

# Laparoscopic Ureterocystoplasty Before Kidney Transplantation

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## ABSTRACT

**Purpose:** To describe the technique of total laparoscopic ureterocystoplasty.

**Materials and Methods:** Laparoscopic ureterocystoplasty was performed to optimize the bladder function before kidney transplantation in a 23-year-old man. This patient had undergone bilateral cutaneous ureterosomy with fulguration of a posterior urethral valve at the age of 11 months. He underwent open surgical removal of multiple renal stones at age 10. He progressed to chronic renal failure at the age of 20, at which time hemodialysis was initiated. Because of grade IV vesicoureteral reflux and a poorly compliant bladder, the patient underwent laparoscopic ureterocystoplasty.

**Results:** The patient's lower urinary tract symptoms improved, and a urodynamic study performed after 6 months revealed a compliant bladder. Subsequently, a right nephrectomy and a live-donor renal transplantation from his mother were performed. At 1-year follow-up, his renal parameters were within normal range, he does not have any significant residual urine or urinary symptoms.

**Conclusion:** Laparoscopic ureterocystoplasty is an excellent option for a poorly compliant bladder, especially when a patient has had multiple open surgeries and is awaiting renal transplantation.

## INTRODUCTION

PATIENTS WITH A POSTERIOR URETHRAL VALVE (PUV) have residual bladder dysfunction even after correction of the obstruction. The incidence of renal failure development within 10 to 15 years of the diagnosis of a PUV varies from 10% to 21% and may be as high as 51% by age 20.<sup>1–3</sup>

When kidney transplantation is planned in these persons, it is important to optimize the function of the bladder before transplantation so the graft retains its function. The bladder must be able to store urine at low pressure and empty completely (if needed, by intermittent self-catheterization).

Among the tissues that can be used for augmenting the bladder, the ureter has been the ideal one until now, because it is transitional epithelium with no risks of metabolic abnormalities, malignancy, and mucus production associated with enterocystoplasty. To our knowledge, this is the first report of total laparoscopic ureterocystoplasty and nephrectomy.

## PATIENT AND METHOD

A 23-year-old man was diagnosed to have PUV and underwent bilateral cutaneous ureterosomy with fulguration of the PUV at the age of 11 months. Subsequently, multiple renal stones developed, and he underwent right nephrolithotomy and left ureterolithotomy at the age of 10 years. The cutaneous ureterostomies were closed at the same time. Since then, he has had several episodes of urinary tract infection. At the age of 20, he was in chronic renal failure. Hemodialysis was initiated, and he was awaiting renal transplantation. He had obstructive lower urinary tract symptoms. Micturating cystourethrography revealed grade IV right vesicoureteral reflux (Fig. 1). Ultrasonography confirmed the presence of bilateral contracted kidneys and gross right ureteral dilation. The width of the ureter, measured during ultrasonographic evaluation, was about 1 cm.

A urodynamic study revealed a bladder with fair capacity and reduced compliance (Fig. 2), which could be detrimental

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