Trauma and reconstruction

Complete bladder eversion through a vesicovaginal fistula

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Introduction

Complete eversion of the urinary bladder is rare and can pose a management challenge owing to limited information in the literature and no standardized treatment recommendations. We report a case of complete urethral erosion creating a vesicovaginal fistula and bladder eversion presenting concurrently with uterine procidentia. We offer a management option to achieve symptomatic relief of urinary incontinence and uterine prolapse for poor surgical candidates.

Case presentation

An 89-year-old Caucasian female presented to the emergency room complaining of generalized weakness and pain between her legs. Physical examination revealed complete uterine procidentia. The urethral erosion was significant for a large amount of hemoglobin and moderate leukocyte esterase. The patient was admitted for management of urinary tract infection and received 2 g of IV ceftriaxone. A CT scan of the abdomen with contrast revealed prolapse of the urinary bladder caudal to the level of the urogenital diaphragm with large calcifications suggestive of bladder calculi (Fig. 1). There was no associated hydronephrosis and serum creatinine was normal at 0.73 mg/dL. The bladder prolactia was manually reduced, and the patient was scheduled with Gynecology for pessary placement and with Urology for vesicolitholapaxy. The patient was discharged to a skilled living facility in stable condition.

Upon follow-up with her gynecologist, the patient was noted to again have uterine procidentia as well as a mass protruding from the perineum located anterior to the uterus (Fig. 2). The mass caused the patient significant pain, and she was directly admitted to the hospital for pain control and treatment of the mass. Physical examination showed a large 6 × 6 cm erythematous mass with rugae and painful to touch. Bedside physical examination was limited due to patient discomfort, so the patient was consented for a pelvic examination under anesthesia, cystolitholapaxy, reduction of bladder eversion, and possible perineoplasty.

The patient was taken the operating room, placed under general anesthesia in the dorsal lithotomy position. The patient had significant anterior vaginal wall erosion creating a vesicovaginal fistula allowing the bladder to evert through the fistula. Bilateral ureteral orifices were appreciable with urine efflux upon examination of the everted bladder. Multiple bladder calculi were identified and manually extracted. Due to the discovery on exam of complete erosion of the urethra, it was determined that closure of the bladder would not be feasible. The bladder was digitally reduced, and the anterior vaginal wall and bladder were closed with interrupted 2-0 PDS after ensuring that the ureteral orifices were not obstructed. An opening at the superior extent of the closure was left to facilitate urinary drainage. The patient’s preoperative prealbumin was 12 g/dL (20–40 g/dL) and albumin was 2.4 g/dL (3.4–5 g/dL). Due to her poor nutritional status, it was felt she would be at high risk for poor wound healing and breakdown of a definitive reconstruction. A perineoplasty was performed at this point until a more formal discussion with the patient and her power of attorney regarding urinary diversion, bladder neck closure with placement of suprapubic tube, and surgical treatment of uterine procidentia. The posterior perineal body was incised and rebuilt with interrupted 0 PDS followed by a layer of interrupted 2-0 PDS (Fig. 3). A 2 ¾ inch pessary ring was then inserted to reduce risk of recurrent uterine prolapse. The patient was discharged back to her skilled living facility in stable condition on postoperative day 1.

Discussion

Complete bladder eversion with uterine procidentia is rare. A
Medline search was conducted from January 1950 to August 2017 using the search terms “bladder,” “eversion,” and “prolapse.” This Medline search resulted in only eight cases. The mechanism of bladder eversion is unclear. There are several proposed predisposing factors that may lead to bladder eversion including multiparity, prolonged labor, and menopause particularly in postmenopausal women with chronic catheterization. Urethral pathology such as infection, trauma, and urethral sphincteric weakness have also been proposed as predisposing factors leading to bladder eversion.

There are four types of bladder eversion that had been described in the literature, including eversion of bladder diverticulum, eversion of bladder mucosa only, partial eversion of all layers of bladder wall, and total eversion of the bladder.

To date, there are no standardized recommendations for treatment of complete bladder eversion. Kalorin, CM, et al. (2009) proposed a management algorithm, and recommends attempting external transurethral reduction, and if unsuccessful, suprapubic reduction with insertion of suprapubic tube, cystoectomy, urethral support procedure, and surgical treatment of any other prolapsing organs. However, this may not be feasible in patients like ours who may not be surgically optimized to tolerate more invasive procedures. To our knowledge, the most recent case report on bladder eversion with concurrent uterine procidentia was published by Kim, JH, et al, who described a 75-year-old multiparous, postmenopausal female who received a manual reduction of the bladder, vaginal hysterectomy, suprapubic cystostomy, and urethral closure. This procedure also included the insertion of retropubic prolene mesh to reinforce the bladder neck and to prevent recurrence. The patient had no recurrence after 6 months of follow-up.

In our case, vaginal reconstructive and obliterator procedures were considered, but because of the poor performance status of the patient, the decision was made to postpone a longer and more complex procedure for a later date. Reduction of the uterine procidentia, partial closure of the bladder, perineoplasty, and insertion of pessary ring enabled temporary symptomatic relief for the patient until the patient is able to improve her performance status. The plan for a future treatment includes a LeFort colpocleisis, perineorrhaphy, and complete bladder neck closure with ileal conduit urinary diversion. However, upon discussion with the patient and her power of attorney, the decision was for no further surgical interventions. At one-week follow-up, the patient’s symptoms improved dramatically, and her perineum was healing appropriately. The plan is for regular visits every 3 months for pessary maintenance and follow-up.

Conclusion

Vaginal reduction of uterine procidentia with partial bladder closure and perineoplasty is a feasible temporary option especially in patients unable to tolerate a longer and more complex obliterator procedure with urinary diversion procedure.

Consent

Written consent was obtained from the patient.
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Appendix A. Supplementary data
Supplementary data to this article can be found online at https://doi.org/10.1016/j.eucr.2018.11.003.

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