



Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Massive inguinoscrotal bladder hernia causing hydronephrosis: Two cases



Bekir Aras^a, Sezgin Zeren^b, Bercis Imge Ucar^{b,*}, Bekir Sanal^c, Zulfu Bayhan^b, Mehmet Korkmaz^c, Mehmet Sevim^a, Metin Mestan^d, Mehmet Yucel^a

^a Dumlupinar University, Faculty of Medicine, Department of Urology, Kutahya, Turkey

^b Dumlupinar University, Faculty of Medicine, Department of General Surgery, Kutahya, Turkey

^c Dumlupinar University, Faculty of Medicine, Department of Radiology, Kutahya, Turkey

^d Evliya Celebi Education and Research Hospital, Department of General Surgery, Kutahya, Turkey

ARTICLE INFO

Article history:

Received 10 February 2015

Received in revised form 4 May 2015

Accepted 5 May 2015

Available online 19 May 2015

1. Introduction

Unlike other inguinal hernias, hernial protrusion of the entire bladder into the scrotum, also known as a scrotal cystocele, is a relatively rare condition that generally requires emergency due to its complications [1–3].

Here, we present two cases of massive bladder herniation into the scrotum with clinical findings, preoperative radiographic images along with intraoperative findings and discuss the management of cyctocele.

This study reports management of two cases of massive bladder hernia. Written informed consent was obtained from the patients. Patient identification data were not used in this case presentation.

1.1. Case 1

72-year-old male, who lives in a nursery, admitted to the emergency department with a 6-month history of swelling in the right groin and obstructive urinary tract symptoms. Body-mass index (BMI) of the patient was 34 kg/m². His past medical record included diabetes mellitus type II, chronic obstructive pulmonary disease (COPD), essential hypertension (HT), and coronary artery disease. He was on medication with anti-diabetics, insulin, acetylsalicylic acid, amlodipine, budenoside and montelukast for his chronic diseases. On physical examination, painful swelling of 10 × 8 cm in size starting proximally and extending along the right inguinal canal was found (Fig. 1). Defective lymphatic drainage of

right lower extremity was macroscopically noted as there was a significant circumference difference between lower extremities. Physical examination also approved this difference indicating the impairment of lymphatic drainage of the right lower extremity. Palpation revealed pain in the right inguinal region. The ultrasound of the same region reported as vesicle hernia within the inguinal canal and grade 3-hydronephrosis. Blood urea and creatinine levels were found to be increased. An emergency operation was planned and during the preoperative urology consultation, an urinary catheter was placed into the bladder in order to manage the urinary retention. Retrograde cystography showed a vesicle which is full of contrast material herniated to the right scrotum (Fig. 2). Contrast-enhanced CT scan revealed that the bladder was completely herniated to the right scrotum along with the 1/3 of the distal ureter (Fig. 3). Patient was hospitalized for the operation; however he lost his life due to acute myocardial infarct (AMI) during the preoperative preparations. Written informed consent was obtained from the patient's family for publication of this case report.

1.2. Case 2

64-year-old male who admitted to the general surgery clinic with a 4-month history of groin pain was evaluated. BMI of the patient was 37 kg/m². Physical examination revealed a hernia associated with protrusion of the bladder into the inguinal canal and scrotum. The patient was on medication with amlodipine (5 mg, 1 × 1) because of hypertension. Contrast-enhanced CT scan proved that the urinary bladder was herniated into the scrotum (Fig. 4). Elective operation was planned. Reduction of the protruded bladder was performed following the inguinal exploration by using prolene mesh repair. A drain was placed above prolene mesh and removed

* Corresponding author at: General Surgery, Dumlupinar University, Faculty of Medicine, Department of General Surgery, Kutahya, Turkey. Tel.: +90 274 265 20 31. E-mail address: bercis.imge@gmail.com (B.I. Ucar).



Fig. 1. A painful inguinal swelling, 10, 8 cm in size, was found on physical examination.

when the daily drainage decreased below to 20 cc. Since the patient was doing well without any complaints, he was discharged on the 3rd post-operative day and was invited for follow-up clinic visit after 1 week. The patient experienced no unusual or unexplained symptom, and no recurrence after repair surgery on the routine 1, 3 and 6 months of follow-up visits.

2. Discussion

Urinary bladder or ureter can protrude into the inguinal canal, femoral ring, scrotum or even through the ischiorectal fossa or obturator foramen [4,5].

