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ENDOSCOPIC LASER DEROOFING OF ANTERIOR URETHRAL CYST-A CASE REPORT

Paediatric Surgery

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ABSTRACT

An anterior urethral cyst (AUC) is a rare congenital cystic lesion arising from the ventral wall of the anterior urethra, most commonly in the bulbar or penile urethra. We report a case of 8 years old male child who presented with dysuria, dribbling and straining while micturition since 4 years who underwent endoscopic laser deroofing of anterior urethral cyst following which symptoms of lower urinary tract obstruction were resolved.

KEYWORDS

INTRODUCTION:

Anterior urethral cyst is a rare congenital cystic lesion arising from the ventral wall of the anterior urethra. It protrudes into the urethral lumen and may cause varying degrees of bladder outlet obstruction. It may cause varying degrees of urethral obstruction and is considered part of the spectrum of anterior urethral anomalies, which includes anterior urethral valves and diverticula. The exact cause remains unclear. Proposed mechanisms include Incomplete development of the corpus spongiosum, Cystic dilatation of periurethral glands ,Developmental defects in urethral fold fusion, Congenital obstruction of periurethral ducts, Evolution of a congenital cyst into a diverticulum after rupture into the urethral lumen.

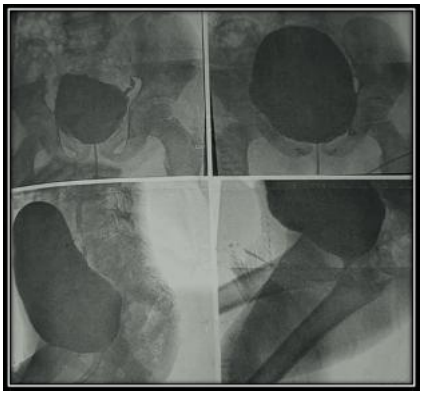

Figure 1: VCUG with left grade I vesicoureteric reflux.

CASE PRESENTATION:

We report a 8 year old male patient presented with complaints of dribbling of urine, straining while passing urine, dysuria and recurrent episodes of urinary tract obstruction. Patient had no resolution of symptoms on conservative management. Ultrasonography findings were suggestive of bilateral hydroureteronephrosis with overdistended bladder. VCUG was suggestive of Left grade I vesicoureteric reflux. Patient underwent Diagnostic Cystoscopy wherein a spherical cystic structure was noted in bulbar urethra. Bladder was trabeculated and bilateral ureteric orifices were visualized which were slit like. Endoscopic laser deroofing of cystic structure (ND YAG LASER) was done and cyst fluid drained. Patient was discharged on post operative day 2 and was passing urine in good stream. Patient underwent a cystoscopy month later and there was no evidence of any cystic structure and bladder appeared normal. Patient had resolution of lower urinary tract obstruction symptoms.

FIGURE 2: CYSTOSCOPIC VIEW of anterior urethra cyst (BLACKARROW)

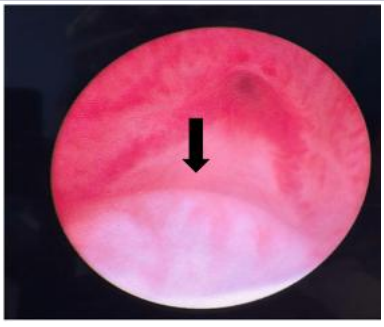

FIGURE 3: ND YAG Laser deroofing of Anterior urethral cyst

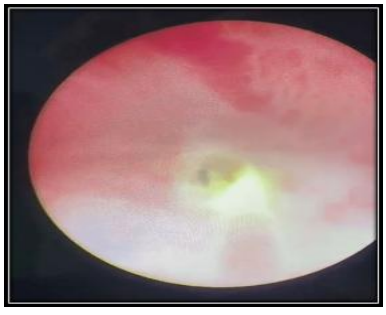

FIGURE 3: ND YAG Laser deroofing of Anterior urethral cyst

DISCUSSION:

Anterior urethral cyst (AUC) is a rare congenital anomaly of the male urethra and represents an uncommon cause of lower urinary tract obstruction in children. The true incidence remains unknown. Anterior urethral cysts are considered part of a spectrum of congenital anterior urethral anomalies that includes anterior urethral valves and congenital anterior urethral diverticula. These lesions may produce varying degrees of bladder outlet obstruction depending on their size, location, and extent of urethral lumen compromise.

Some authors have suggested that anterior urethral cysts may represent an early stage in the development of anterior urethral diverticula, with rupture of the cyst into the urethral lumen leading to diverticulum formation. Regardless of the underlying mechanism, the resulting lesion may protrude into the urethral lumen and create a variable degree of urinary outflow obstruction. Clinical presentation is highly dependent on the patient's age and the severity of obstruction. Neonates and infants may present with poor urinary stream, urinary retention, recurrent urinary tract infections, hydronephrosis, or even renal impairment. In older children, symptoms are often less dramatic and may include weak urinary stream, straining during micturition,

prolonged voiding time, intermittency, post-void dribbling, recurrent urinary tract infections, urgency, frequency, and occasionally urinary incontinence. Because these symptoms are nonspecific, diagnosis may be delayed. Our patient, an 8-year-old boy, presented with symptoms of lower urinary tract obstruction characterized by poor urinary stream and voiding difficulty, highlighting the importance of considering rare anatomical causes in children presenting with persistent obstructive urinary symptoms. Definitive diagnosis is established by cystoscopy, which allows direct visualization of the lesion and simultaneous therapeutic intervention. In our case, endoscopic evaluation confirmed the diagnosis and facilitated definitive treatment.

The differential diagnosis of anterior urethral cyst includes anterior urethral valve, congenital anterior urethral diverticulum, Cowper's duct syringocele, urethral polyp, urethral stricture, and posterior urethral valve. Paraurethral cysts are commonly found in girls and not much literature is found in association with Anterior urethral cysts. Hence, anterior urethral cyst should be considered as a differential diagnosis while working up a patient for dysuria. Laser-assisted endoscopic deroofing offers several advantages over conventional cold-knife incision, including precise tissue ablation, superior hemostasis, minimal collateral tissue damage, excellent visualization, shorter operative time, and potentially lower recurrence rates. The use of laser technology in pediatric urethral surgery has expanded significantly because of its safety profile and favorable functional outcomes. In the present case, endoscopic laser deroofing resulted in complete decompression of the cyst with marked improvement in urinary symptoms and restoration of a satisfactory urinary stream. The postoperative course was uneventful, and the patient demonstrated significant clinical improvement on follow-up.

CONCLUSION

Early recognition and treatment of anterior urethral cysts are essential to prevent complications such as recurrent urinary tract infections, chronic bladder dysfunction, vesicoureteral reflux, hydronephrosis, and progressive renal damage. Fortunately, when diagnosed promptly and managed appropriately, the prognosis is excellent. Most patients experience complete symptom resolution and preservation of normal urinary tract function following successful endoscopic treatment.