

**IMAGES IN EMERGENCY MEDICINE**
**Urology**

# Woman with fullness in the lower abdomen

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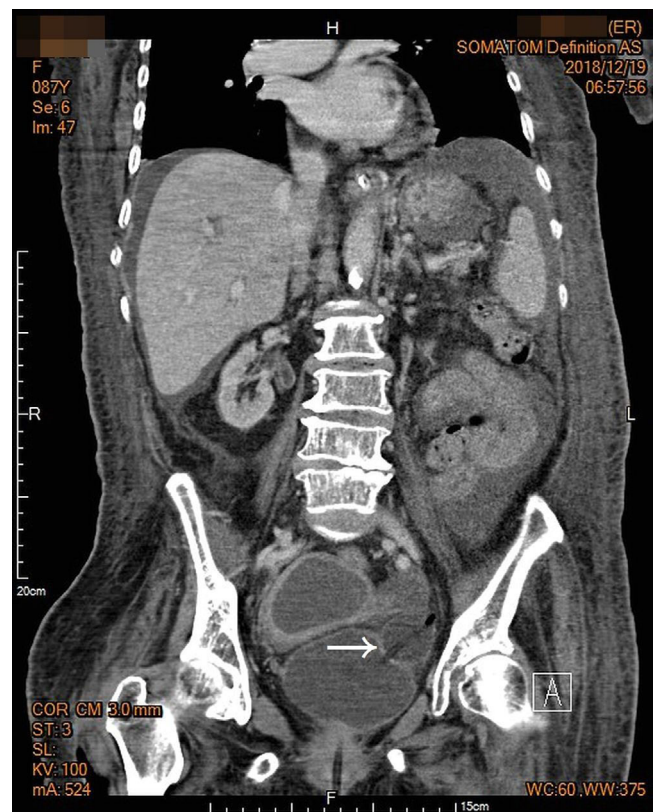
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**1 | PATIENT PRESENTATION**

A 58-year-old woman presented to the emergency department with a 1-day history of fullness of the lower abdomen and decreased urine output in the Foley catheter bag. Upon arrival, her vital signs were as follows: blood pressure, 112/53 mmHg; body temperature, 37.3°C; pulse rate, 117 beats/min. Physical examination revealed a palpable mass in the lower abdomen without redness or ecchymosis of the abdominal wall. The rest of the physical examination findings were unremarkable. Laboratory results comprised a WBC count of 27,700/ $\mu$ L, neutrophil 84%, lymphocyte 4%, hemoglobin 9.1 g/dL, platelets 305,000/ $\mu$ L, creatinine 0.9 mg/dL, and C-reactive protein 6.4 mg/dL. Urine analysis revealed numerous red and white blood cells per high-power field and a positive finding for nitrite. Kidney, ureter, and bladder radiography revealed a small bowel ileus pattern in the lower abdomen. Computed tomography (CT) of the abdomen with contrast showed minimal ascites in the abdomen and pelvic cavity. The Foley was located outside the bladder, and bladder perforation was suspected (Figure 1). The emergency physician consulted a urologist for suspicion of bladder rupture, and the urologist suggested performing a cystogram for the patient. Other differential diagnoses such as cystocele, bladder herniation, or another space-occupying lesion were all ruled out.

**2 | DIAGNOSIS**

Cystography revealed no evidence of bladder rupture, and the Foley balloon was lodged in the diverticulum of the urinary bladder (Figure 2).



**FIGURE 1** Computed tomography (CT) of the abdomen with contrast showing minimal ascites in the abdomen and pelvic cavity. The Foley was located outside the bladder, and bladder perforation was suspected

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**FIGURE 2** Cystography revealed no evidence of bladder rupture and the Foley balloon lodged in the diverticulum of the urinary bladder

A distended bladder raised concerns of neurogenic bladder or acute urinary retention secondary to tip of the Foley sticking into the bladder diverticula. The patient was admitted to the general ward for treatment of urosepsis and was discharged 27 days later.

Bladder diverticulum can be classified as congenital and acquired types. Congenital bladder diverticulum happened to 1.7% of children.<sup>2</sup> They often don't need to be managed. Acquired bladder diverticula are most often originated from a block in the bladder outlet (such as from a hyperplasia prostate or stricture in the urethra), the bladder not working well owing to nerve injury or, rarely, from prior bladder surgery.<sup>3</sup> With acquired diverticula, many pouches often reveal and commonly seen in older men. Bladder diverticulum usually does not require surgical intervention. Bladder diverticulum is a condition

where the bladder mucosa and submucosa herniate through the muscle layer of the bladder wall.<sup>1</sup> It is different from bladder perforation, which may require emergent surgical intervention. Sometimes, it can be difficult to distinguish between the two diagnoses using CT images. Cystography is a helpful tool to distinguish these two conditions by using radiocontrast instillation directly into the bladder and detecting whether there is extravasation of contrast.

In our case, the patient's caregiver complained about decreased urine output, and laboratory testing found leukocytosis and pyuria. Besides treating for urosepsis, persistent lower abdominal distension and a palpable mass in the lower abdomen were found on physical examination. CT imaging was performed and showed a Foley balloon lodged in the bladder diverticulum, mimicking bladder perforation, because ascites were noted surrounding the bladder. Another advantage of cystography is its ability to distinguish bladder diverticulum from bladder perforation. It demonstrated no extravasation in urogram, indicating bladder diverticulum rather than bladder perforation. If the patient's urine output is reduced clinically, it is necessary to check whether the foley outside the perforated bladder or the tip of foley stuck in the bladder diverticulum.

#### CONFLICTS OF INTEREST

We declare there is no conflict of interest statement.

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#### REFERENCES

1. Fox M, Power RF, Bruce AW. Diverticulum of the bladder-presentation and evaluation of treatment of 115 cases. *Br J Urol.* 1962;34:286-298.
2. Blane CE, Zerlin JM, Bloom DA. Bladder diverticula in children. *Radiology.* 1994;190(3):695-697. <https://doi.org/10.1148/radiology.190.3.8115613>
3. Idrees MT, Alexander RE, Kum JB, Cheng L. The spectrum of histopathologic findings in vesical diverticulum: implications for pathogenesis and staging. *Hum Pathol.* 2013;44:1223-1232.