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Trauma and reconstruction

Transurethral unroofing of a Cowper's syringocele

Fenizia Maffucci^{*}, Jessica Clark, Anika Rastogi, Justin Friedlander, Jay Simhan

Fox Chase Cancer Center, Department of Urology, Philadelphia, PA, 333, Cottman Ave, Philadelphia, PA, 19111, USA

ABSTRACT

Syringoceles are cystic dilations of the bulbourethral gland, also known as Cowper's gland. Syringocele is a rare pathology with no standard treatment. Herein, we report the diagnosis and endoscopic management of an imperforate syringocele causing bothersome urinary symptoms in an adult male patient. We present our technique for transurethral holmium laser unroofing of a syringocele as a feasible treatment option.

1. Introduction

Syringoceles are cystic dilations of the bulbourethral gland, also known as Cowper's gland.¹ Syringocele is a rare pathology with variable presentations in adults, and little is known about optimal management.^{1,2} Surgical techniques to address symptomatic syringocele described in academic literature include open perineal procedures,^{3,4} laparoscopic marsupialization,⁵ and endoscopic interventions with sharp instruments, electrocautery, or lasers.^{6–11} Published data on these techniques are confined to case reports and limited case series. Herein, we present a case report with video accompaniment on the diagnosis and endoscopic management of an imperforate Cowper's syringocele causing bothersome urinary symptoms in an adult male patient. We present our technique for transurethral holmium laser unroofing of a syringocele as a feasible treatment option.

2. Case presentation

A 20-year-old male with no relevant past medical history presented to our clinic with dysuria. Approximately nine months prior to presentation, he was diagnosed with Trichomoniasis. Despite appropriate treatment with antibiotics, he continued to have bothersome symptoms including dysuria, perineal pain, urinary frequency, post-void urinary dribbling, and sensation of incomplete emptying. Repeat sexually transmitted infection (STI) testing, urine culture, and semen culture remained negative. Physical examination of his genitalia was grossly normal.

A penoscrotal ultrasound showed a cystic lesion at the base of the penis. Subsequent pelvic Magnetic Resonance Imaging (MRI) revealed a 2.2 cm elongated cystic structure at the ventral aspect of the bulbar urethra with T2 signal hyperintensity. A retrograde urethrogram

showed non-specific tapering of contrast at the bulbar urethra. Cystoscopy ultimately revealed a mucosal outpouching in the posterior aspect of the bulbar urethra, consistent with a diagnosis of syringocele.

The patient elected to proceed with surgical management via transurethral unroofing of the syringocele.

In the operating room, the patient was anesthetized and placed in dorsal lithotomy position. A 22-French rigid cystoscope with a 30-degree lens was passed into the urethra. We deployed a 550- μ m holmium laser fiber. With settings of 0.5 J (J) and 5 Hz (Hz), the syringocele was unroofed. We lasered the mucosal edges of the syringocele with settings of 0.3 J and 30 Hz to achieve hemostasis. The cystoscope was removed and a urethral catheter was placed. The catheter was removed after 72 hours, and the patient was able to urinate without issues.

The patient had an uncomplicated post-operative course. 3 months post-operatively, the patient reported resolution of prior bothersome urinary symptoms. He did not develop urinary tract infection, hematuria or need for further intervention. On cystoscopy, there was no evidence of recurrent syringocele or stricture.

3. Discussion

Syringoceles may be secondary to congenital or acquired (e.g., post-traumatic or inflammatory) etiologies.^{1,2} Perforate syringoceles can have patulous ostia and appear as diverticula, while imperforate syringoceles can resemble bulging sub-mucosal cysts.¹

Syringoceles present with variable symptoms depending on the degree to which they disrupt or distort the flow of urine across the urethra. Many patients with syringoceles will be asymptomatic, while others will have varied complaints of post-void dribbling, urethral discharge, perineal pain, hematuria, dysuria and obstructive voiding symptoms.¹

Differential diagnosis can include ectopic ureter, urethral valves, or

^{*} Corresponding author. Fox Chase Cancer Center Department of Urology, 333, Cottman Ave, Philadelphia, PA, 19111, USA.

E-mail address: Fenizia.maffucci@tuhs.temple.edu (F. Maffucci).

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urethral diverticulum.¹ Workup will often involve MRI, fluoroscopic studies of the urethra, and cystoscopy.²

Given their rarity and heterogenous presentations, syringoceles have no accepted standard treatment.^{1,2} For patients with minimal to no bothersome symptoms, a period of observation is reasonable.^{6,7} For those with persistent bothersome symptoms, surgical interventions may be considered.

Open perineal surgery,^{3,4} laparoscopic marsupialization,⁵ and endoscopic procedures with sharp instruments, electrocautery, or lasers^{6–11} have been described in academic literature for the treatment of syringoceles. Published data on these methods are confined to case reports and limited case series.

