CASE REPORT

TRAUMA AND RECONSTRUCTIVE UROLOGY

Laparoscopic ureteral reimplantation in a renal transplant

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We present what is to our knowledge, the first case of laparoscopic ureteral reimplantation reported in the renal transplant.
The ureteral stenosis is one of the most difficult renal transplant complications to deal with. With the development of the endourological approach, this treatment has become the first treatment option for these patients. The patient is a 28-year-old female who received a renal allograft from a cadaver donor in 2008. Ureteral stenosis was diagnosed.
The laparoscopic approach seems to be a good option over the open approach, with the benefits related with laparoscopic surgery.

Key Words: laparoscopic ‹› ureteral stenosis ‹› ureteral reimplantation ‹› transplant

CASE REPORT

The patient is a 28-year-old female who received a renal allograft from a cadaver donor in August 2008. She was diagnosed with ureteral stenosis months after that it resulted in a worsening renal function that was temporarily resolved by a percutaneous nephrostomy. In the pyelography a distal ureteral stenosis less than 2 cm in length can be seen (Figure 1). After failure of the endourological maneuvers, the decision to perform a laparoscopic ureteral reimplantation was made.
As every pelvic laparoscopic approach, the procedure was performed through four ports (3 of 5 mm and 1 of 10 mm) in the Trendelenburg position. From our point of view, the most difficult step in this surgery was to identify the ureter without causing ureteral lesions or even worse, any vascular lesion. For this reason it was decided to perform an intraoperative pyelography for quick and safe identification of the ureter (Figure 2). Once the ureter was dissected with the help of the image, it was possible to incise it just before the stenosis, and as close to the bladder as it was possible. Afterwards, a pigtail catheter was introduced with the help of the needle-trocar of percutaneous renal surgery as we have previously described (9). Finally, we proceeded to the ureteral reimplantation with two running sutures of 4-0 Vicryl. The procedure lasted 3 hours 30 minutes. The patient began oral intake on the first postoperative day, and she was discharged on the fifth postoperative day with no complications.
The ureteral catheter was removed after four weeks and since then, she has presented with a creatinine level of 0.9 mg/dl.
She was followed–up with a urogram at three months that showed completely normal renal allograft function (Figure 3). After three years of fthe follow–up, she is completely asymptomatic and renal function remains normal.

DISCUSSION

Ureteral stenosis in the renal transplant is an important complication that has been reported with a rate of 5-8% [1, 2]. This complication is a difficult issue to manage and can lead to the failure of the renal transplant.

Figure 1. *Preoperative pyelography.*

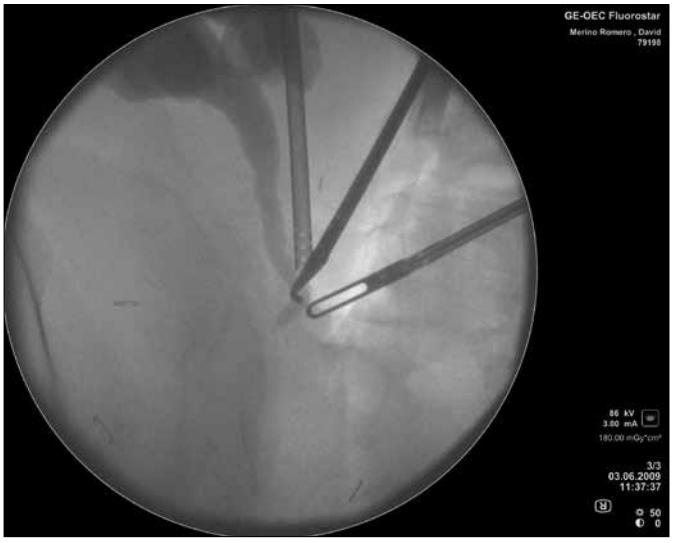

Figure 2. *Intraoperative pyelography for ureteral stenosis identification.*

In the past, the main treatment option was the surgical procedure that, in the hands of an expert surgeon, offers a high rate of success [3, 4]. However, with the development of the endourological approach, and because of the possibility of serious complications in open surgery, the endourologic treatment has become the first treatment option for these patients. The success rates reported are 60% to 95% by different authors, and the recurrence rate around 45% [5, 6].

Nowadays, laparoscopic surgery is used in almost every urological field. It is likely that reconstructive surgery will be the last area to be developed by the laparoscopic approach.

Our department has a broad laparoscopic experience, including reconstructive laparoscopic procedures [7-10]. The laparoscopic approach offers known benefits related to bleeding, infections, and stay rates. We think that it can also improve our outcomes in such patients, especially those who need reconstructive procedures. On the other hand, we could think that the pressure of the pneumoperitoneum would be harmful for the renal transplant. However, there are many reports related to the physiology and outcome of renal function in a living donor transplant, which lead us to think that the laparoscopic approach is a safe one in transplant patients too.

The ureteral stenosis in the renal transplant is still a complicated problem. The first treatment option involves endourological maneuvers with a success rate of 65-95%. Surgical treatment is the only option when endourology fails.

The laparoscopic ureteral reimplantation is also an option in these cases when endourology fails.

Figure 3. *Urogram 18 months later.*

We believe that the intraoperative radiologic image offers the safety needed for these kinds of procedures.

The laparoscopic approach seems to be a good option over the open approach, with the benefits related to laparoscopic surgery. We believe that, with enough experience, in most cases open surgery will no longer be necessary for the treatment of ureteral stenosis. Until now we have performed five cases with a successful rate of 80%.

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