Comparison of Endoscopic Balloon Dilation vs Laparoscopic Ureteral Reimplantation for the Treatment of Adult Primary Obstructive Megaureter

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Abstract

Introduction: Laparoscopic ureteral reimplantation (LUR) has been a reconstructive surgery for primary obstructive megaureter (POM) but may be more invasive than the endoscopic approach. To determine whether endoscopic balloon dilation (EBD) for POM is as effective as LUR in the long-term follow-up, we made a retrospective comparison between EBD and LUR.

Materials and Methods: Twenty-four adult patients and 26 megaureters were retrospectively included from August 2010 to September 2015. The diagnosis was based on ultrasonography, computerized tomography, diuresis renal scintigraphy, and clinical findings. The surgery indications were progressive decreasing of the differential renal function <40%, recurrent urinary tract infection associated with obstruction, or worsening of the renal pelvic and ureter dilation. Ten patients and 11 ureters underwent EBD. The narrow ureterovesical junction was dilated with a high pressure balloon at 20–30 atm for 3 minutes. Fourteen patients and 15 megaureters underwent our modified LUR with extracorporeal tailoring and direct nipple ureteroneocystostomy. All patients must undergo intravenous pyelography examination and ultrasonography 3 months after surgery. The success criteria were the disappearance of obstruction and the relief of symptom and hydronephrosis.

Results: No perioperative complications occurred in both groups. The mean operative time, the mean blood loss, and the mean postoperative hospitalization showed significant differences between EBD and LUR (61.9 minutes vs 177.7 minutes, $p < 0.001$; 0 mL vs 22.9 mL, $p = 0.004$; 2 days vs 4.5 days, $p < 0.001$). The mean follow-up time was 28.9 and 46 months for EBD and LUR, respectively. Two years after EBD, obstruction and hydronephrosis occurred in one female once again who had to receive one more dilatation. In the LUR group, one female still had hydronephrosis after surgery, but her symptom was relieved and the hydronephrosis was no worse. Forty-three months after LUR, recurrent urinary tract infection occurred in one female. No hydronephrosis was found by intravenous urography. She received flexible ureteroscopy, but no obstruction was found. The success rate of EBD and LUR was 90% (9/10) and 92.9% (13/14), respectively.

Conclusion: The EBD seems to be safe and equally effective as the LUR for the treatment of adult POM. In addition, the EBD may be less invasive with shorter operative time, less blood loss, and shorter postoperative hospitalization than LUR. However, further multicenter studies or prospective trial studies will be still required to demonstrate definitively real benefits of the EBD.

No competing financial interests exist.

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Keywords: endoscopic balloon dilation, laparoscopic ureteral reimplantation, adult primary obstructive megaureter

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