Successful seminal vesiculoscopic lithotripsy of seminal vesicle stone: A case report and literature review

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ABSTRACT
Seminal vesicle stones are rare; the first case was reported in 1928. We present a case of 51-year-old male with bloody semen and perineal discomfort for several years. He received seminal vesiculoscopic lithotripsy successfully; his recovery and improvement of symptoms were satisfactory. Diagnosis depends on an initial pelvis X-ray, sonography, and further computed tomography/magnetic resonance imaging if necessary. Traditional surgery is open seminal vesiculectomy. Seminal vesiculoscopic lithotripsy can be viewed as a new intervention of choice.

1. Introduction
Although urolithiasis is a common disease in the urologic field, seminal vesicle stones are rare. We present a patient with a seminal vesicle stone who received seminal vesiculoscopic lithotripsy successfully. His recovery and improvement of symptoms were satisfactory.

2. Case Report
We present the case of a 51-year-old male with complaints of bloody semen, voiding frequency, and perineal discomfort for several years. No previous infection history was noted. An initial survey showed no tenderness finding on digital examination, no pyuria, and normal Prostate-Specific Antigen (PSA) value (3.2 ng/mL); kidney, ureter, and bladder radiography showed pelvic calcification only. No definite cause of his discomfort can be found; with the purpose of deriving additional information, transrectal ultrasound was arranged and revealed dilated bilateral seminal vesicles, a right seminal vesicle stone, and normal prostate size (14.7 mL; Fig. 1). Urodynamic study demonstrated 12.6 mL/second as the maximal flow rate in uroflowmetry, 19 cmH20 maximal vesicle pressure, and 311 mL of bladder capacity in a pressure-flow study.

Although lower urinary tract symptoms improved, unmanageable bloody semen was still noted when receiving a regular outpatient department follow-up. After discussion with the patient, he underwent cystoscopy and seminal vesiculoscopy for examination of the lower urinary tract and seminal vesicle stone management. We used a 4 Fr. ureteroscope as the seminal vesiculoscope. The orifice of the verumontanum was identified first; then, a guide wire was gently introduced into the lumen. The ureteroscope under minimal pressure of fluid irrigation reached the seminal vesicle without marked resistance; the bilateral ejaculatory ducts and seminal vesicle tracts were identified clearly under endoscopy.

All of the stones of the right seminal vesicle were fragmented by a holmium laser with 600 micron fiber and removed by a stone basket endoscopically (Fig. 2).

The complete surgery took 60 minutes and was very well tolerated by the patient. The surgery was uneventful. The hemospermia disappeared after his recovery from surgery.

3. Discussion
Stones in seminal vesicles are clinically rare, and the first case was reported in 1928. The definite mechanism of seminal vesicle stone formation is still unclear. Infection, urinary tract obstruction, anatomic anomaly, or urinary reflux into ejaculatory ducts can play a role in the stone formation.1–3 Generally, seminal vesicle stones may contribute to hemospermia, perineal pain, and painful ejaculation.1

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Pelvis X-ray can supply an initial evaluation of the genitourinary tract, as transrectal ultrasound can demonstrate the relative anatomy of the prostate and seminal vesicle without radiation exposure. When the above examination cannot offer definite findings of the prostate or seminal vesicle area, pelvic computed tomography and magnetic resonance imaging are the image examinations of choice. Magnetic resonance imaging is sometimes preferred, owing to its detailed demonstration of the anatomic structure and inner lesion of the prostate and seminal vesicle. Nevertheless, variation of false-positive rates has been reported previously. Under these circumstances, contemporary endoscopy provides direct visualization and further access to intervention. Likewise, postoperative complications, as with other endoscopic surgeries, are epididymitis, incontinence, retrograde ejaculation, and rectal injury.

Traditional surgical intervention is open seminal vesiculectomy, but a harmful influence on fertility is a possibility. Moreover, access to the seminal vesicle is complicated anatomically. Hence, the practice of transurethral seminal vesiculoscopy is more and more emphasized; it is a procedure with ureteroscopic usage for straight visualization and intervention of the seminal vesicle. The first ex vivo seminal vesiculoscopy was reported in 1996 and the first case of endoscopic lithotripsy was performed in 2005.

Currently, diagnosis and treatment of seminal vesicle stones are clinically satisfactory. Anatomic studies, ex.; sonography, computed tomography, and magnetic resonance imaging, but no urodynamic or functional studies, ex.; urodynamic study, voiding cystourethrogram, and retrograde urethrogram, are routinely performed. Supplementary research of the etiologies seems to be the missing piece of the jigsaw puzzle, which may exhibit another horizon of this atypical lithiasis. Further survey prior to surgery might reveal more functional abnormalities, in addition to anatomic abnormalities. For instance, urinary reflux, sphincter insufficiency, and bladder outlet obstruction may result in the formation of seminal vesicle stones. Statistical proof is practicable and essential for clarifying the precise causes. Treating the disease is one thing, and searching for the potential cause is another. The more knowledge we learn from the disease, the more we can do about it; adjuvant medication for reducing refractory recurrent seminal vesicle stones and annoying symptoms may be possible in the future.

4. Conclusion

A seminal vesicle stones is a rare disease which causes frustrating discomfort clinically. Endoscopic management is the predominant method, instead of traditional bilateral vesiculectomy, yet the etiologies we know are limited and need further study.
Conflicts of interest

The authors declare that they have no financial or non-financial conflicts of interest related to the subject matter or materials discussed in the manuscript.

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