Incont Pelvic Floor Dysfunct 2011; 5(4):118-119

A Giant Bladder Diverticulum with Bowel and Unilateral Ureteral Obstruction

Chen-Hsun Ho, M.D.[1,2]*, Chung-Tai Yue, M.D.[3], Yao-Chou Tsai, M.D.[1,2], Stephen Shei-Dei Yang, M.D., Ph.D.[1,2]

Division of Urology[1], Department of Surgery, Buddhist Tzu Chi General Hospital, Taipei Branch, Taipei, Taiwan; Department of Urology[2], College of Medicine, Tzu Chi University, Hualien, Taiwan; Department of Pathology[3], Buddhist Tzu Chi General Hospital, Taipei Branch, Taipei, Taiwan

**Correspondence: Division of Urology, Department of Surgery, Buddhist Tzu Chi General Hospital, 289, Jianguo Road, Xindian District, New Taipei City, Taiwan*
Email: hch1206@gmail.com

BRIEF HISTORY

A 62-year-old man presented in the emergency department with abdominal fullness and absence of stool passage for one week. Two years prior to this episode, he had visited the urology clinic for lower urinary tract symptoms. At that time, the initial evaluation revealed an International Prostate Symptom Score (IPSS) of 27 (the voiding subscore was 17; the storage subscore was 10; the IPSS quality of life score was 4), a peak flow rate of 9.3 mL/sec on 589 mL voided, and a postvoid residual of 785 mL. The total prostate volume was 27 mL on transrectal sonography. A urinalysis revealed both hematuria and pyuria, with numerous red blood cells and 100-200 white blood cells per high power field. The serum prostate-specific antigen level was 2.05 ng/mL. He were then lost to follow-up, precluding further diagnosis and treatment.

In this admission, computed tomography showed a huge bladder diverticulum (Fig. 1A). Left hydronephrosis with perirenal and periureteral fluid accumulation was noted (Fig. 1B). Bowel distension was remarkable, involving the colon above the descending segment and the small intestine (Fig. 1A and 1B). More than 2,000 mL of urine was drained on urethral catheterization, followed by improvement in abdominal distension and discomfort.

Urethrocystoscopy revealed diffuse trabeculation inside the urinary bladder (Fig. 2A). The diverticular orifice was found at the left posteriolateral wall (Fig. 2B). The inner lining of the diverticulum showed chronic inflammation (Fig. 2C), and no malignancy was found on biopsies. The prostatic urethra was unremarkable (Fig. 2D). A double pigtail ureteral stent was placed on the left side to relieve the obstruction and to protect the ureter during surgery.

An open diverticulectomy was then performed extraperitoneally with a combined intra- and extra-vesical approach. In brief, a cystotomy was made on the anterior wall. An index finger was inserted through the cystotomy to identify the diverticular orifice. With the finger through

