Congenital urethral polyps in the pediatric population

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Congenital urethral polyps are a rare entity. Most commonly, they present as benign posterior urethral growths in the pediatric male patient. However, reports of urethral polyps in female patients or even those with an anterior urethral location can also be found in the literature. Patients can present with a spectrum of symptoms including dysuria, hematuria, and obstructive type urinary complaints. Diagnosis in these cases includes a combination of medical imaging (e.g. ultrasound, fluoroscopic, CT or MRI), direct endoscopic visualization, and final surgical pathology. Treatment involves surgical removal either via an endoscopic or open approach.

Key Words: fibroepithelial polyp, urethral, pediatric

Introduction

Urethral polyps in the pediatric population are an infrequent occurrence.[1] If discovered, they typically present as solitary lesions in the posterior male urethra.[2] Cases of female patients have been rarely reported.[3] Symptomatically, patients can complain of hematuria, dysuria, or even stranguria. Larger polyps obstructing the bladder neck can result in urinary retention in this patient population.[4] These lesions are almost always found to be benign fibroepithelial polyps on final pathologic specimen.[1-4] Recurrence after complete surgical removal has yet to be reported in the literature. Resolution of symptoms and definitive diagnosis follows surgical excision of these lesions.

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Case report

A 9-year-old otherwise healthy boy presented to our clinic with four episodes of gross hematuria accompanied with dysuria. His physical exam revealed meatal stenosis but no other genitourinary abnormalities. A urinalysis was previously checked at his pediatrician's office and was negative for red blood cells or signs of infection. He was taken to the operating room and a meatoplasty was performed in conjunction with a cystourethroscopy. Direct visualization confirmed a large polypoid posterior urethral mass extending from the verumontanum into the bladder partially obstructing the bladder neck.

A renal bladder ultrasound was initially obtained after cystoscopy but only demonstrated non-specific focal bladder wall thickening and normal kidneys. A

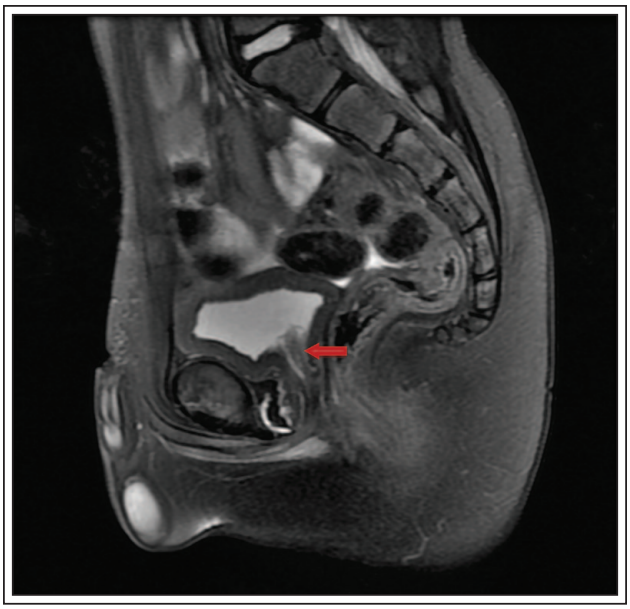

Figure 1. MRI T2 weighted sagittal view of a broad based posterior urethral lesion (red arrow) in our patient extending from the verumontanum into the bladder neck.

follow up MRI of the pelvis, Figure 1, was obtained to further characterize the lesion and better delineate the surrounding anatomy. This confirmed the presence of a 17 mm x 5 mm x 8 mm polypoid mass arising from the verumontanum extending into the bladder neck. The central and peripheral portions of the mass enhanced brightly compatible with vascular tissue centrally and mucosa peripherally. There was no significant enhancement of the middle layer, compatible with fibrous tissue and/or smooth muscle. These findings suggested a benign entity. The apex of the lesion protruded into the bladder neck. The patient was taken to the operating room where an open cystostomy approach was utilized to completely excise the lesion, Figure 2. He was discharged home after a benign postoperative course.

