

Incisional Bladder Hernia with Temporary Bowel Incarceration: Report of a Case

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Abstract

Abdominal hernias are not rare in women, but incisional bladder hernias are rare. The incisional hernia is a condition caused by protrusion of the abdominal viscera through the abdominal fascia. The presenting symptoms in the cases reported included suprapubic discomfort, irritative voiding symptoms, and urinary incontinence. We present a case of bladder herniation with temporary bowel incarceration through a lower midline incision, which followed operative intervention. The temporary bowel herniation was managed conservatively because the impairment of the blood supply was not severe.

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Key words: incisional hernia, urinary bladder, incarceration

Introduction

Hernias occur when the intra-abdominal pressure is greater than the abdominal wall counterpressure. Incisional hernias are an iatrogenic condition in which the abdominal viscera protrude through the abdominal fascia. The omentum and small intestines are by far the most common viscera involved, and the condition is diagnosed on clinical examination either visually or by palpation of an abdominal bulge. We describe a case of incisional bladder hernia associated with temporary bowel herniation through the lower midline abdominal incision following operative intervention. The temporary bowel herniation was managed conservatively because the impairment of the blood supply was not severe.

An 87-year-old woman complaining suprapubic discomfort, irritative voiding symptoms and abdominal pain was referred to our surgical department. She presented with a long history of suprapubic tenderness. More recently, she had complained of severe urinary incontinence, day and night, requiring 10 to 12 times of visiting to the bathroom per day. The abdominal pain was significantly worse at night, causing her to wake up and urinate. The physical examination revealed an obese elderly woman with an abdominal midline scar and protuberant lower abdominal hernia. A distinct fascial defect was not palpable because of the patient's obesity. She had a history of angina pectoris and was taking anticoagulant agents. Sixty year earlier she had volvulus, which had required emergency surgical intervention via an abdominal midline incision. Because of this previous surgery, an

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Fig. 1 Radiograph of the abdomen showing multiple dilated loops of small intestine with air-fluid levels.

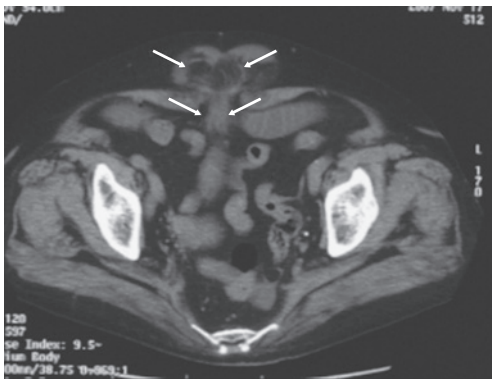


Fig. 2 Computed tomogram reveals an abdominal incisional hernia containing the urinary bladder protruding through fascial defects, the largest of which is 3.8 cm in diameter (arrows).

incisional abdominal hernia had developed and gradually increased in size. Neither inguinal hernias nor abdominal masses were palpable. Except for a white blood cell (WBC) count of 9,900/ μ L, results of laboratory tests were within normal limits. Radiographic imaging of the abdomen showed multiple dilated loops of small intestine with air-fluid levels (Fig. 1). Computed tomography revealed an abdominal incisional hernia containing the urinary bladder through fascial defects, the largest of which was 3.8 cm in diameter (Fig. 2). Because the hernia was nonreducible and because incarceration could not be completely ruled out, the patient underwent

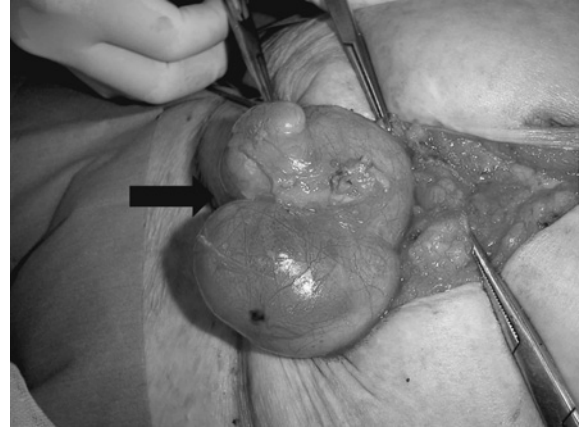


Fig. 3 Intraoperative appearance of the urinary bladder herniation. Part of the urinary bladder is incarcerated (arrow).



Fig. 4 An ileal segment approximately 135 cm from the ileocecal valve showing slight impairment of the blood supply to the intestine, indicating temporary bowel incarceration (arrow).

emergency surgery with a lower midline abdominal incision. At laparotomy, the protruding mass was found through the fascial defect, but it was not opened because of the question of whether the hernial sac contained a bowel loop in addition to the urinary bladder. The hernial sac was sharply dissected from the fascia, after which the content of the hernial sac was concluded to be the urinary bladder (Fig. 3). Following tissue dissection around the hernial sac, the urinary bladder was repositioned retropubically. The fascial defect was approximately 3.0 cm in the midline without omental components. Further exploration showed no ascites or dilated loops of the proximal intestine. Additionally, an ileal segment approximately 135 cm from the ileocecal

valve showed slight impairment of the blood supply to the intestine, indicating temporary bowel incarceration (**Fig. 4**). After careful control of bleeding, the fascial defect was closed primarily. The intestine was then decompressed through a nasogastric tube. The postoperative course was uneventful, and the patient was discharged on the 13th postoperative day.

