

Bladder Diverticulum with a Stone - An Unusual Complication of Repair of a Vesicovaginal Fistula

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INTRODUCTION

Vesicovaginal fistula (VVF) is the most common urogenital fistula. Obstructed labor and pelvic gynecological surgery are the most common etiologies. Repair can be done using either by a transvaginal or transabdominal approach with a successful rate more than 90% [1]. Repeated repair can be used for recurrent fistulas. We present a case of VVF, which was repaired successfully without a recurrent fistula after two operations, but a bladder diverticulum and stone formation developed four years later.

BRIEF HISTORY

A 51 year-old woman came to our clinic with complaints of micturition pain and frequency of urination off and on for several months in spite of treatment with oral antibiotics at local clinics. She had no history of neurogenic voiding dysfunction. She had two history of VVF repairs after a complicated hysterectomy at another hospital four years previously. The first repair was done transvaginally, but it failed. The second repair was done with a transabdominal approach without recurrent fistula. In the past year, she had dysuria with urinary frequency. Urinalysis showed pyuria and a urine culture revealed enterococcus infection. A voiding cystogram showed an abnormal accumulation of contrast medium over the posterior aspect of the bladder base

(Fig. 1). Under the impression of bladder diverticulum, a cystoscopy was done which showed a large calculi (Fig. 2) fixed in the bladder base. No other obvious abnormality was identified. She then had an endoscopic cystolithotripsy. After removal of the bladder stone, a bladder diverticulum with a stone (Fig. 3) within it was found, which was proved by abdominal computed tomography (Fig. 4). The patient underwent transabdominal excision of the bladder diverticulum with removal of the stone. A postoperative cystogram (Fig. 5) one month later demonstrated no recurrent fistula, or diverticulum.

DISCUSSION

In the industrialized world, the most common cause (>75%) of VVF is injury to the bladder during gynecologic, urologic, or other pelvic surgery [2]. Surgical repair for a VVF may be performed through a transvaginal or transabdominal (transvesicle) approach with a successful rate more than 90%. Repeated repair with or without interposition of a flap is needed in large or complicated fistulas [3]. In addition to recurrent VVF and urinary tract infection, another rare complication reported in one patient is a vesicocervical fistula [4]. In our case, the sequelae of bladder diverticulum might have resulted from inadequate repair of the bladder wall with herniation of the bladder mucosa [5] and stone formation from long-term urinary stasis within the diverticulum. For prevention of this complication, watertight repair of the bladder wall with



Fig. 1. Bladder diverticulum (arrow).

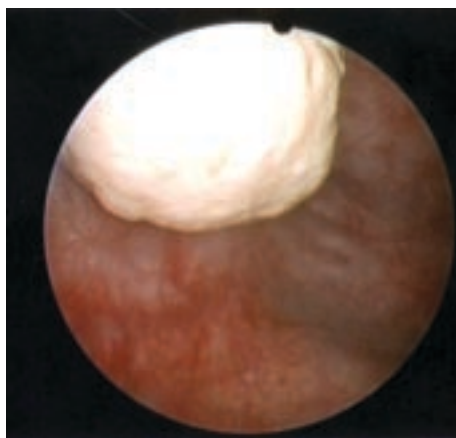


Fig. 2. A bladder stone fixed in the base.

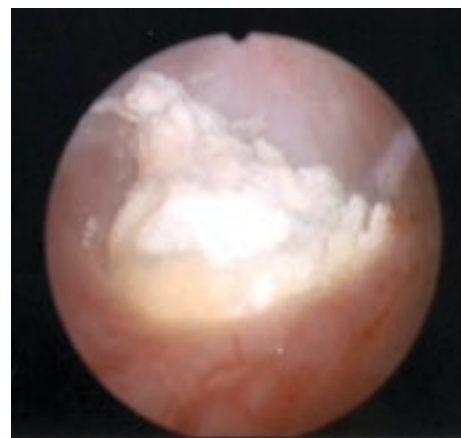


Fig. 3. A residual stone within the bladder diverticulum.

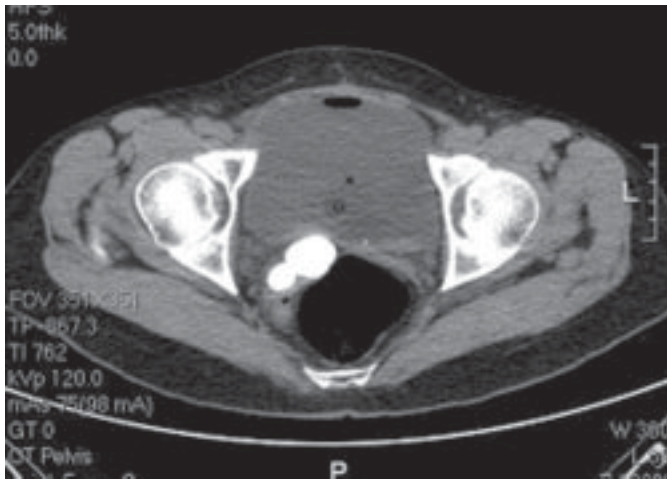


Fig. 4. Bladder diverticulum with a stone located over the bladder base.

close approximation of the detrusor muscle and adequate drainage are mandatory since urinary leakage could lead to local infection and result in failure of the repair.

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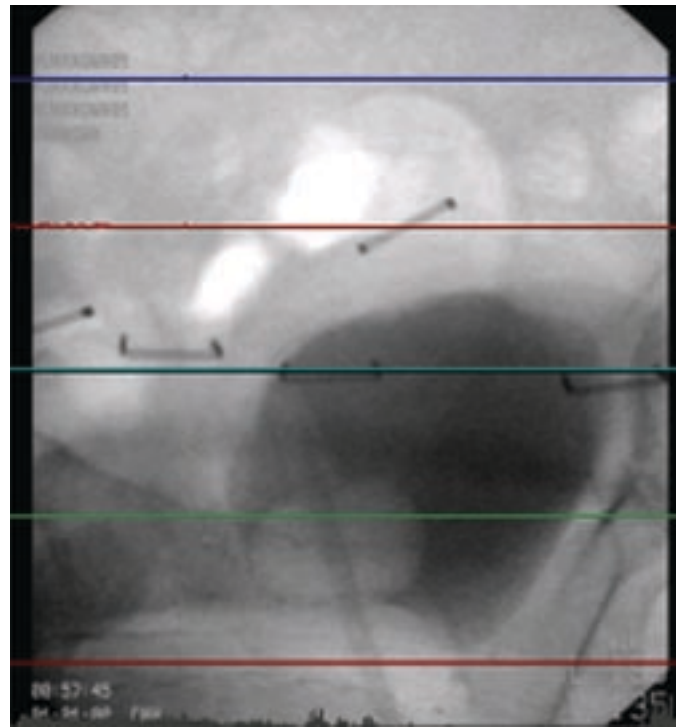


Fig. 5. Postoperative cystogram.