scan showing the inguinal bladder hernia.

Blood pressure and urine were monitored. The patient was discharged from the hospital the next day, and prescribed an oral antibiotic, analgesic, and anti-edema for him.

3. Clinical discussion

Inguinal hernia is an acquired condition that occurs when a part of abdominal-cavity contents protrudes through the inguinal canal due to a weakness in the abdominopelvic muscles, and other supporting structures. Among all these contents, inguinal bladder hernia (IBH) is considered to be an uncommon phenomenon, with 1–5 % of inguinal hernias containing the urinary bladder [4].

Several factors contribute to a higher incidence of this condition including advanced age, obesity, medical history such as an open appendectomy surgical intervention, benign prostatic hypertrophy, Bladder outlet obstruction (BOO), and gender [6]; statistics show that there is a ten-fold increase in male when compared to female incidence [4]. Our patient represents a typical example, he is an obese male aged 40 years old with a BMI of 34.06 kg/m². Right Inguinal hernia is more common than left one which is also consistent with our case [4].

IBH symptoms can vary following the hernia size; small hernias usually remain asymptomatic while patients with larger ones present with pain and swelling around the testicles, difficulties in urination, weak urine stream, and lower urinary tract symptoms (LUTS) including frequency, urgency, hematuria, and nocturia [7]. LUTS usually evolve as a result of bladder obstruction or infection. The patient reported a bulge

that progressively turned in size to a bigger one, accompanied by a feeling of heaviness in the right groin. A double micturition or as called “Mery’s sign” which was also indicated by the patient, is a two-stage micturition in which the patient needs to compress manually the scrotum to urinate, which helps reduce the scrotal edema after urination [7].

Neglected IBHs for a long period could come up with severe outcomes; several patients develop complications that significantly affect the health of the renal system such as bladder rupture, obstructive uropathy, strangulation, vesicoureteral reflux (VUR), and bilateral hydronephrosis [8]. The probability of obstructive renal failure is considered rare due to the well-fixed trigone of the bladder in its position and it is usually associated with large hernias. According to the medical literature, a study published in 2004 which is a review of 190 of IBHs cases revealed that 11.2 % of them were accompanied by genitourinary malignancies [4]. However, the majority of patients present with no complications as in the reported case.

Both medical history and thorough clinical examination are useful for an initial diagnosis. Moreover, several imaging techniques can be utilized such as ultrasonography (US), CT scan, MRI, and voiding cystourethrography to differentiate IBHs from other potential diagnoses such as femoral hernia, hydrocele, lipomas, etc... [8].

Though voiding cystourethrography is the best diagnostic technique for IBHs demonstrating a dog ear herniation of the bladder, the US is assumed as the foremost option to take because it is low-cost and affordable when compared to other methods, showing a hypoechogenic

mass extending through the inguinal canal from the urinary bladder to the scrotum [6]. Whereas computed tomography scan (CT) is considered to be more effective and highly recommended in old male patients with high BMI suffering from LUTS, it demonstrates a “Micky mouse sign” in the presence of bilateral bladder hernia [6]. Because of the cystoscopic appearance of IBHs, it may be sometimes wrongly diagnosed as a bladder diverticulum.

The majority of IBHs cases are diagnosed intraoperatively (77 %), and 16 % postoperatively while only 7 % are discovered intraoperatively [4]. Imaging is not eventually necessarily recommended if no surgical intervention is needed. However, to be operated on patients, diagnostic imaging should be taken to confirm the presence of any urinary bladder in the hernia to avoid any possible damage to the bladder during the operation as well as to decide on the best surgical practice to apply [8].

Inguinal bladder hernias can be treated either by reducing the protruding bladder to its anatomical position or by resecting the partial bladder [6]. Bladder resection is decided under special conditions such as the small diameter of the hernia's neck (<5 mm), and the presence of bladder necrosis, neoplasm, and a true bladder diverticulum [6]. After both bladder resection and reduction, herniorrhaphy (hernia repair) is performed through several techniques like Bassini, Mac way, and Lichtenstein [9]. A retrospective study published in 2001 in which 540 patients were treated with the Lichtenstein technique concluded that Lichtenstein's tension-free mesh hernia repair is a straightforward, safe, and efficient technique with a significantly low recurrence rate [10].

4. Conclusion

Though inguinal hernia containing urinary bladder is not a frequent disorder, it is duty-bound to be cautiously detected, particularly in a patient who presents with scrotal edema and refers to a two-stage micturition along with predisposing factors for IBHs such as advanced age and obesity.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images and videos. A copy of the written consent is available for review by the editor of this journal on request.

Ethical approval

Not applicable.

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Not applicable.

CRedit authorship contribution statement

Nafiza Martini is the first author and the corresponding author, contributed to drafting, editing, reviewing, data collecting and bibliography.

Majd Hanna contributed to drafting, editing, reviewing, and bibliography.

Afif Alshwaiki contributed to drafting, editing, reviewing, and

bibliography.

Belal Alaa Aldeen is the supervisor general surgeon who operated the patient and reported the data of the case, contributed to editing and reviewing the final version.

All author reviewed and accepted the paper.

Registration of research studies

This study is a case report, so we can't make the registration it as a trial.

Guarantor

Dr. Belal Alaa Aldeen.

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Declaration of competing interest

No conflict of interest.

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