

# Laparoscopic Undiversion in a Child with Sacral Agenesis into Augmentation Cystoplasty

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## ABSTRACT

**Introduction:** In neurogenic bladder with compromised renal function or when complex reconstruction is not preferred, ileal conduit is considered. Undiversion is performed when the patient prefers the procedure, once the renal function improves, or when complications resulting from diversion are present.

**Case Description:** We present the case of a 10-y-old boy with sacral agenesis, who underwent laparoscopic-assisted ileal conduit diversion in 2006, because he had a grossly unstable, small-capacity bladder and was not compliant with intermittent self-catheterization. At present, he preferred not to have a conduit.

**Discussion:** Laparoscopic undiversion with ileal augmentation cystoplasty was performed. The postoperative course was uneventful, and he is now on intermittent self-catheterization with healthy renal function. Laparoscopic undiversion is technically challenging, yet feasible, and is an effective option in children. To our knowledge, this is the first such case reported.

**Key Words:** Laparoscopy, Undiversion, Sacral agenesis, Ileal conduit, Augmentation cystoplasty.

## INTRODUCTION

Ileal conduit is a temporary option in neurogenic bladder with compromised renal function or as a last option in neurogenic bladders when complex reconstruction is not preferred or possible.<sup>1</sup> Undiversion is performed when the patient prefers the procedure or when there are complications resulting from the diversion. In patients with compromised renal function, the ileal conduit can be undiverted once the renal function improves.<sup>2</sup> We present the case of a 10-y-old boy who underwent laparoscopic undiversion. To our knowledge, this is the first such case reported.

## CASE REPORT

A 10-y-old boy with sacral agenesis, ventricular septal defect, and bilateral ureteric stricture (after ureteric reimplantation for bilateral vesicoureteric reflux in childhood) presented, in 2006, with constant dribbling resulting from gross instability and a small-capacity bladder. He was not compliant with intermittent self-catheterization in 2006, and various options were discussed with the parents. The parents preferred an ileal conduit (which could care for the leak and avoid complex reconstructive surgery), with an option of reconstruction later.<sup>3</sup> Laparoscopic-assisted ileal conduit was performed.<sup>3</sup>

In 2011, the patient and his parents were keen to be relieved of the conduit and have an option of urethral voiding. Hence, undiversion (augmentation cystoplasty), along with self-intermittent catheterization, was discussed. His bladder was reassessed with a urodynamic study, which revealed a bladder capacity of 50 mL and compliance of 4 mL/cm H<sub>2</sub>O. Renal parameters were normal. Isotope renogram showed a glomerular filtration rate (GFR) of 54.4 mL/min and 14.1 mL/min in the right and left kidney, respectively, and there was no obstruction. Imaging (computed tomography [CT] urogram) revealed bilateral residual hydronephrosis with healthy parenchyma on the right side and thinned out parenchyma on the left side (**Figure 1**). The length of the ileal conduit was approximately 10cm. The boy and his parents were counseled regarding the need for lifelong clean intermittent catheterization. The boy was trained to do self-inter-

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