ABSTRACT

Introduction: Bladder diverticula are categorized as congenital (primary) or acquired (secondary). Congenital diverticula are rare and are the result of bladder mucosa weakness with protrusion of entire diverticular wall through the defect in the muscle wall. These congenital diverticula are frequently associated with posterior urethral valves or neurogenic bladder. A new case of giant congenital bladder diverticulum is presented here along with a description of its clinical manifestations, the studies employed to confirm diagnosis, and its treatment.

Symptoms: Patient is a 6-month old infant boy that was operated on at two months of age for acute abdomen. Surgery revealed bladder diverticulum. Ultrasound, urethrocystography, tomography, and cystoscopy studies showed one giant bladder diverticulum with neck positioned toward the left lateral wall. Intravesical and extravesical diverticulectomy plus left ureteral Politano-Leadbetter reimplantation was carried out, which is definitive treatment for patients with no factors obstructing the emptying of the bladder.

Conclusions: Exeresis of large congenital bladder diverticula is the safe and definitive solution for those patients presenting with urinary sepsis caused by these diverticula that do not present with concomitant factors obstructing bladder emptying. When obstruction exists it must be removed before or during diverticular surgery.

RESUMEN

Introducción: Los divertículos vesicales son categorizados como congénitos (primarios) o adquiridos (secundarios). Los divertículos congénitos son raros y resultan de la debilidad de la mucosa vesical con la salida de la pared total del divertículo, a través del defecto en la pared muscular. Estos divertículos congénitos se asocian frecuentemente a válvulas uretrales posteriores o vejiga neurogénica. El objetivo fue presentar un nuevo caso de divertículo vesical congénito gigante, sus manifestaciones clínicas y estudios empleados para confirmar el diagnóstico, así como el tratamiento.

Cuadro clínico: Masculino de seis meses de edad, quien fue intervenido a los dos meses por abdomen agudo, encontrando en la cirugía un divertículo vesical. En el ultrasonido, uretrocistografía, tomografía y cistoscopia se evidenció un divertículo vesical gigante, con presencia del cuello hacia la pared lateral izquierda. Se realizó diverticulectomía por abordaje intravesical y extravesical, más reimplante ureteral izquierdo, con técnica de Politano-Leadbetter. Esta constituye el tratamiento definitivo, para pacientes con ausencia de factores obstructivos al vaciamiento vesical.

Conclusión: La exéresis de los divertículos vesicales congénitos de gran tamaño, constituye la solución definitiva y segura, para aquellos pacientes que presentan sepsis urinaria por esta causa, en ausencia de factores obstructivos al vaciamiento vesical concomitante, en cuyo caso se tiene que resolver la obstrucción, antes o durante el tratamiento quirúrgico del divertículo.
INTRODUCTION

The first report of a bladder diverticulum was made in 1614 from the autopsy of a man and it had a capacity six times that of the bladder.¹

Bladder diverticula can be congenital or acquired. The congenital type make up a small portion and are almost always associated with posterior urethral valves or neurogenic bladder.² The exact cause of congenital bladder diverticula is not known but it is thought they are produced due to a weakness in the muscle wall of the bladder, which facilitates herniation of the bladder wall, showing preference for the paraureteral region.³

Even though the majority of diverticula are asymptomatic, they are often discovered in the course of an evaluation for recurrent urinary infections (13-73%), hematuria, or bladder emptying disorders. Others can be complicated with vesicoureteral reflux, lithiasis (5-15%), tumors (3.5-10.8%), ureteral obstructions (8%), and more rarely, with acute urine retention and spontaneous rupture.⁴ Diagnosis is made through ultrasound imaging, but they are better visualized through urethrocystography with views of emptying post-micturition that reveal whether or not they are associated with vesicoureteral reflux. Surgical treatment is indicated when the abovementioned complications exist and it entails exeresis of the diverticula with ureteral reimplantation when necessary.⁵

The objective of the present article was to present a new case of giant congenital bladder diverticulum, its clinical manifestations, the studies used for confirming diagnosis, and its treatment.

CASE PRESENTATION

Patient is a six-month-old infant boy who was a full-term, first-born neonate from a normal pregnancy. He weighed 3600 g, measured 48 cm, and had an APGAR score of 8-9.

He was referred to the pediatric urology department with referral note stating surgical history of exploratory laparotomy for acute abdomen at 2 months of age. Megabladder was reported during surgery and only cystostomy was placed.

Patient was seen at the authors’ institute at 5 months of age. Kidney and bladder ultrasound was ordered that showed large bladder diverticulum to the left of the bladder and similar in size. Urethrocystography confirmed the ultrasound finding.

In order to have a more exact visualization and especially to find out the true extension of the diverticulum and its anatomic relation with neighboring structures, computed axial tomography (CAT) scan was done.

The case was discussed and surgical treatment was decided upon. Urethrocystoscopy revealed wide-necked left bladder diverticulum, ipsilateral ureteral meatus was not identified, and there was no trabeculation.

Open surgery was carried out with Pfannenstiel incision approach. Bladder showed no thickening and a large diverticulum was seen on the left lateral face. The neck of the diverticulum was identified and stent was placed in right ureter.

Diverticulectomy with combined intravesical and extravesical approach was carried out. Total diverticulum exeresis was achieved with no surgical accidents involving the surrounding organs. Bladder defect was sutured on one layer with chromic catgut. Left
ureteral reimplant with Politano-Leadbetter technique was also carried out. Feeding catheter with double diaper technique was left in place and corresponding antibiotic treatment was administered.

Postoperative progression was favorable. Patient was kept on antimicrobial prophylaxis for 3 months and control studies showed no alterations (urinalysis, urine culture, retrograde cystogram).

**DISCUSSION**

Congenital bladder diverticulum is not a common pathology. The most frequent location is at the trigonal margin proximal to the ureteral hiatus, which can end up incorporating itself into the diverticulum. 6,7

According to reports of other authors, bladder diverticula generally tend to be more common in males, as was the case presented here. It is suggested that this predilection is due to the fact that males urinate with higher intrauterine pressure than females. 8-10

In the present case, the finding was made as a result of a past exploratory laparotomy due to acute abdomen. The causes of these diverticula have not yet been described in the medical literature.

The imaging studies used to establish definitive diagnosis in this patient were the same as those reported by the majority of authors reviewed. 1,3,5,7,10

Open diverticulectomy was the surgical treatment carried out and is one of the options suggested for large bladder diverticula. It can be performed extravesically, transvesically, or combining both approaches, as in the case presented here. Results with this surgical modality are satisfactory and it has a low complication rate. 7,11 The procedure can also be carried out through transperitoneal or extraperitoneal laparoscopy and recently robot-assisted laparoscopy has been reported. 8

**CONCLUSIONS**

Large congenital bladder diverticula exeresis is a safe and definitive solution in those patients presenting
Villacis-Fonseca S, et al. Giant congenital bladder diverticulum with urinary sepsis caused by the pathology. It can also be carried out if there are no factors obstructing concomitant bladder emptying. When that is the case, obstruction must be resolved before or during surgical treatment of the diverticulum.

REFERENCES


Figure 4. Postoperative control cystourethrography, with no evidence of bladder diverticulum.