Even though, urinary bladder protrusion along the inguinal canal occurs in approximately 1–4% of all cases, the incidence

increases to 10% in men over the age of fifty. However, massive scrotal hernias are rare. Besides, complete bladder herniation are very rare compared to incomplete bladder herniation [2,6].

Lower urinary tract obstruction, decreased bladder tone, obesity, weakness of abdominal and pelvic walls with advanced age, benign prostate enlargement and chronically distended urinary bladder may contribute to the pathophysiology of the scrotal cystocele [7,8]. In the present cases, the volume of prostate in both patients was in normal ranges. Thus, the cause of the bladder hernia is assumed to be intraabdominal pressure increase because of obesity and COPD.

In general, urinary bladder hernia is classified into three groups according to the relationship between the parietal peritoneum and the protruded portion of the urinary bladder: Paraperi-



Fig. 2. Retrograde cystography showed a complete herniation of bladder into the scrotum along with the 1/3 of the distal ureter.

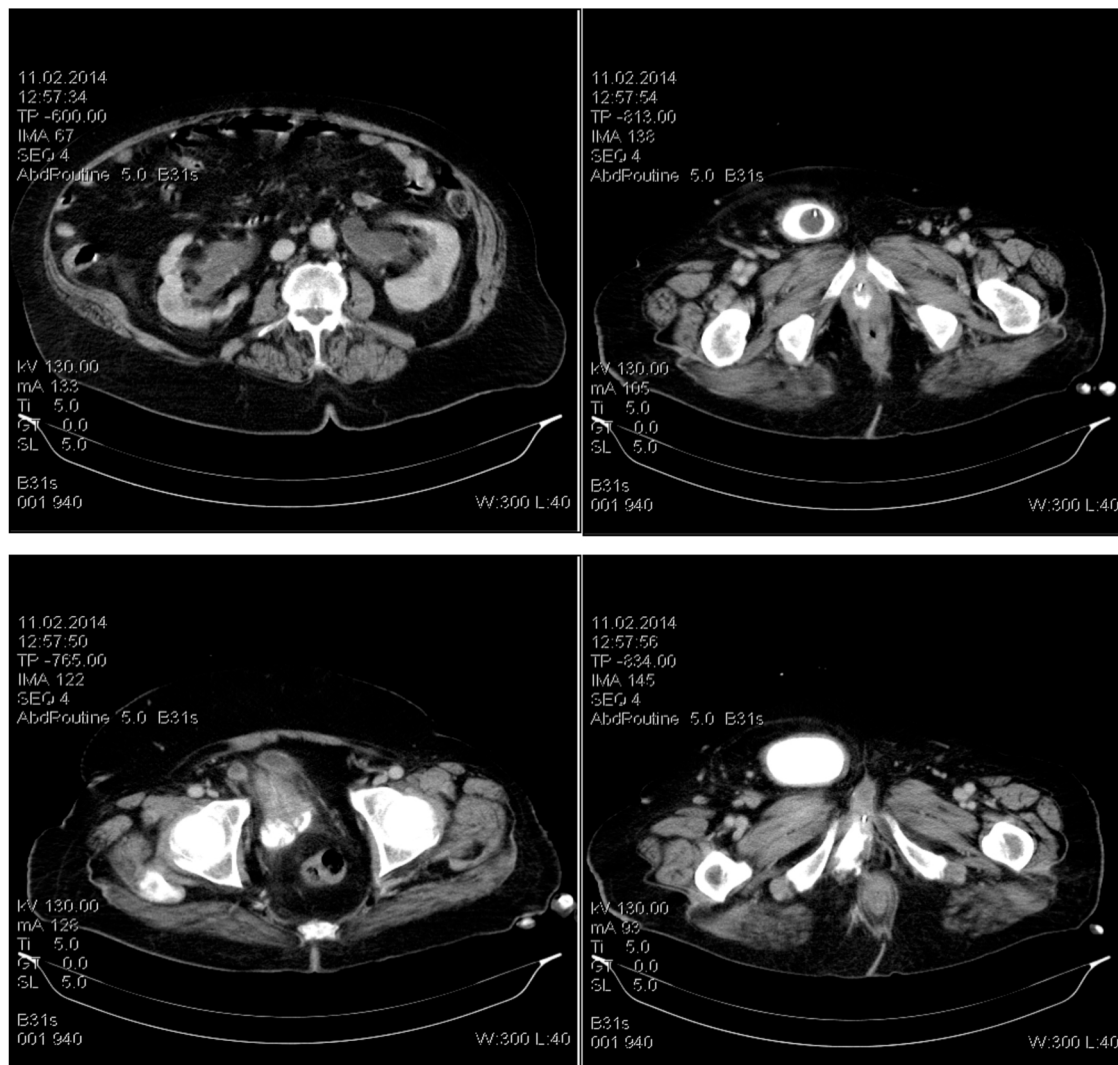


Fig. 3. Contrast-enhanced CT scan revealed that the bladder was completely herniated to the right scrotum along with the 1/3 of the distal ureter.

toneal, intraperitoneal and extraperitoneal. Presented cases were described as paraperitoneal hernia, in which extraperitoneal portion of hernia lied along medial wall of sac appeared with the obstructed lower urinary tract symptoms. This type of hernia is reported as the most common type of bladder hernia in the previous studies [9].

Massive scrotal cystocele is usually defined with voiding symptoms, involving manual compression of the hernia. The size of the scrotal mostly depends on urination, as it reduces after voiding. In our cases, both patients described voiding with manual compression of the scrotum in accordance with the previous reports [7,8].

The differential diagnosis of a painless unilateral scrotal swelling includes a hydrocele, spermatocele, varicocele (usually left sided), epididymal cyst, tumor, intestinal or omental hernia [1,2,6].

