Urethral Diverticulum and Giant Urethral Stones Occuring After Scrotal Flap Urethroplasty

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Case report

Urethral diverticula and primary urethral stones are rare pathologies. We report a case with giant urethral stones in a urethral diverticulum formed after scrotal flap urethroplasty.

Twentyeight years old male patient was referred to our urology out-patient clinic with the symptoms of dysuria, hesitancy, micturition, intermittency and terminal dribbling. He had a traffic accident when he was 10 years old (18 years ago) and posterior urethral injury caused by this accident was repaired by using scrotal skin flap in The United Kingdom. Physical examination displayed a solid mass that was palpable in the perineum. Digital rectal examination confirmed the presence of a stone-hard mass whose proximal end could not be reached. Routine biochemical and hematological analyses were normal. Urinalysis showed 15-20 leukocytes and 18-20 erythrocytes in every field. Intravenous pyelography showed normal upper urinary tract and bladder, but in the posterior urethral region two radioopaque zones were present. Each of these was approximately 60x40 mm and in contact with each other (Figure 1).

Figure 1. Radiopague images in the posterior urethra.

Anterior urethra was distorted and mucosal edema was observed in urethroscopy. Due to postpubertal hair growth on the scrotal skin that was used to repair former urethral injury, a ball of hair and stones were observed in bulbar urethra. The giant stones were in the urethral diverticulum but since they were big enough to obstruct the urethra it was not possible to reach to the bladder endoscopically.

Under general anesthesia by perineal incision urethra and diverticulum were dissected totally. Diverticulum was resected totally and the stones were removed. There was no hair in the remaining urethra and it was wide enough to form a tube over a 22 F Foley catheter. The dimensions of the stones that were removed were similar, (Approximately 60x40x40 mm, Figure 2).

Discussion

Urethral diverticula of the male urethra are relatively uncommon pathologies. The majority are secondary to urethral infection, obstruction trauma or surgery, but approximately 10-20% are congenital (1-3). In the same way, primary urethral stones are rare pathologies. And primary urethral stones are formed mainly by urinary stasis, urethral diverticula and urethral strictures in the postoperative period; stones after hair growth over the pediculated skin flaps were also reported (4).

After performing urethroplasty by using pediculated scrotal flap, urethral passage may be obstructed by hair growth over the scrotal skin and this may cause the developement of diverticula and stone formation. By presenting the giant urethral stone and diverticula case we tried to point out to one of the disadvantages of the pediculated scrotal flap reconstruction of urethral strictures.

Though primary urethral stones are not seen very often, they are encountered in Middle East and developing countries (5). Localization and contents of the stones may vary. The localization of urethral stones may be in posterior urethra (most common), bulbous urethra, scrotal and penile region or fossa navicularis. In our case the stones were in the posterior urethra. In one of the previous reports (6) a stone that weighed 35 g was observed in dilated prostatic urethra.

There are some reports suggesting that congenital diverticula are up to 75 % when compared with the acquired

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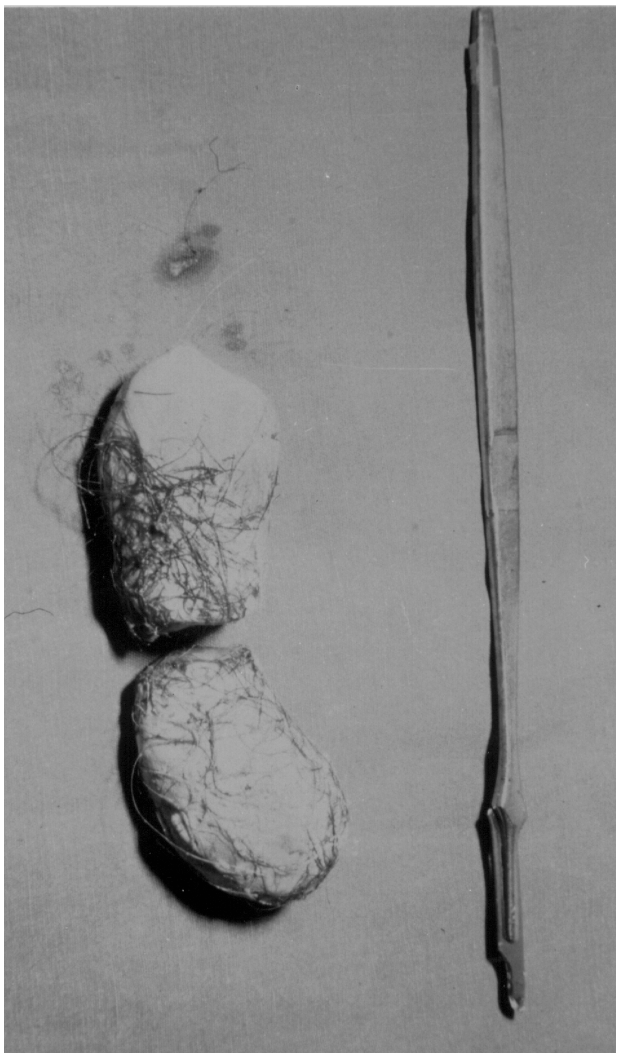

Figure 2. Removed stones from the posterior urethra

diverticula (7). Urethral diverticula are not seen very often as urethral stones. In our case it is possible to discuss which one is primary; the stone or the diverticulum. The possibility of primary stone formation because of the hair growth over the scrotal flap and secondary diverticulum formation can be considered. In such instance, the diverticulum is supposed to be located proximal to the obstructing stone. Thus, stone formation is more likely to be secondary to the diverticulum in our case.

Urethral stones and diverticula are often encountered together and the symptoms are dysuria and intermittency and terminal dribbling. Acute urinary retention may occur and cause pain in the perineal region and rectum (7). Although they are generally accepted as local pathological conditions, they may cause urinary obstruction, septicemia and renal insufficiency (8).

As mentioned before former urethral surgery is an important etiological factor in primary urethral stone and urethral diverticulum. As in the presented case, especially in the urethroplasty performed by using scrotal skin flap urethral hair growth, stone and diverticulum formation may occur as severe complications. In a study that was performed by Rogers et al. (4), of the 211 scrotal flap urethroplasty patients, 194 were followed up up to 3 to 20 years. Recurrent stricture occurred in 14 patients (7%), and some of them were reoperated as lateas 15 years following the first operation and also it is reported that in 6 patients (3%) stones formed because of hair growth, requiring treatment with skin flap revisions. In urethroplasties which are performed by using scrotal flap, epilation may prevent at least some of the probable complications.

As a conclusion, for one-stage operation, scrotal flap may not be a suitable graft in urethroplasty, especially in pre-pubertal urethroplasties since there is no chance for epilation which increases the risk of postpubertal complications. Urethroplasties should be performed after carefully considering the long term results and complications.

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