CLINICAL CASE

Congenital urethral diverticulum in a pediatric patient

O. A. Lazo-Cornejo\textsuperscript{a,}\textsuperscript{*}, G. Manzo-Pérez\textsuperscript{b} and B. O. Manzo-Pérez\textsuperscript{c}

\textsuperscript{a}Pediatric Urology Fellow, Hospital Regional de Alta Especialidad del Bajío, León, Gto., Mexico

\textsuperscript{b}Pediatric Urology, Hospital Regional de Alta Especialidad del Bajío, León, Gto., Mexico

\textsuperscript{c}Urology Specialty Residency, Hospital Regional de Alta Especialidad del Bajío, León, Gto., Mexico

\textbf{KEYWORDS}
Urethral diverticulum; Urinary incontinence; Urethroplasty; Urinary infection; Mexico

\textbf{Abstract}
Congenital urethral diverticulum is an extremely rare entity and only an approximate 260 cases have been reported to date. The majority of published cases were diagnosed at infancy due to recurrent urinary infections, symptoms of lower urinary tract obstruction, an enlarged urethra found upon physical examination, and a decompensated bladder with or without secondary reflux. We present herein the case of a 5-year-old boy with urinary incontinence and an important increase in size in the ventral part of the penis. Diagnosis of a congenital urethral diverticulum was made through urethrocytography; there was no bladder decompensation or secondary vesicoureteral reflux. The patient was treated with single-stage urethroplasty (open technique) with no complications and the postoperative period was adequate. His urinary incontinence was resolved and he was completely asymptomatic at periodic follow-ups with no further urinary tract infections. Two years after treatment, he has satisfactory urine flow and an esthetically normal penis.

\textbf{PALABRAS CLAVE}
Divertículo de la uretra; Incontinencia urinaria; Urethroplastía; Infección urinaria; México.

Divertículo congénito de la uretra en un paciente pediátrico

\textbf{Resumen}
El divertículo congénito de la uretra es una entidad extremadamente rara, al parecer a la fecha sólo se han descrito alrededor de 260 casos. La mayoría de los casos publicados han sido diagnosticados en la infancia, debido a infecciones urinarias a repetición, síntomas obstructivos urinarios bajos, aumento del tamaño uretral en la exploración física y vejiga de esfuerzo con o sin refluo secundario.

Se presenta el caso de un niño de 5 años de edad, con incontinencia urinaria y aumento de tamaño importante en la parte ventral del pene, diagnosticado con un divertículo uretral congénito por uretrocitografía, sin vejiga de esfuerzo, ni refluo vesicoureteral secundario, quien fue tratado con uretroplastía en un solo tiempo (técnica abierta), sin complicaciones, cursando un posquirúrgico adecuado. Se realiza seguimiento periódico, resolviendo la incontinencia urinaria, completamente asintomático, sin infecciones de vías urinarias, con adecuado flujo de orina y un pene estéticamente normal a 2 años de seguimiento.

0185-4542 © 2014. Revista Mexicana de Urología. Publicado por Elsevier México. Todos los derechos reservados.

*Corresponding author at: Telephone: (47) 7184 6406. Email: oscarlazo2012@yahoo.com (O. A. Lazo-Cornejo).
Introduction

Congenital diverticula are a very rare entity in the male urethra. A urethral diverticulum is a saccular formation classified as congenital or acquired. The first case report was described in 1906 by Watts and to date close to 260 cases have been reported in the medical literature worldwide. The majority of cases are diagnosed due to the consequences of distal urinary flow obstruction such as: recurrent urinary infections, decompensated bladder, vesicoureteral reflux, as well as an enlarged urethra found upon physical examination.

Because of the very low incidence of these cases, it is most important to present their clinical and radiologic characteristics, and especially the type of treatment carried out, together with the long-term follow-up.

