Case Report

Patient with inguinal hernia containing the urinary bladder complicated by bladder stones

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Introduction: We encountered a patient in whom bladder inguinal hernia complicated by bladder stones was incidentally diagnosed. Bladder inguinal hernia containing stones in the prolapsed bladder is rare and only two cases have been reported.

Case presentation: The patient was an 82-year-old male in whom ascending colon cancer and inguinal hernia containing the urinary bladder were diagnosed based on abdominal computed tomography performed to examine anemia. The urinary bladder contained several small stones. Radical surgery for the hernia and lithotripsy of the urinary bladder were concomitantly performed with right colectomy. On stone analysis, the stones were found to be uric acid calculi.

Conclusion: In the three patients with inguinal hernia containing the urinary bladder complicated by stones, including our patient, two-stage urination, organic lower urinary tract obstruction, and prolapse of the urinary bladder reaching the scrotum were noted in all patients.

Key words: benign prostatic hyperplasia, bladder calculi, inguinoscrotal hernia, outlet obstruction, urinary stone.

Keynote message

We encountered a patient in whom bladder inguinal hernia complicated by bladder stones was incidentally diagnosed. Two similar cases were previously reported. In the three cases, including ours, two-stage urination, organic lower urinary tract obstruction, and prolapse of the urinary bladder reaching the scrotum were noted in all patients. On analyzing the difference between bladder inguinal hernia and typical inguinal hernia, many cases of bladder hernia were noted with internal inguinal hernia.

Introduction

Bladder hernia is a relatively rare disorder among adult inguinal hernia patients in Japan, and only two cases complicated by bladder stones in the prolapsed urinary bladder have been reported.1,2 We encountered a patient incidentally diagnosed with bladder hernia complicated by bladder stones during examination of anemia. We report the case with a discussion about the clinical characteristics of bladder hernia.

Case presentation

An 82-year-old male in whom progression of anemia was observed on a periodic medical check-up was referred to our hospital. Based on close examination, the patient was diagnosed with ascending colon cancer and bilateral inguinal hernias. Since the right inguinal hernia included the urinary bladder and contained stones, the patient was referred to our department.

The patient had a past history of right inguinal hernia surgery, had noticed difficulty in urination and was being treated with oral tamsulosin and dutasteride. An operative scar and chicken egg-sized bulge were noted in the right inguinal region, and a ping-pong ball-sized bulge was noted in the left inguinal region. Blood and biochemistry tests showed mild
The urinary bladder had prolapsed from the right inguinal region and it contained several stones (Fig. 1). The urinary bladder had prolapsed from the right inguinal region. Several stones (arrows) were present in the bladder. Transverse (left) and sagittal (right) views. Prolapse of the urinary bladder reached the scrotum.

Based on the above findings, the patient underwent right colectomy and radical surgery for the bilateral inguinal hernias. The inguinal hernia was internal on both sides and was repaired using the McVay method, followed by lithotrity of the urinary bladder. Three stones with a diameter of 5–10 mm were found in the urinary bladder and were transurethrally removed. On stone analysis, the stones were found to be uric acid calculi.

Discussion

It has been reported that bladder hernia accounts for 0.4–3% of adult inguinal hernia cases in Western countries, but many of these are asymptomatic mild hernia cases, and bladder hernia reaching the scrotum is rare. Clinical differences between inguinal hernia containing the urinary bladder and typical inguinal hernia were investigated. Bladder hernia is a relatively rare disorder in Japan. Nakatsuji et al. reviewed 98 patients in 2016 with a mean age of 60.3 years and the male:female ratio was 7.9:1. The affected side was confirmed in 88 patients and this was the right side in 62 (70%) and the left in 26 (30%). Regarding symptoms, bulging of the inguinal region and lower urinary tract symptoms were frequently noted (75 and 64 patients, respectively), and the lower urinary tract symptoms were difficulty of urination in 25, two-stage urination in 18, and frequency in 17. Regarding overall adult inguinal hernia, Yamamoto et al. reviewed 2490 cases and the incidence of external and internal inguinal hernias in adults was the highest at 75–79 years old. The male:female ratio was 7.9:1, and the affected side was the right side in 1169 (50%), the left in 923 (40%), and bilateral in 231 (10%). The mean age was not indicated, but when it was calculated from the median of each age range, it may have been around 60 years of age. Therefore, the age and sex ratio of patients with inguinal hernia containing the urinary bladder is not different from those of overall adult inguinal hernia patients. The affected side was on the right in many cases in both groups, although this tendency was stronger in the group with bladder hernia. Internal inguinal hernia accounted for 29% and 9% of cases in males and females, respectively, being relatively low incidences, but many cases of bladder hernia were noted in internal inguinal hernia. Regarding the reason for this, the following findings have been pointed out: (i) the fascia transversalis is likely to become fragile in the presence of congenital or acquired bladder distention and intravesical pressure elevation; (ii) the anatomical position of the urinary bladder is closer to Hesselbach’s triangle than to the internal inguinal ring; and (iii) the urinary bladder is structurally unlikely to prolapse from the internal inguinal ring compared with the intestine.

Advanced age, obesity, obstruction of the lower urinary tract, and past medical history of surgery have been pointed out as risk factors for bladder hernia. The present patient had all these factors and was therefore high-risk of bladder hernia. According to Yamamoto et al., the preoperative diagnosis rate was 69% and computed tomography was performed in many patients diagnosed before surgery. When abnormality in urination is noted, the patient should be carefully interviewed and computed tomography should be performed when bladder hernia is suspected; this not only avoids the risk of intraoperative injury to the urinary bladder, but also enabled discovery of stones and bladder tumors in the prolapsed urinary bladder in reported cases, similar to those observed in the present patient.

To our knowledge, only two cases of inguinal hernia containing the urinary bladder complicated by bladder stones have been reported. All three patients, including our patient, reported difficulty in urination with two-stage urination and lower urinary tract obstruction being noted (prostate enlargement in two and urethral stricture at two sites in one). In addition, prolapse of the urinary bladder reached the scrotum in all cases. Takagaki et al. reported that hernia reached the scrotum in 27 (38%) of 71 patients with bladder hernias in Japan. The incidence of two-stage urination was high in these cases and stones were likely to form due to severe urinary stasis.

Conclusion

A patient with inguinal hernia containing the urinary bladder complicated by bladder stones was reported. Our patient may be the third reported case. Bladder hernia developed due to advanced age, obesity, and lower urinary tract obstruction caused by benign prostatic hyperplasia as an underlying...
disease; the stones may have been secondarily formed in the prolapsed urinary bladder region.

Conflict of interest

The authors declare no conflict of interest.

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