Less invasive transurethral endoscopic procedures are generally favored for the first-line surgical treatment of syringoceles, however there is no consensus on optimal technique. Bevers et al. published a case series in 2000 which described durable resolution of symptoms in all four patients who underwent transurethral unroofing of syringocele with a Collins knife.⁶ Awad et al. published a case report in 2016 describing the successful treatment of a symptomatic syringocele in an adult male with loop cautery.⁷ The holmium laser has also been utilized for syringocele unroofing in several case reports.^{8–11}

We performed unroofing of a syringocele with the holmium laser, and our patient remained asymptomatic at 3 months follow-up. We believe utilizing a holmium laser for this indication provides more precise control of dispensed energy in the narrow and delicate urethra as compared to the more cumbersome loop or Collins knife, theoretically decreasing the risk of future stricture formation. We contribute this case report with video accompaniment including specific details on unique laser settings to a small body of literature on this topic.

4. Conclusions

Transurethral laser unroofing is a viable treatment option in the management of imperforate Cowper's syringocele. We contribute this case report with video presentation including specific details on unique laser settings to a small body of literature on this topic. Further studies are needed to assess the long-term sequelae of syringocele treatment modalities.

CRedit authorship contribution statement

Fenzia Maffucci: Conceptualization, Methodology, Writing –

original draft, Writing – review & editing. **Jessica Clark:** Writing – original draft, Writing – review & editing. **Anika Rastogi:** Conceptualization, Writing – original draft. **Justin Friedlander:** Conceptualization, Methodology, Supervision, Writing – review & editing. **Jay Simhan:** Conceptualization, Supervision, Writing – review & editing, Methodology.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.eucr.2024.102866>.

References

- Javed S, Shahid MH, Omar I, Gupta S, Khan AZ, Kaiser A. Cowper's syringocele: a literature review. *Cureus*. 2022;14(12), e32583. <https://doi.org/10.7759/cureus.32583>. Published 2022 Dec 16.
- Ortega DG, Rojas EI, Lizana M, Poncel J, Rosenberg E, Rosenberg S. Cowper's gland syringocele in an adult: the great imitator. *Urol Case Rep*. 2022;46, 102306. <https://doi.org/10.1016/j.eucr.2022.102306>. Published 2022 Dec 16.
- Sharbaugh AJ, Yecies TS, Rusliko PJ, Dasyam AK, Turner 2nd RM. Cowper's gland syringocele. *Urology*. 2018;119:e3–e4. <https://doi.org/10.1016/j.urology.2018.05.037>.
- Santin BJ, Pewitt EB. Cowper's duct ligation for treatment of dysuria associated with Cowper's syringocele treated previously with transurethral unroofing. *Urology*. 2009;73(3). <https://doi.org/10.1016/j.urology.2008.03.020>.
- Cerqueira M, Xambre L, Silva V, et al. Siringocele imperforado de las glándulas de Cowper. Tratamiento por vía laparoscópica [Imperforate syringocele of the Cowper's glands laparoscopic treatment]. *Actas Urol Esp*. 2004;28(7):535–538. [https://doi.org/10.1016/s0210-4806\(04\)73125-3](https://doi.org/10.1016/s0210-4806(04)73125-3).
- Bevers RF, Abbekerk EM, Boon TA. Cowper's syringocele: symptoms, classification and treatment of an unappreciated problem. *J Urol*. 2000;163(3):782–784. [https://doi.org/10.1016/s0022-5347\(05\)67803-2](https://doi.org/10.1016/s0022-5347(05)67803-2).
- Awad MA, Alwaal A, Harris CR, et al. Transurethral unroofing of a symptomatic imperforate cowper's syringocele in an adult male. *Case Rep Urol*. 2016;2016, 3743607. <https://doi.org/10.1155/2016/3743607>.
- Piedrahita YK, Palmer JS. Case report: cowper's syringocele treated with Holmium: YAG laser. *J Endourol*. 2006;20(9):677–678. <https://doi.org/10.1089/end.2006.20.677>.
- Matta I, Chalhoub K, Abou Zahr R, Ghazal G, Huyghe E, Nohra J. A case of symptomatic cowper's syringocele in an adult male: diagnosis and management. *J Endourol Case Rep*. 2019;5(2):56–59. <https://doi.org/10.1089/cren.2019.0011>. Published 2019 May 30.
- Taskovska M, Hawlina S. Cowper's syringocele in adolescent male: case report. *J Endourol Case Rep*. 2017;3(1):130–133. <https://doi.org/10.1089/cren.2017.0086>. Published 2017 Sep. 1.
- Becerra MF, Smith N, Bhat A, Shah HN. Endoscopic management of adolescent closed Cowper's gland syringocele with holmium:YAG laser. *Asian J Urol*. 2022;9(3): 340–342. <https://doi.org/10.1016/j.ajur.2021.06.008>.