Scrotal cystocele, which involves only 1–4% of the inguinal hernias, can easily be missed during the clinical evaluation. Thus, radiological imaging plays a crucial role as an accurate diagnostic procedure and it may also help to reduce the risk of structures in the hernia sac [10,11].

CT and ultrasonography are both helpful to diagnose a scrotal cystocele, especially to evaluate the massive inguinoscrotal hernias whereas a retrograde cystogram should be performed to determine the involvement of the bladder properly [10,11]. Both CT scan and

cystography were used to identify the anatomical involvement of the bladder in the scrotal hernia in our cases and they revealed a complete urinary bladder hernia fully filled with contrast material in both cases.

Ureteral hernia is an uncommon, but an important disorder which causes to serious complications and requires immediate surgical treatment. However, hernia repair surgery can increase the risk of ureter injury which may lead to serious consequences [4].

In massive scrotal hernia cases, bladder can protrude with the ureter causing hydronephrosis on the affected side can herniate with the bladder or independently, and can cause ureterovesicular obstruction with hydronephrosis on the involved side [2]. Thus, grade 3 hydronephrosis in our first case and grade 2 hydronephrosis in the second case due to malposition of ureter were noted. Hydnephrosis is remarkable in our first case. Blood creatine and urea levels were increased and the patient was processing to renal failure.

Urinary catheter was placed for to empty the urinary bladder. This provides two important benefits: first, the pain will relieved as the size of the hernia reduces, second, the risk of injury of urinary bladder will decrease as the bladder does not fill the entire hernia sac in the scrotum.

Massive hernias are still a dilemma for surgeons since no standard approach for massive inguinoscrotal hernias including bladder