Discussion

Incisional hernias are an iatrogenic condition caused by protrusion of the abdominal viscera through the abdominal fascia. Weakening of the abdominal wall after incision is a potential problem, because no current method for incisional closure is perfect. No agreed standard for an ideal suture material or a best suture technique has yet appeared. Multiple causal issues are involved in the development of an incisional hernia. These include poor surgical technique in closure of the wound; patient factors that may increase the risk of poor wound healing, such as obesity and chronic illness; postoperative complications, such as wound infection and prolonged ileus; and vigorous activity too early after the operation placing stress upon a recent wound. Several attempts have been made to identify risk factors, but there is no general agreement on which of these factors is the most important. We consider the cause to be multifactorial.

Urinary bladder hernia occurs through the openings of structures supporting the abdomen and pelvis. Incisional bladder hernia is a rare condition, and only a few cases have been described in the literature¹⁻⁴. In 97% of all cases, bladder herniation has been found in association with inguinal hernias (70%) or femoral hernias (27%)⁵. In male patients the herniation is usually inguinal, and in female patients femoral hernia is not rare. The majority of inguinal herniations are right-sided. Although the preoperative diagnosis of bladder hernia is important to reduce the risk of bladder injury during hernia repair^{6,7}, most cases are not diagnosed preoperatively; more than 90% are diagnosed intraoperatively or postoperatively, often as a result of surgical injury to the bladder^{8,9}. Unfortunately, the

risk of bladder injury has been reported as high as 12% during hernia repairs^{6,10}. This risk consists of hematuria, sepsis, urinary leakage, and fistula formation¹¹. In our case, computed tomography showed an incisional hernia containing a part of the urinary bladder, which led to the diagnosis of incisional bladder hernia.

There are several symptoms of bladder herniation, including discomfort over the hernia, urinary incontinence, urinary frequency, nocturia, dysuria, hematuria, and two-step micturition. These symptoms may be related to bladder outlet obstruction or be secondary to urinary infection that is often associated with bladder herniation. In our case, the patient complained of urinary incontinence. Reduction of the hernia after micturition and an increase in its size between voidings may suggest the diagnosis. Two-stage micturition has been suggested to be an important clue; after emptying the abdominal portion of the bladder, the patient may void again by elevation or compression of the hernia.

Factors associated with development of bladder herniation include age, obesity, chronic bladder distension, abdominal wall relaxation, perivesical lipomas, adhesions, urethral obstruction, general debilitation, and excessive physical exertion. It was unclear whether incisional hernias was more common following a lower-midline or transverse incision; however, it is now thought that incisional hernias are more common after midline incision than after transverse incisions because the fascial fibers of the anterior abdominal wall lie in a transverse orientation^{12,13}. In fact, the majority of previously reported incisional bladder hernias occurred through lower-midline incisions.

Common methods for closure include primary closure, open or laparoscopic mesh repair, and the component separation technique. A history of previous abdominal incisions does not automatically indicate open surgery. It has been suggested that hernias smaller than 3 cm should be closed primarily, whereas hernias larger than 10 to 15 cm should be closed with a mesh¹⁴. There is no absolute hernia size for selecting primary repair or mesh repair, and much depends on factors such as

previous repairs, body habitus, and surgeon preference. We concluded that simple fascial closure after reduction of the herniation would be sufficient treatment for the hernias in our case. Therefore, we performed primary closure with nonabsorbable sutures. Depending on the size, location, width of the neck, and functional capacity, the herniated portion may be preserved or excised.

In conclusion, the bladder is rarely involved in hernias outside the groin; however, it is important to remember that any low abdominal-wall hernia, whether in the groin or elsewhere, should be considered to contain bladder tissue until proved otherwise.

References

1. Schulze KA, Wettlaufer JN: Ventral bladder hernia following Marshall-Marchetti-Krantz procedure for stress urinary incontinence. *Urology* 1986; 282: 114-116.
2. Gomelsky A, Dmochowski RR: Incisional bladder hernia after rectus fascial sling. *J Urol* 2003; 1696: 2299.
3. Lobel RW, Sand PK: Incisional hernia after suprapubic catheterization. *Obstet Gynecol* 1997; 895 Pt 2: 844-846.
4. Fantl JA, Krebs HB, Dunn LJ: Incisional bladder hernia and urinary incontinence: report of three cases. *Obstet Gynecol* 1985; 653 Suppl: 74S-77S.
5. Boughey JC, Nottingham JM: Massive incisional hernia of the bowel and urinary bladder: a case report. *Am Surg* 2002; 6810: 892-894.
6. Catalano O: US evaluation of inguinoscrotal bladder hernias: report of three cases. *Clin Imaging* 1997; 212: 126-128.
7. Gomella LG, Spires SM, Burton JM, Ram MD, Flanigan RC: The surgical implications of herniation of the urinary bladder. *Arch Surg* 1985; 1208: 964-967.
8. Liebeskind AL, Elkin M, Goldman SH: Herniation of the bladder. *Radiology* 1973; 1062: 257-262.
9. Gvozdanovic V, Cecuk L, Gabric V, Dubravec L, Nutrizio V: The urinary bladder as hernial contents. *Int Urol Nephrol* 1971; 34: 389-395.
10. Karaman ZC, Saray A, Dorak C, Tamac NI: Ultrasonographic diagnosis of massive bladder hernia. *J Clin Ultrasound* 1993; 218: 534-536.
11. Schewe J, Brands EH, Pannek J: The inguinal bladder diverticulum: a rare differential diagnosis of hernias. *Int Urol Nephrol* 2000; 322: 255-256.
12. Santora TA, Roslyn JJ: Incisional hernia. *Surg Clin North Am* 1993; 733: 557-570.
13. Stoppa RE: The treatment of complicated groin and incisional hernias. *World J Surg* 1989; 135: 545-554.
14. Sains PS, Tilney HS, Purkayastha S, et al: Outcomes following laparoscopic versus open repair of incisional hernia. *World J Surg* 2006; 3011: 2056-2064.

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