

## Pediatrics

## Prenatal hydronephrosis revealing a bladder diverticulum

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## ABSTRACT

Bladder diverticula can be either congenital or acquired. They are the formation of a urothelial hernia through the muscle wall fibers of the bladder. Congenital bladder diverticula are rare and there are no previous reports showing them to have been found through an antenatal ultrasound exam revealing the presence of hydronephrosis. Here we describe the case of a large congenital bladder diverticulum revealed through an antenatal hydronephrosis diagnosis and whose proximity to the ureter led to its removal and a ureteral reimplantation.

## Introduction

Bladder diverticula are defined as a bladder urothelial herniation through the muscle fibers of the detrusor. When found in children, bladder diverticula can be acquired - usually secondary to a chronic elevation of the intravesical pressure caused by a condition such as neurogenic bladder - or congenital. Congenital bladder diverticula, with no association with an infravesical obstruction, are little frequent, mainly affecting the male gender. They can be either unilateral or bilateral, caused by congenital abnormalities of the Waldeyer fascia, combined with a segmental weakness of the detrusor muscle, most commonly appearing near the ureterovesical junction, in the posterolateral position<sup>1,2</sup> They are strongly connected with congenital connective tissue diseases, the main one of which being Ehlers-Danlos syndrome.<sup>3</sup>

Bladder diverticula are, in most cases, found during investigations of urinary infections, hematuria or voiding disorders.<sup>4</sup> Although the diagnosis is made, usually, by ultrasound, they can be better observed through a voiding urethrocytography.

We report the case of a child with a congenital bladder diverticulum diagnosed through a ureterohydronephrosis revealed in an antenatal ultrasound.

## Case presentation

A 4 months old male child was referred to our Department on account of the finding of a left-side antenatal hydronephrosis (Fig. 1). The

child had presented a urinary tract infection event after birth. A voiding urethrocytography revealed the presence of a large bladder diverticulum with a narrow neck, no vesicoureteral reflux (Fig. 2).

During surgery a diverticulum with a narrow-neck was found and excised (Fig. 3). Due to its intimate relation with the ureteral ostium, the left ureter was reimplanted. The child evolved well, and was discharged two days after surgery.

Currently, six months later, he is doing well, no new urinary infection events, voiding normally, normal renal function.

## Discussion

Treatment of the congenital bladder diverticulum is based on the existence or not of symptoms. Small and asymptomatic diverticula can be treated simply through regular follow-up. However, in the event of symptoms such as urinary infections or any other symptom, surgical excision of the diverticulum ought to be performed and many times, such as was the case of our patient, if related to the ureter, its reimplantation is recommended.<sup>5</sup>

## Conclusion

If not intimately related with one of the ureters congenital bladder diverticula may cause antenatal hydronephrosis. They can also cause infection of the urinary tract, particularly when located near the adjacent ureter. In such cases following their excision the adjacent ureter should be reimplanted.

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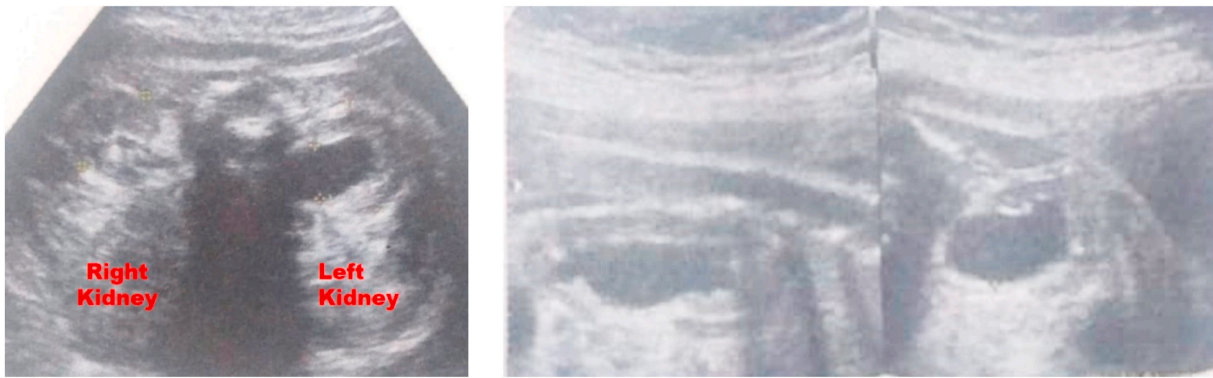


Fig. 1. Antenatal ultrasound showing left-side hydronephrosis.

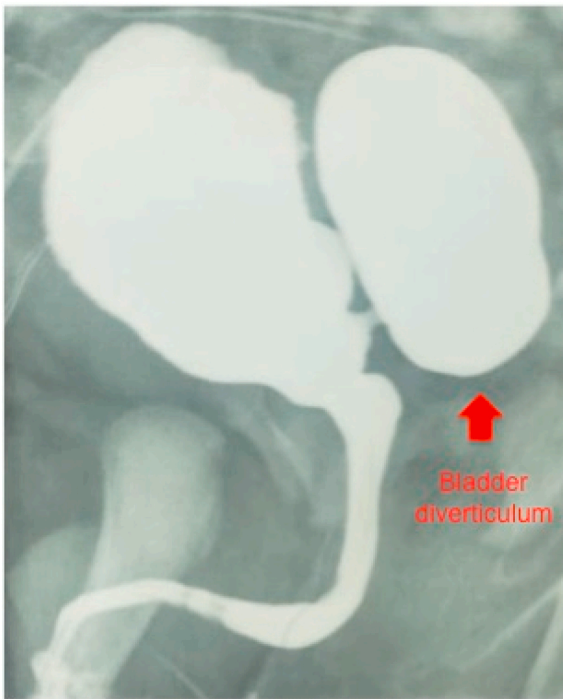


Fig. 2. Voiding cystourethrography showing a large congenital diverticulum and a narrow neck.

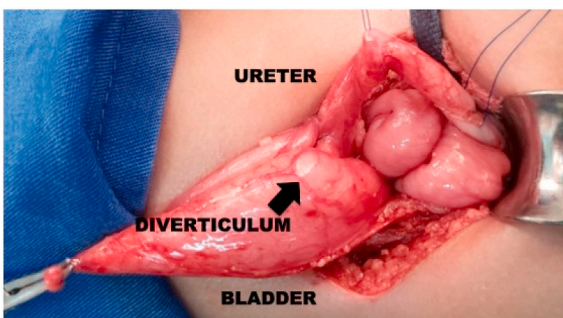


Fig. 3. Surgical aspect of a congenital diverticulum, in paraureteral position causing dilation of the ureter.

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