Case presentation

A 5-year-old preschool boy presented with “urinary incontinence” from birth and had no history of trauma, previous catheterizations, surgeries, or recurrent urinary infections. Physical examination revealed a good general health status, a masculine appearance, and an uncircumcised penis enlarged at its ventral part with a retractable prepuce (fig. 1). There was a dribbling of urine upon digital pressure on the ventral part of the penile urethra and both testes were present in the scrotum. Retrograde urethrocytography revealed a diverticulum in the penile urethra and no signs of a decompensated bladder or vesicoureteral reflux. Diverticuloplasty and a one-stage open urethroplasty were performed. The patient had an adequate postoperative period and the urethral catheter was removed after 10 days. The urinary incontinence was resolved and at the second-year follow-up the patient has a good-caliber urinary stream, no urinary infections, and no recurrence of the diverticulum.

Surgical technique

The patient was put in the supine decubitus position and given general anesthesia. The procedure began with the placement of a fixed suture at the level of the glans penis with 3-0 vascular suture and an 8 Fr silicon Foley urethral catheter. An incision under the glans was made and the penis was degloved down to the base. The diverticulum was identified and the urethral defect was opened. Reference sutures were then placed for later resection of the redundant urethral tissue (fig. 2). Urethral closure was performed in 2 layers with running 6-0 PDS TM sutures; a patch of subdermal fascia was placed at the urethral suture line (fig. 3); and finally, the preputial skin was sutured with simple 6-0 PDS TM sutures.

Discussion

Congenital diverticula of the male urethra are saccular formations that can be congenital or acquired. There is controversy as to the classification of urethral diverticula. The most commonly used is that proposed in 1906 by Watts, who divided them into congenital and acquired. The former involves the complete thickening of the urethral wall that is covered by epithelium, and the latter are covered by granulation tissue and their walls lack muscle fibers.

We can define male urethral diverticula as “primary” when of congenital origin and “secondary” when acquired.
They can be found along the length of the anterior urethra, but the most frequent are at the level of the bulbar urethra and are divided into 2 categories: saccular and globular, depending on their radiologic appearance, and with the exception of the navicular fossa, they almost always arise at the ventral wall of the urethra. Congenital urethral diverticula are a very rare pathology that can cause urinary obstruction or infections, as well as other symptomatology, depending on their size and type. The signs and symptoms of this disease are apparently typical and diagnosis is simple, nevertheless many boys affected by this pathology go undiagnosed. The embryologic cause is still unknown. Various theories have been postulated, such as failure of the urethral folds to close, primary atrophy of the central wall of the urethra, failed development of the urethral layers, altered blood irrigation, and failed development of the corpus spongiosum.

Unlike the majority of the cases reported in the literature, the consultation motive of our patient was urinary incontinence. He did not present with the most common clinical and radiologic signs of this type of pathology, such as recurrent urinary infections, decompensated bladder, and vesicoureteral reflux, even though he was not diagnosed until 5 years of age.

Micturition cystography and positive pressure urethrography are the gold standard in diagnosing urethral diverticulum; the obvious radiologic sign is important dilation of the ventral side of the urethra. When there is no history of trauma or previous urethral catheterization, the diagnosis is primary or congenital urethral diverticulum.

Treatment consists of diverticulectomy and open urethroplasty with redundant tissue resection, as was the case with our patient. Not all the reported cases were resolved through open diverticulectomy, given that some authors suggest a transurethral approach. In the case of our patient, however, open resection was successful.

Conclusions

Congenital urethral diverticula are very rare and generally go unnoticed until later stages of the patient’s life when complications such as damage to the upper urinary tract arise. Therefore this pathology should be suspected in every male child that presents with nonspecific urinary symptomatology, recurrent urinary tract infections, urinary incontinence, decompensated bladder, and obstructive disorders, among others. The diagnosis should be corroborated through retrograde micturition urethrocytography. This study can identify the diverticulum and evaluate the bladder, as well as determine whether there are complications such as vesicoureteral reflux, so that adequate treatment can be carried out.

Both one-stage open urethroplasty and transurethral resection are techniques described as the approach for this pathology. We applied open urethroplasty in the case of our patient, obtaining a satisfactory result.

Conflict of interest

The authors declare that there is no conflict of interest.

Financial disclosure

No financial support was received in relation to this article.

References