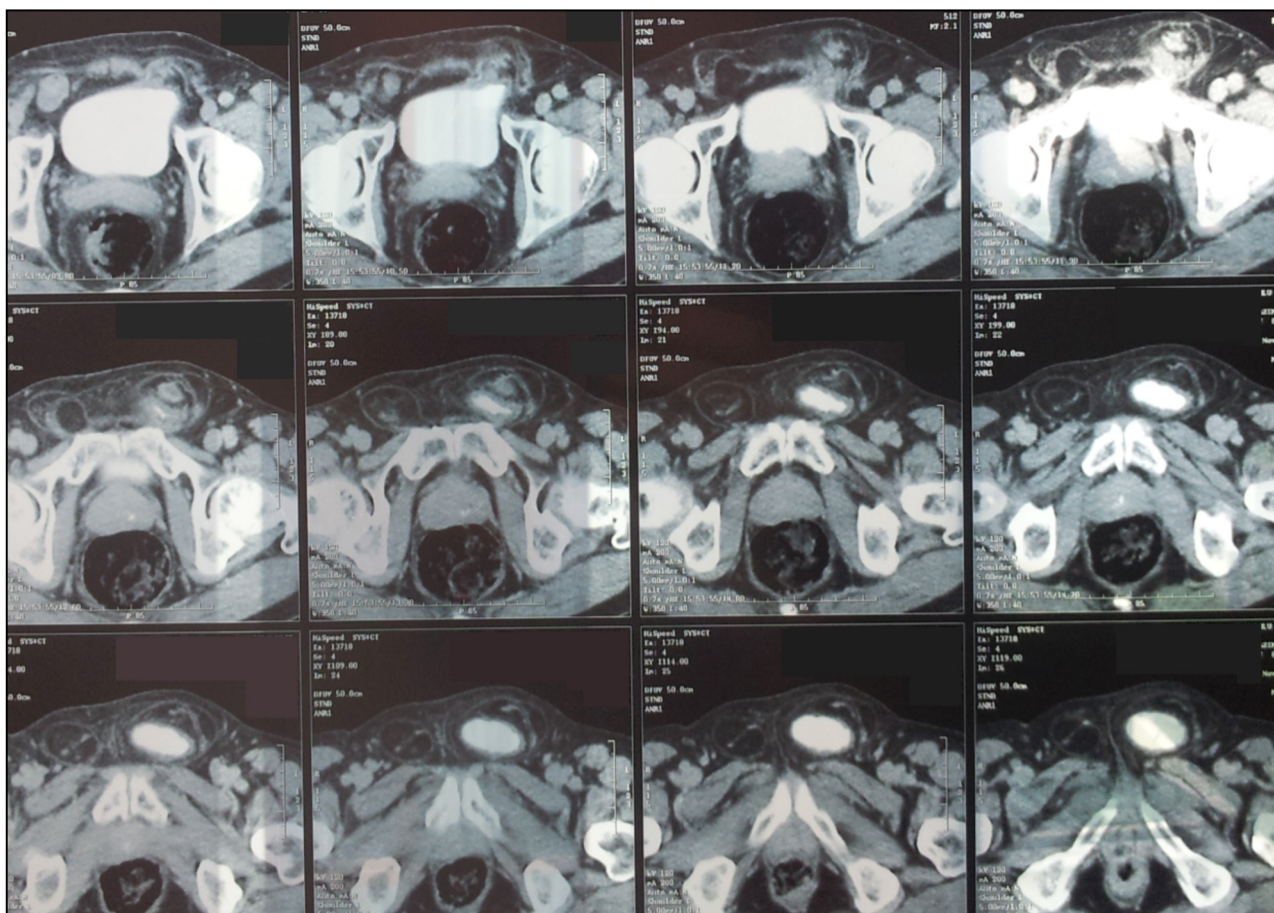


Fig. 4. Contrast-enhanced CT scan revealed a complete herniation of urinary bladder into the left scrotum.

was described yet in the literature. Thus, the surgeons are advised to approach carefully to these patients according to their clinical presentation. As a surgical procedure, lichtenstein technique and laparoscopic approach are presented as the most used ones [12].

Our first patient could not be operated since he died in the preparation period for surgery due to acute myocardial infarct. In the surgery of the second patient, we freed bladder from hernial sac and reduced it into the abdominal cavity. Lichtenstein technique was performed for repair of defect following the reduction since the lichtenstein open tension-free hernioplasty technique was already suggested to be the best option in such patients. The mesh is positioned in the pre-peritoneal space. The mesh decreases the tension on the weakened abdominal wall and reduces the risk of hernia recurrence [13].

The repair of an inguinoscrotal hernia including the urinary bladder is a great challenge for surgeons. The correct pre-operative management, the appropriate radiological examinations and the right surgical method chosen by the surgeon can increase the success in surgery. Surgical therapy, although it is usually challenging and demanding, seems to be the best choice for treatment of these patients as increasing their quality of life. Informed consensus is always necessary and ensures that the patient is fully aware of all the pros and cons of the possible postoperative complications [14].

3. Conclusion

Massive herniation of bladder into scrotum is a very rare situation which may lead to life threatening complications. Yet there is no guideline for management of giant scrotal hernia. As mas-

sive hernias are still dilemma for surgeons, they have to approach carefully to these patients according to their clinical presentation.

Conflicts of interest

All authors have declared that they have no conflict of interest.

Sources of funding

No funding was received for this case report and publication.

Ethical approval

Since patient identifying information was not included in this report, institutional review was not required for this study.

