CASE REPORT

Cobb's collar: a rare cause of urinary retention

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SUMMARY

Cobb's collar is a membranous stricture of the bulbar urethra, often misdiagnosed, potentially leading to acute urinary retention, upper urinary tract dilations, enuresis, infectious diseases, poor streaming and haematuria. A 14-year-old boy with a history of previous hospitalisations came to our attention. A Cobb's collar was diagnosed and successfully managed with a videoendoscopic one-step approach. Although extremely uncommon, paediatric urologists must be aware of this congenital anomaly. A correct and timely diagnosis and endoscopic management may affect positively the clinical onset of these patients avoiding major urethral surgery and preserving renal and bladder function.

BACKGROUND

Cobb's collar is a membranous stricture of the bulbar urethra,^{1 2} often underestimated and misdiagnosed, that can lead to several urinary problems. We present a case of a 14-year-old boy with a clinical history of acute urinary retention, poor stream and secondary enuresis in which a diagnosis of Cobb's collar was performed. Anatomy, embryology and clinical features are discussed in order to turn the spotlight on this rare disease. A prompt diagnosis with minimally invasive treatment may positively affect the quality of life of these patients avoiding upper and lower tract deterioration.

CASE PRESENTATION

A 14-year-old boy was referred to us from another hospital with a history of several episodes of acute urinary retention during the previous month, the last of which required urethral catheterisation associated with a poor stream during the last 3 years. An ultrasound study performed at the hospital of origin was reported as normal. His clinical history was unremarkable until he was 6 years old. A secondary enuresis arising from the age of 6, unresponsive to pharmacological therapy, spontaneously disappeared after the age of 9. No history of traumatic injuries or instrumentation of the urethra was referred. Physical examination of the abdomen and genitalia was unremarkable.

INVESTIGATIONS

Ultrasound showed a thickened bladder wall with a significant postvoiding residual. A voiding cystourethrography (VCUG) showed a narrowing in the proximal bulbar urethra without reflux in the collecting system (figure 1). Uroflowmetry showed an obstructive pattern. Endoscopic evaluation revealed a bulbar-obstructing membrane with a central defect (Cobb's collar; figure 2) without attachment

to the verumontanum. The bladder wall was mildly trabeculated.

DIFFERENTIAL DIAGNOSIS

- Acquired urethral strictures, due to earlier trauma, catheterisation or instrumentation of the urethra.
- Dysfunctional voiding with staining of the urethra and pelvic floor muscles, caused by involuntary contraction of the urethral sphincter or pelvic floor muscles during the voiding phase of the micturition cycle that can provide the same radiological image.

Hinman syndrome, defined as non-neurogenical neurogenical bladder, represents a voiding dysfunction of the bladder of neuropsychological origin, characterised by functional bladder obstruction in the absence of neurological deficits. This syndrome usually occurs in early-to-late childhood. Patients present with enuresis, incontinence, infrequent voiding or retention, intermittency, straining and urinary tract infections.

TREATMENT

Endoscopic resection was carried out using a paediatric resectoscope. A 14 Fr Foley catheter was left in place for 14 days.

OUTCOME AND FOLLOW-UP

Postoperative VCUG (figure 3), performed 3 months after the procedure, showed a normalisation of the urethral calibre with complete emptying, while uroflowmetry, performed 2, 6 and 12 months after the

Figure 1 Voiding cystourethrography showing a narrowing in the proximal bulbar urethra (white circle).

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Figure 2 Endoscopy showing an obstructive membrane with a central defect (Cobb's collar).

procedure, showed a normal pattern (last uroflowmetry: flow rate of 27 ml/s, with a peak of 53 ml/s, no postvoiding residual). The patient is asymptomatic at 12 months follow-up with normal serial ultrasound evaluations.

