



Case Report

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Struvite “Sand” in the Vagina as Diagnostic Factor for New-onset Vesicovaginal Fistula and Pessary Management When Present

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Abstract

Background: In cases of pessary neglect, complications can include vaginal ulcerations, discharge, bleeding, discomfort, voiding and defecatory dysfunction, and fistula formation. In rare occurrences there are case reports involving vaginal stones with the presence of a vesicovaginal fistula (VVF). Case Report: We present the case of a 93-year-old with concern for a possible VVF who required pessary use for her prolapse. Conclusion: This is a unique case since there are no current case reports or management guidelines of sand-like exudate in patients with routine pessary care.

Keywords: Vesicovaginal fistula; Pelvic organ prolapse; Struvite; Pessary management

Abbreviations: VVF: Vesicovaginal Fistula; POP: Pelvic Organ Prolapse

Introduction

Vesicovaginal fistula (VVF) is a known complication of pessary placement, however, most cases are consistent with lack of pessary care. Other complications include vaginal ulcerations, discharge, bleeding, discomfort, voiding and defecatory dysfunction, and fistula formation, however exact complication rates are largely unknown. One oft-cited study quotes a 56% complication rates, however, none were fistulae [1]. Although several case reports of pessary-related fistulae exist, most are in the setting of neglect [2].

Case studies about vaginal stones with the presence of VVF exist, they are rare occurrences, and most case reports describe larger appearing stones [3,4]. The interaction of urinary salt ions, pH, and temperature results in the formation of the microscopic crystals, eventually creating a bladder stone [5]. No reports of copious sand-appearing exudate exist in the literature, and none to guide management of pessary care when present. Furthermore, as described above, most cases of fistula do not occur in a patient with long-term pessary use with regular pessary maintenance.

Case Report

A 93-year-old with vaginal prolapse maintained with ring pessary for the last 6 years, was being evaluated for new

incontinence, in retrospect likely the development of a VVF. She had a history of pelvic organ prolapse (POP) and has been managed conservatively with a ring pessary since age 87. She also has history of colon cancer requiring colon resection and anastomosis, and her postoperative course was complicated by an abdominal abscess and wound dehiscence.

She had been receiving regular pessary care with her provider every 3-6 months, and, patient began to complain of copious thin watery discharge. Providers expressed a concern for possible fistula, but none was noted on vaginal exam. Patient noted worsening urinary incontinence, with constant leaking, and pessary was changed from size 1 to size 0. Patient returned with complaints of hematuria. Exam after lavage revealed no heme or erosions, and culture sent from straight catheter and from a vaginal collection were both *P. stuarti*, further supporting presence of a likely fistula. Estrace was initiated.

The patient began to have copious beige, gritty sand-like debris noted in the posterior vaginal vault (Figure 1). Debris was sent to pathology, which resulted as inflammatory debris, insufficient for diagnosis. Creatinine sent on fluid was 14.0mg/dl, with reference range for first morning void being 28-217mg/dL. A Pyridium test

was inconclusive. During consultation with a urogynecologist, a 2mm fistula was noted at the vaginal apex, after clearing the sand-like debris, and the anterior vaginal wall appearing intact. Recommendation was to stop pessary use for a period of time; however, patient declined. She was also unable to apply vaginal estrogen routinely. Given her complex surgical history and medical state she is not a surgical candidate, she was managed conservatively with more frequent vaginal lavage and pessary cleaning (Figure 2).



Figure 1: Sand-like debris retrieved from the vaginal vault of the patient.



Figure 2: Minimal debris on pessary with no staining on fox swab found during exam.

Discussion

There are case reports in the literature regarding vaginal and vesical stones caused by VVF. One review of the literature analyzed 1190 cases of pessary use and reported rare complication. In this analysis the majority of rare VVF reported were with the use of a Gellhorn or Shelf pessary [11]. There were no vaginal stones caused by VVF. In our case, it was not a single stone that was created but copious fine sand-like crystals. Although there are known risks of fistula formation in patients using pessaries, most are associated with neglect and lack of pessary maintenance. In one case report an 8cm calcified vaginal stone was found in a 56-year-old patient who had neglected care of her pessary over the course of a year [4].

For elderly women, the risk of VVF is mainly associated with surgery and/or radiation, with fistula rates ranging from 1.4-

9% depending on order of surgery and radiation, with greater complication rates if surgery is followed by radiation therapy [5]. The fistulas associated with surgery are mainly due to injury to the bladder at the time of surgery, which accounts for 90% of VVF in the industrialized world, and most present with leakage of urine 5-10 days postoperatively [6]. Patients with radiation have been known to develop VVF at a distant interval, up to 20 years later, after pelvic radiation for malignancy, however this patient did not receive radiation, and her surgery was remote, having occurred 4 years prior to the fistula formation.

The literature notes that prevention of fistulae is key in pessary use, as well as regular follow-up and maintenance. If a patient is unable to remove a pessary on her own, she has to have regular follow-up; although there are no clear guidelines. Manufacturers recommend follow-up every 4-6 weeks on package inserts, but other studies have noted safe management with visits every 3 months for the first year after fitting and every 6 months in subsequent years with no serious complications [7,8]. Erosions and lesions should not be ignored and should be treated with pessary removal and vaginal estrogen cream until ulcers heal. The only consideration our case is that she was not on maintenance estrogen cream; however, given her complex surgical history, it is unclear if estrogen would have prevented formation of a VVF.

No guidelines exist on medical or expectant management of VVF in the extremely elderly. One case in the literature reported a delayed VVF in an 82-year-old managed with a urinary diversion via ileal conduit [9]. Another case report, of a VVF resulting from a well-cared-for pessary after 12 years of use performed a Latzko fistula repair and LeFort colpocleisis with subsequent complete resolution of POP and VVF [10]. We postulate, however, that with frequent pessary cleanings and lavages of the vagina to remove struvite sand, a surgical procedure can be avoided.

Conclusion

To conclude, pessaries are safe and play an important role in managing pelvic organ prolapse. Severe complications such as rectovaginal fistula and VVF are rare, with most related to neglect; however, in patients with prior pelvic surgery, especially if they also received radiation therapy for malignancy, fistulae are also possible.

Acknowledgement

None.

Conflict of Interest

Authors declare no conflict of interest.

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