Consent

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

Author contribution

Sezgin Zeren: study design, data analysis, drafting.

Bekir Aras: study design, drafting.

Bercis İmge Uçar: study design, data analysis, drafting, literature search.

Zulfu Bayhan: Study design, drafting.
 Bekir Sanal: radiological data collection and analysis.
 Mehmet Korkmaz: radiological data collection and analysis.
 Mehmet Sevim: literature search, proofreading.
 Metin Mestan: literature search, data collection.
 Mehmet Yucel: study design, proofreading.

Guarantor

Bekir Aras, MD, bekiraras1@gmail.com
 Bercis İmge Uçar, MD, bercis.imge@gmail.com.

References

- [1] R.G. Regensburg, S. Klinkhamer, N.P.H. van Adrichem, A. Kooistra, I.A.M.J. Broeders, Micturition related swelling of the scrotum, *Hernia* 16 (3) (2012) 355–357.
- [2] M. Bisharat, M.E. O'Donnell, T. Thompson, N. MacKenzie, D. Kirkpatrick, R.A.J. Spence, J. Lee, Complications of inguinoscrotal bladder hernias: a case series, *Hernia* 13 (1) (2009) 81–84.
- [3] A. Karatzas, G. Christodoulidis, M. Spyridakis, C. Stavaras, E. Aravantinos, M. Melekos, A giant inguinoscrotal bladder hernia as a cause of chronic renal failure: a rare case, *Int. J. Surg. Case Rep.* 4 (3) (2013) 345–347.
- [4] J. Giuly, G. François, D. Giuly, C. Leroux, R. Nguyen-Cat, Intrascrotal hernia of the ureter and fatty hernia, *Hernia* 7 (1) (2003) 47–49.
- [5] M.W. Noller, D.W. Noller, Ureteral sciatic hernia demonstrated on retrograde urography and surgically repaired with Boari flap technique, *J. Urol.* 164 (3) (2000) 776–777.
- [6] Y. Reisman, P.J. van Aken. CASE REPORTS: Surgical repair of a scrotal cystocele in a case of massive bladder herniation including both ureters. 2015 <http://www.bjui.org/ContentFullItem.aspx?id=456>
- [7] I. Charuzi, B. Mogutin, M. Alis, S. Kyzer, Laparoscopic repair of inguinoscrotal hernia with complete herniation of the urinary bladder, *Hernia* 4 (3) (2000) 167–169.
- [8] A.H. Madani, H.M. Nikouei, H.B. Aval, A. Enshaei, A. Asadollahzade, S. Esmaeili, Scrotal herniation of bladder: a case report, *Iran. J. Med. Sci.* 38 (1) (2013) 62.
- [9] L. Regis, F. Lozano, J. Planas, J. Morote, Bladder cancer in an inguinoscrotal vesical hernia, *Case Rep. Oncol. Med.* (2012), <http://dx.doi.org/10.1155/2012/142351> <http://www.hindawi.com/journals/crionm/2012/142351/>
- [10] M.A. Bjurlin, D.A. Delaurentis, M.D. Jordan, H.M. Richter III, Clinical and radiographic findings of a sliding inguinoscrotal hernia containing the urinary bladder, *Hernia* 14 (6) (2010) 635–638.
- [11] N. Andaç, F. Baltacıoğlu, D. Tüney, N. Ç. Çimşit, G. Ekinçi, T. Biren, Inguinoscrotal bladder herniation: is CT a useful tool in diagnosis? (case report), *Clin. Imaging* 26 (5) (2002) 347–348.
- [12] A. Khan, I. Beckley, B. Dobbins, K.M. Rogawski, Laparoscopic repair of massive inguinal hernia containing the urinary bladder, *Urol. Annal.* 6 (2) (2014) 159.
- [13] H.H. Barst, Pneumoperitoneum as an aid in the surgical treatment of giant herniae, *Br. J. Surg.* 59 (5) (1972) 360–364.
- [14] G.I. Panagiotakis, K.G. Spyridakis, M.N. Chatziioannou, N.G. Kontopodis, S.E. Kandylikis, Repair of an inguinoscrotal hernia containing the urinary bladder: a case report, *J. Med. Case Rep.* 6 (1) (2012) 1–5.

Open Access

This article is published Open Access at sciedirect.com. It is distributed under the [IJSCR Supplemental terms and conditions](#), which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.