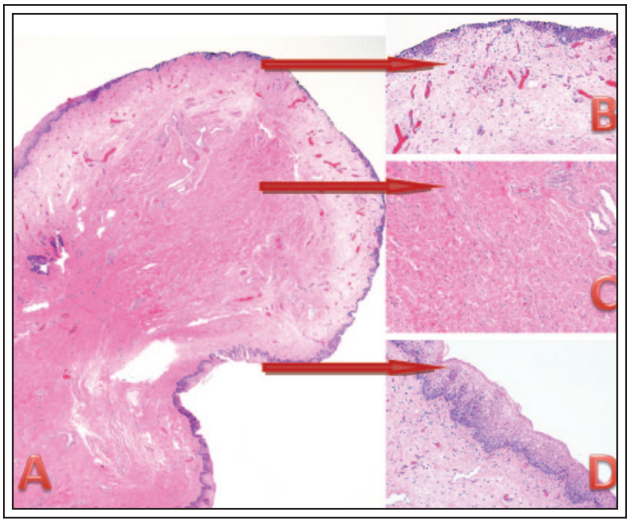

Figure 3. A) Histologic view of the surgical specimen demonstrating the surface epithelium and inner core. **B)** Urothelial type mucosa partly covers this lesion. **C)** Central fibrovascular core and smooth muscle. **D)** Squamous mucosa covers the remaining portion of the polyp.

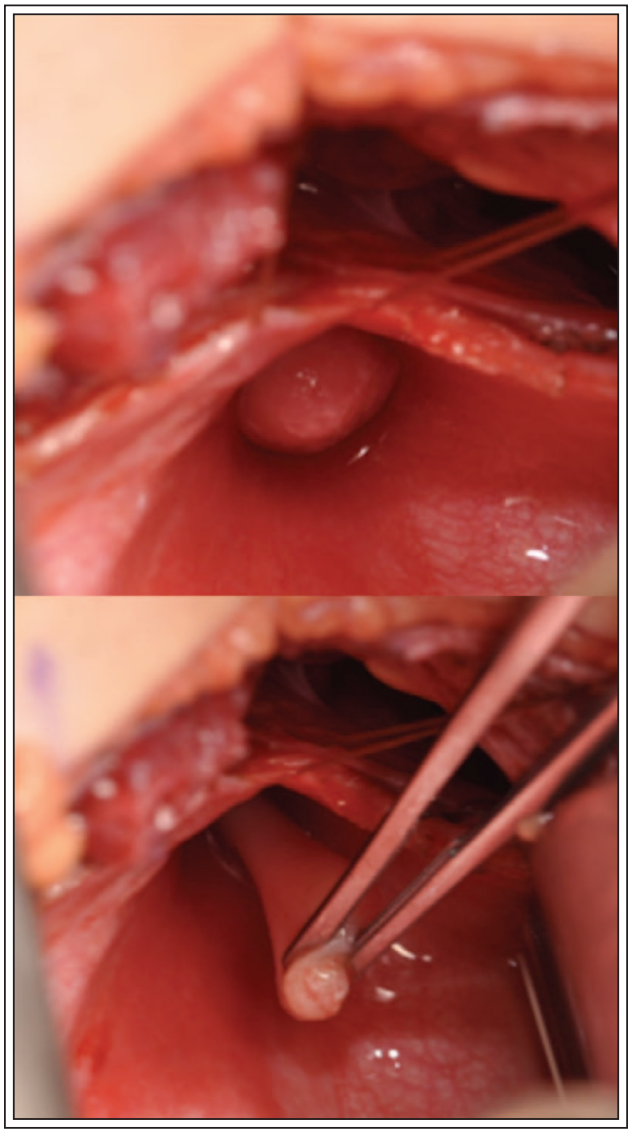

Figure 2. Top. The bladder has been opened in a "clam-shell" fashion and an intravesical view of the posterior urethral lesion protruding through the bladder neck into the bladder. **Bottom.** The lesion has been grasped with DeBakey forceps and put on mild tension demonstrating distal extension to the verumontanum.

Final histopathology revealed a congenital urethral polyp covered on the surface by urothelial as well as squamous type mucosa, Figure 3. The central core was comprised of fibrovascular tissue and smooth muscle. These findings were all consistent with a pathologic diagnosis of a fibroepithelial urethral polyp.