DISCUSSION

Congenital urethral strictures at the level of the posterior urethra have been classified as posterior urethral valves (three

types) in classical Young's classification and COPUM (congenital obstructing posterior urethral membrane) first described by Dewan *et al.*³⁻⁴ The strictures of the bulbar urethra have been underestimated for many years until the first half of the 1990s when Dewan defined and classified these anomalies as congenital. Recently, Dewan *et al* redefined and classified the bulbar urethral narrowing by reviewing video-recorded cystoscopies as well as radiological pictures of their patients. A similar study was also performed by Nonomura *et al.*⁵⁻⁶ Both studies showed that the majority of patients with congenital bulbar urethra obstruction were under 1 year of age and had no history of trauma, catheterisation or instrumentation of the urethra. A large number of these patients showed vesicoureteral reflux, which, in association with clinical findings and endoscopic appearance of vestigial remnants at the level of bulbar urethra, makes it conceivable that this narrowing has a congenital onset.

Three different types of Cobb's collar have been identified. All these forms of obstruction are located just below the external sphincter. Type I appears as a ridge of tissue; type II represents a well-defined stricture of the bulbar urethra while type III is a very tight pinhole.⁷⁻⁸ These anomalies were first described by Cobb *et al* in 1968. They analysed 52 cases of urethral obstruction in male patients for a 3-year period, finding 52 cases of proximal bulbar urethral obstruction.¹⁻² A total of 26 out of 52 patients were boys under 16 years of age, and the most frequently referred symptoms were enuresis, urinary tract infection, haematuria and failure to thrive. To relate these symptoms to a urethral obstruction may be difficult, but 16 of 26 boys had a trabeculated bladder, 15 of 26 showed a dilated prostatic fossa whereas 6 of 26 had a secondary hydroureter.¹⁻⁷ Pathogenesis of the lesion is embryological. The development of the male urethra occurs by joining the cloaca with the penile portion of the urethra. The proximal portion of the urethra is

Figure 3 Post-operative voiding cystourethrography showing the normalisation of the caliber of the bulbar urethra.

formed by endodermal tissues which give rise to the prostatic and all of the membranous structures whereas the phallic portion of the urogenital sinus forms the cavernous urethra that extends to the penis.⁹

Some doubts recently have been raised about the aetiology of bulbar urethral strictures especially when symptoms manifest themselves in the adolescent period. Banks *et al* reported a series of 12 paediatric patients with bulbar or posterior urethral stenosis. They identified a sort of bimodal distribution of the age at presentation with 50% of patients presenting during the first year of life, whereas five of the remaining six patients presented after the age of 11. In their opinion, the age group with a late presentation may represent a delayed presentation of a congenital stricture or may be the final result of a forgotten urethral trauma that occurred some years earlier or caused by an asymptomatic inflammatory process. The response to endoscopic treatment of this second slice of patients was different from the 1-year-old group. Four of five of these patients required urethroplasty. They conclude that older patients may not have a true congenital obstruction but it was probably acquired and caused by an asymptomatic inflammation.¹⁰ The presence of a congenital bulbar stenosis of the urethra may be distinguished from other obstructive structures detectable at the level of the bulbar urethra, because of the absence of the characteristic folds between COPUM anomalies and verumontanum. Cobb's collar in fact appears as a bulbar urethral obstruction which is independent from the verumontanum and external sphincter, being caused by a persistence of urogenital membrane.⁸ Clinical presentation of a urethral obstruction in the bulbar tract may be variable and, often, the real problem remains hidden to the use of a blind instrumentation such as urethral catheterisation due to facility of dilation of these strictures.⁶ Cobb's collar may occasionally lead to chronic urinary retention and bilateral hydronephrosis.¹¹ In adulthood, these patients may manifest poor ejaculation.⁷ In our case, the patient had several episodes of acute urinary retention during a period of 30 days, progressive weakening of the stream in the last 3 years and a medical history of secondary enuresis. No episodes of perineal injuries or urethral instrumentation were referred. A single-stage endoscopic procedure, followed by 2 weeks of urethral catheterisation, was enough to relieve the obstruction and restore a normal urinary flow.

Learning points

- ▶ Although extremely uncommon, in cases of adolescent or paediatric patients presenting with symptoms of progressive urinary obstruction, enuresis and with or without urinary tract infection and or haematuria, a bulbar urethral obstruction such as Cobb's collar should be considered.
- ▶ A fast and complete investigation with contrast-enhanced x-ray examination is mandatory in order to perform a successful and minimally invasive early treatment.
- ▶ Close follow-up based on postoperative voiding cystourethrography serial ultrasound and uroflowmetry is essential in order to assess the normalisation of the urinary flow.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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