Functional medicine

Large bladder stone as a complication of AUS insertion and bladder augmentation

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Introduction

Urinary incontinence is a major concern that directly effects quality of life in patients with neurogenic bladder due to myelomeningocele (MMC). Augmentation cystoplasty is a well described method for surgical management of neurogenic detrusor over activity when more conservative methods have failed. 1 Although use of bowel as part of the urinary tract can be very beneficial in terms of improving patient’s symptoms, it often results in long-term complications such as bladder calculi and infections. The incidence of bladder calculi ranges from 10 to 52% in different studies. 2,3

In this study, we report case of a patient who underwent reconstructive surgery during adolescent and was later on diagnosed with very large bladder stones.

Case presentation

33-year-old gentleman with previous history of bladder augmentation and AUS insertion in adolescence on background of neurogenic detrusor over activity and MMC presented to emergency department with severe urosepsis. He was managed conservatively with IV Abs and needed admission to ICU for supportive measures. A CT scan showed a large bladder stone with maximum measurements of 16.8cm by 9.2cm (Fig. 1). An elective open cystolithotomy was performed during which a single stone weighing 1.66kg was removed as well as several smaller stones (Figs. 2 and 3). Suprapubic and urethral catheters were placed and removed 1 and 2 weeks after the operation respectively. He recovered well and was discharged. A cystoscopy excluded erosion of the AUS cuff and the components were intentionally kept out of the operative field during cystolithotomy. Although the CT demonstrates loss of fluid from the AUS pressure regulating balloon, the patient is

Fig. 1. CT scan showing 16.8 × 9.2cm stone in bladder.

Fig. 2. Large Bladder stone removed by open cystolithotomy.
continent with clean intermittent self-catheterization (CISC).

Discussion

Aetiology of bladder stone formation in patients with augmentation cystoplasty is likely to be multifactorial. Copious mucus production that can act as a nidus for stone formation is one factor of these. In these patients, daily saline water irrigations can help prevent nidus formation. Another factor is association of bladder stones with recurrent UTIs for which low dose antibiotic prophylaxis and sterile catheterization techniques can be used. Bladder neck procedures aiming at improving continence and abdominal wall stomas have also been associated with increased bladder stones. In one series bladder neck surgery increased rate of stone formation to 14.7% from 6% in patients with cystoplasty.

AUS are commonly used to manage incontinence in conjunction with bladder augmentation in patients with MMC related neurogenic bladder and sphincter weakness. The disadvantage of AUS in these patients is a high risk of revision, replacement and/or removal, of up to 60%. Another problem is the relative young age of these patients, that predisposes them to multiple revisions over their life.

This case is unique because of the massive stone burden. This is one of the larger bladder stones reported in literature. The patient was previously lost to follow up, and only presented when symptoms of severe urosepsis was noticed.

Conclusion

This case shows the importance of long term follow up in patients with MMC who undergo augmentation cystoplasty and AUS insertion. It is important to advise the patients and their families about the potential and severity of common complications and advocate for compliance with regular follow ups with history and clinical examinations and intermittent imaging modalities such as annual ultrasound scans.

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