Discussion

Lesions of the urethra in the pediatric population can have a broad differential diagnosis.[2] Posterior urethral valves, villous polyps, inverted papillomas, and even malignant neoplasms of the bladder or prostate such as rhabdomyosarcoma should all be considered. Villous polyps and inverted papillomas can be confirmed via final pathologic analysis. Fortunately, genitourinary rhabdomyosarcoma is an extremely rare condition and in some instances can necessitate radical surgery. The classic appearance of these lesions on ultrasound is one of a lobulated soft-tissue mass with homogenous echogenicity and may increase the suspicion for malignancy.[5]

More commonly, however, congenital urethral lesions are fibroepithelial polyps and are a benign entity. They occur more frequently in males and are generally located in the posterior urethra. However, Goel et al, specifically report a case of an anterior urethral fibroepithelial polyp in an 8-year-old female who presented with a bleeding inter-labial mass.[3] The origin of these lesions is not known and multiple theories exist including secondary epithelial changes under the influence of maternal estrogens or inflammation from instrumentation or catheterization.[6] Symptomatically, children can present with either irritative or obstructive urinary symptoms. As in the case with our patient, hematuria (from 30%-60%) and dysuria (up to 52%) are the most common complaints.[1] However, urinary tract infections, enuresis, urge urinary incontinence, or even urinary retention can all occur.

After taking a thorough history and performing a physical exam, most physicians would continue the evaluation with an ultrasound followed by either a voiding cystourethrogram (VCUG) or MRI if deemed necessary. CT may possess less value due to the higher radiation risk as well as poorer soft tissue contrast. A dedicated ultrasonographer may be able to detect a posterior urethral mass or thickening with a transperineal approach and a high-frequency linear transducer. Assessment of the kidneys may demonstrate pelvocaliectasis if there is obstruction or reflux. A VCUG can demonstrate a urethral filling defect. MRI performed with high field strength and a small field of view for optimal resolution provides excellent soft tissue contrast and spatial resolution for evaluation of the posterior urethra and periurethral tissues. The location and signal characteristics of the lesion in our patient were similar to a prior report of a prostatic polyp in an adult on MR imaging.[7] There are no reports of MRI of pediatric urethral polyps in the radiology literature to date. In smaller children, sedation will be needed, however, and so this study is not without risk. Direct visualization with cystourethroscopy should also be performed and can also clue one in on the diagnosis. Ultimately, pathologic correlation following surgical removal is required for confirmation.

The two largest series of lower tract genitourinary fibroepithelial polyps in children have been reported in the literature by De Castro et al and Gleason et al.[8,9] Their experience comprises of 17 and 6 cases respectively during a 16 to 35 year period. Interestingly, all of their patients were eventually successfully treated with an endoscopic approach via transurethral resection. No relapses have yet to be reported in their cohort. However, recurrence after endoscopic resection has been commented on by other authors.[1] Polyps that have a smooth surface or possess a tense structure may be less desirable to approach transurethrally. Smaller caliber urethras that cannot accommodate pediatric resectoscopes or cystoscopes may also contribute to incomplete treatment. Given the size and broad base of the lesion in our patient, a transurethral approach in our determination would have resulted in a sub-opitmal resection and treatment failure. Therefore, an open cystotomy and excision was implemented. With the advance of improved pediatric cystoscopes and even laparoscopic robotic technology perhaps minimally invasive approaches may be championed for future cases. Operative technique may ultimately depend on surgeon preference and experience.

Histopathologically, fibroepithelial polyps are covered by urothelial type mucosa, but squamous metaplasia, inflammation, or ulceration may occur.[10] The core of these polyps consists of stromal connective tissue and vessels. In some cases, slips of smooth muscle, nerves, or glands may also be present. Their course is generally benign without malignant transformation or deterioration.

Lower urinary tract urothelial polyps are an uncommon finding in the pediatric population. The vast majority of these lesions are discovered to be benign fibroepithelial polyps. The clinical picture, radiographic images, and endoscopic findings typically suggest a mass in the posterior urethra obstructing the bladder neck. Complete surgical resection and pathologic confirmation is the rule for diagnosis and treatment. □

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