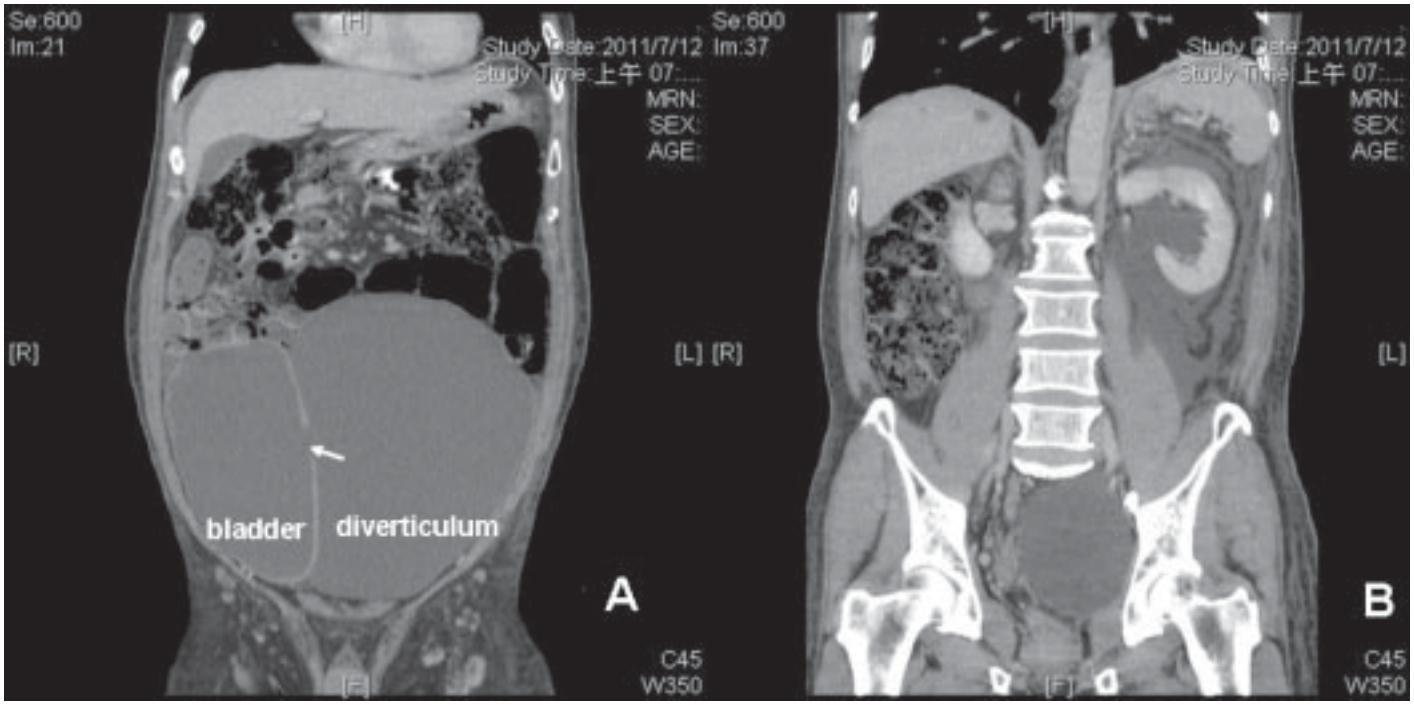

Fig. 1. (A) Computed tomography reveals a huge diverticulum on the left side of the urinary bladder. The arrow head indicates the diverticular orifice. Bowel distension is remarkable. (B) Left hydronephrosis with perirenal and periureteral fluid accumulation.

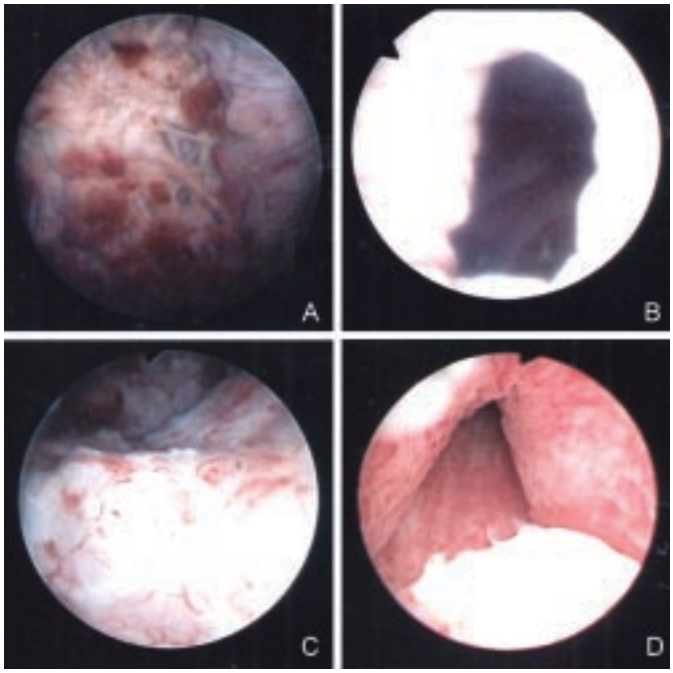

Fig. 2. (A) Severe trabeculation of the urinary bladder. (B) Diverticular orifice on the left posteriolateral wall. (C) Chronic inflammation on the inner lining of the divertulum. (D) The prostate is unremarkable.

Fig. 3. Postoperative cystography reveals a smooth bladder contour with a normal bladder size.

the orifice, the neck between the diverticulum and bladder was incised completely, and the diverticulum and the bladder were separated. On the bladder side, the opening was directly closed in a whole-layer fashion. On the diverticulum side, the inner mucosal lining was carefully dissected with a fine scissors. After the whole inner lining was removed, a suction drain was placed in the diverticular space. At the end of the operation, a cystostomy tube was placed, and the cystotomy was closed.

The postoperative course was uneventful. Pathological examination revealed chronic inflammation of the diverticular mucosa. Two weeks after the operation, a cystography showed a smooth bladder contour without leakage (Fig. 3). The patient could void well after the urethral catheter was removed. Uroflowmetry revealed a peak flow rate of 10.7 mL/s on 274 mL voided, with a minimal postvoid residual. The patient was given an alpha-adrenergic blocker, and might have urodynamic evaluation if indicated.

DISCUSSION

A bladder diverticulum refers to a herniation of the bladder mucosa through a weak point in the detrusor muscle. Bladder diverticula can be acquired or congenital and the incidence in children and adults has been reported to be approximately 1.7 and 1 to 6%, respectively [1]. It can protrude from a congenital weakness in the bladder wall adjacent to the ureteral orifice (so-called Hutch diverticulum) [2]. It can also occur as a consequence of increased intravesical pressure, and thus often develops in men over 60 years old, who are more likely to have benign prostate hyperplasia. The case presented here is unique because of the giant size of the bladder diverticulum and simultaneous intestinal and unilateral ureteral obstruction. To our knowledge, both the giant size and the bowel compression have rarely been reported in the literature [3,4]. A diverticulectomy can be performed through an intra-vesical, extra-vesical, or a combination of both approaches. A combined intra- and extra-vesical approach avoids the difficulty of removing the entire diverticulum. Instead, the inner lining can simply be removed, which avoids the risk of inadvertent injury to the ureter or bowels. Lastly, bladder outlet obstruction, if present, should be timely diagnosed and treated to prevent recurrence.

REFERENCES

1. Gerridzen RG, Futter NG: Ten-year review of vesical diverticula. Urology 1982; **20**:33-35.
2. Kelalis PP, McLean P: The treatment of diverticulum of the bladder. J Urol 1967; **98**:349-352.
3. Akbulut S, Cakabay B, Sezgin A, Isen K, Senol A: Giant vesical diverticulum: A rare cause of defecation disturbance. World J Gastroenterol 2009; **15**:3957-3959.
4. Shaked G, Czeiger D: Distended urinary bladder and diverticulum-a rare cause of large-bowel obstruction. Am J Surg 2009; **197**:e23-e24.