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Endoscopic Correction of Vesicoureteral Reflux after Open Ureteral Reimplantation in Primary Obstructive Megaureter: Case Series

Warchol S[1]*, Bombinski P[2] and Dudek-Warchol T[1]

[1]Department of Pediatric Surgery and Urology, Medical University of Warsaw, Poland

[2]Department of Pediatric Radiology, Medical University of Warsaw, Poland

Abstract

One of the possible complication after operative treatment of obstructive megaureter is persistent reflux or stenosis with obstruction at the vesicoureteral junction. There is no uniform approach how to manage such cases. We present our experience with endoscopic correction of high grade vesicoureteral reflux after open ureteroneocystostomy in primary obstructive megaureter in children. Three children with postoperative de-novo reflux grade IV were treated with synthetic, non-absorbable tissue-augmenting substance polyacrylate-polyalcohol copolymer (PPC). In all of them reflux resolved. Our observation showed that endoscopic treatment is reasonable, mini-invasive option and can be taken into consideration in the management of postoperative, de-novo vesicoureteral reflux.

Keywords: Primary obstructive megaureter; Vesicoureteral reflux; Endoscopic correction of reflux; Polyacrylate-polyalcohol copolymer; PPC; VANTRIS

Introduction

Management of megaureter in children classified as obstructive, refluxing and non-obstructive, non-refluxing according to its etiology, still is challenging. The majority of congenital megaureters may be managed conservatively with success, however, there is a group of patients, especially with the primary obstructive megaureter, who require operative treatment [1,2,3]. The same complications, i.e. persistent reflux and stenosis are noted after reimplantations of megaureters and of non-dilated ureters, but at increased rates [1,2,4,5]. There is no uniform approach how to manage such cases.

We present our experience with endoscopic correction of high grade vesicoureteral reflux (VUR) after open ureteroneocystostomy in primary obstructive megaureter in children.

Material and Methods

During the last 10 years 15 children were treated operatively because of unilateral primary obstructive magaureter. In all of them 2-stage management was performed: Williams ureterocutaneostomy as stage one, and then after mean of 1.8 years ureteroneocystostomy according to Politano-Leadbetter technique with or without folding of the distal ureter according to Kalicinski technique. Each patient underwent 6 months after second stage control voiding cystourethrography (VCUG). In 3 out of 15 children control VCUG showed the presence of postoperative reflux grade IV (Figure 1 a,b).

All 3 children were qualified for endoscopic correction of VUR. All procedures were done during cystoscopy under general anesthesia using a pediatric operating cystoscope (Storz 8.5Fr). As a bulking agent a synthetic, non-absorbable tissue-augmenting substance polyacrylate-polyalcohol copolymer (PPC, Vantris®, Promedon, Cordoba, Argentina) was used. Under refluxing ureteral orifice 1ml of PPC was injected using STING technique. After injection of PPC apparent bulge at the site of injection was visible. Figure 2a, 2b shows ureteral orifice before injection and Figure 3 after endoscopic treatment. Perioperative antibiotic prophylaxis was administered and the child was discharged home the next day after cystoscopy

Results

Each patient underwent VCUG 3 months after endoscopic procedure. In all reflux resolved

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*Correspondence:
Stanislaw Warchol, Department of Pediatric Surgery and Urology, Medical University of Warsaw, 63a Zwirki and Wigury Street, 02-091 Warsaw, Poland.
Tel: +48 606 189852
E-mail: swarchol@poczta.onet

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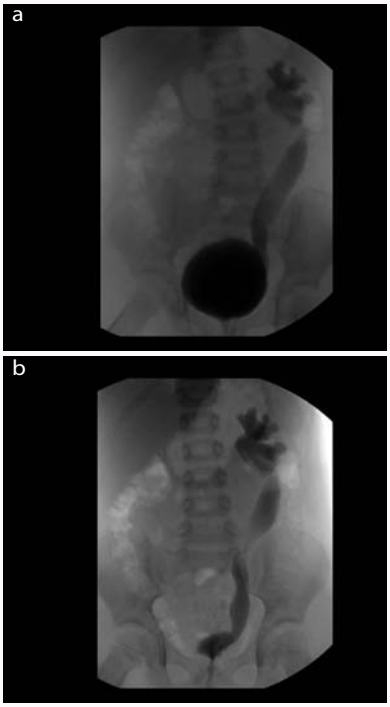

Figure 1: Vesicoureteral reflux grade IV after ureteral reimplantation because of primary obstructive megaureter.

follow-up for those 3 children after endoscopic treatment was 2.2, 2.4 and 3.8 years respectively. No urinary tract infections were noted. Follow-up imaging studies (ultrasound, radionuclide scan) showed gradually decrease of dilatation of urinary tract with normal renal function.

Discussion

Operative reimplantation of dilated ureter is technically demanded. Various operative techniques were described to gain the successful reimplantation without possible postoperative complications, such as stenosis of ureteral orifice with subsequent obstruction or postoperative reflux [1,2,4,6,7,8]. The incidence of above complications after operative treatment of primary obstructive megaureter are estimated to be low, however, there is no consensus regarding its treatment. Generally, low grade persistent reflux is scheduled for further observation and any obstruction or stenosis at the vesicoureteral junction is managed operatively.

We present 3 cases of high grade vesicoureteral reflux (VUR) after open ureteroneocystostomy in primary obstructive megaureter in children. In all of them decision to correct reflux endoscopically was based on of presence of high grade reflux, despite the fact that no postoperative urinary tract infections were noted.

Endoscopic treatment of reflux using various bulking agents offers minimally invasive management and is widely used as the first line interventional procedure to treat persistent reflux with increasing success rate [9,10]. One of the used tissue augmenting substances is polyacrylate-polyalcohol copolymer, which is used in some pediatric centers around the world. A high level of reflux resolution (in about 90% of cases after single injection) using PPC is noted. PPC is used successfully to treat primary reflux as well as complex cases, i.e. persistent reflux in boys after posterior urethral valves ablation, reflux associated with duplication of the upper urinary tract [11-14].

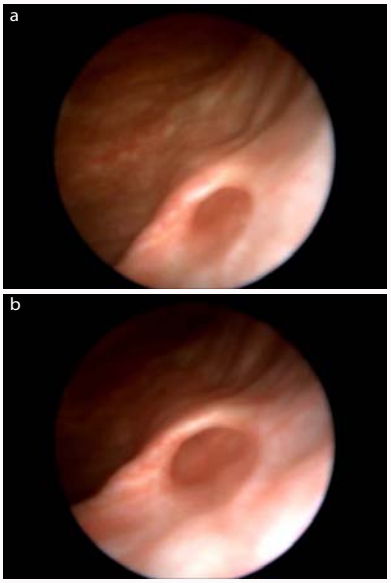

Figure 2: Refluxing ureteral orifice after Politano-Leadbetter reimplantation.

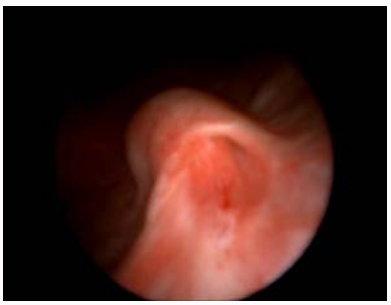

Figure 3: Elevated and closed ureteral orifice after injection of 1ml of polyalcohol-polyacrylate copolymer.

Our observation showed that endoscopic treatment is reasonable, mini-invasive option and can be taken into consideration in the management of postoperative, de-novo vesicoureteral reflux.

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