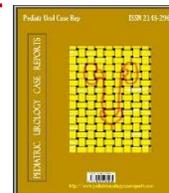


**PEDIATRIC UROLOGY CASE REPORTS**

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<http://www.pediatricurologycasereports.com>**Sigmoid perforation during Leadbetter-Politano ureterocystoneostomy: Two patients, two different presentations****Tunc Ozdemir, Ali Sayan, Ahmet Arikani***University of Medical Sciences, Tepecik Training and Research Hospital, Department of Pediatric Surgery, Izmir, Turkey***ABSTRACT**

We herein report two patients who underwent Leadbetter-Politano ureterocystoneostomy whose ureters were passed through sigmoid colon during operation. Presentations and treatment strategies of these patients were discussed.

**Key Words:** Ureterocystoneostomy; complication; pediatric; vesicoureteral reflux.

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**Introduction**

The Leadbetter-Politano ureterocystoneostomy is a well-established procedure in the treatment of vesicoureteral reflux (VUR) with evidence of high success rates. Specific and most significant problems of the Politano-Leadbetter technique resulted from the blind paravesical pull-through of the ureter, mainly when performed in young infants. The relapses of reflux or ureteral stenosis is very rare (only 1.1% or less each) [1,2]. In another study, Steffens et al evaluated the results and complications of children with reflux treated with the Politano-Leadbetter ureteroneocystostomy. They found

postoperative complications in 7.8% and had persistent reflux (5.6%), small bowel serosal injury (0.3%), vesicocutaneous fistula (0.4%) and retrovesical hematoma (0.3%) [3]. We herein report two rare patients who underwent Leadbetter-Politano ureterocystoneostomy whose ureters passed through sigmoid colon and were presented in two different clinical appearance.

**Case report 1**

A 9 tears-old girl with unilateral grade IV left VUR and ipsilateral renal damage was undergone Leadbetter-Politano ureteroneocystostomy after two unsuccessful attempts of endoscopic treatment. The procedure was done entirely transvesically without mobilization of bladder.

Several hours after the operation the patient was suffered from acute abdominal pain and tenderness, fever, nausea and vomiting. Plain abdominal radiograph revealed free subdiaphragmatic air. During emergent

abdominal exploration with midline incision, left ureter was found passing through the sigmoid colon intraperitoneally. Fecal contamination was present. The sigmoid colon was transected at the level of perforations and left divided colostomy was created at left lower quadrant. Left ureter was intact and safe.

Postoperative course of the patient was uneventful. The colostomy was closed after three months postoperatively. No VUR was detected during follow-up.

### **Case report 2**

A 3 years of boy with grade IV VUR and severely scarred right kidney with 32% split renal function at renal cortical scan was referred to department of pediatric surgery. Leadbetter-Politano ureteroneocystostomy was performed.

Early postoperative period of the patient was uneventful. During follow-up, right hydroureteronephrosis was appeared which was not present before. It's thought to be transient initially and close follow-up was planned. However, hydroureteronephrosis was worsened at postoperative 6th month. The patient was suffered repetitious febrile urinary tract infections requiring hospitalization and intravenous antibiotherapy. At magnetic resonance urography, severe hydroureteronephrosis through the level of 1/5 distal ureter was apparent. Renal cortical scan revealed worsening renal function which decreased to 17% and increasing in scarring.

Cystoscopy was planned in order to perform retrograde ureteral catheterization. During cystoscopy, neohiatus of the right ureter was normal. The ureteral catheter could not be advanced from the level of 5 cm proximal to the ureteral orifice.

The patient was re-operated with a suspicion of ureteral kinking. During exploration, left ureter

was found passing through the sigmoid colon without any fecal leakage. Proximal ureter above the insertion through the sigmoid colon was severely dilated and distal ureter was shrinkaged and inflamed. The ureter was mobilized and transected from bladder. The ureter was brought out the sigmoid colon. Perforations were closed by interrupted sutures in two layers fashion. Severely inflamed and shrinkaged distal 1/5 ureter which passed through the sigmoid colon was excised. After excision, direct end-to-end anastomosis of the ureter was not possible owing to the length of the resected segment. Additionally, severe inflammation and adhesions of proximal ureter did not permit mobilization of the ureter with the aim of establishing transureteroureterostomy. Accordingly, we performed ureteral substitution by using the appendix to repair the ureteral defect.

During follow-up, ipsilateral renal function was decreased gradually. Right nephrectomy was performed because of loss of renal function at a level of 5% and febrile urinary tract infections despite medical therapy 16 months after ureteral substitution.

### **Discussion**

Vesicoureteral reflux still remains the most concerning issue in the etiology of nephropathy with renal scarring and subsequent hypertension. The clinical significance of VUR has been based on the premise that VUR predisposes patients to acute pyelonephritis by transporting bacteria from the bladder to the kidney and recurrent urinary tract infection, which may lead to renal scarring, hypertension, and end-stage renal disease (ESRD). In children which medical therapy failed endoscopic or open surgical correction is mandatory. Overall success rates for open surgical reimplantation between 95%

and 98% covering all reflux grades and associated anomalies [4]. The Leadbetter-Politano technique is very helpful in correcting bilateral VUR of any grade in one session to create a neohiatus in an anatomically correct position which is easily accessible for endourological manipulations [5]. However, neohiatus formation is especially considered a hazardous maneuver. Postoperative ureteral obstruction may complicate the outcome [6]. Intraperitoneal viscus perforation such as sigmoid colon, ileum or broad ligament has been reported especially in patients whom retrovesical dissection was performed blindly [7,8].

The Leadbetter-Politano ureteroneocystostomy may be done unintentionally through sigmoid colon, mesosigma or around the fallopian tube if transvesical insertion of the ureter is performed incautiously. The ureter may pass through the lumen of sigmoid colon during reinsertion of the ureter into the bladder blindly. As in first patient, acute abdominal signs may be apparent promptly due to fecal spillage into the peritoneum. However, as in second patient, no acute abdominal signs may be present even though the ureter passed through the sigmoid colon. Persistent hydronephrosis during follow-up which is not present preoperatively must warn the surgeon for possible transsigmoid reimplantation. Level of the ureteral dilation is also important. Dilation of the whole ureter at the level of neohiatus may be the sign of tight neohiatus or intravesical anastomotic stricture.

Specific and most significant problems of the Politano-Leadbetter technique resulted from the blind paravesical pull-through of the ureter, mainly when performed in young infants. Suprahialal dilation of the ureter must refer

the surgeon to possible transsigmoid reimplantation. As in case 1, acute abdominal signs may be present because of sigmoid perforation. However, as in case 2, fecal spillage may not be present despite transsigmoid passage of ureter. In this subset of patients, clinical presentation would be as supravescical ureteral obstruction. Prompt investigation of the cause of the partial dilation of the ureter may prevent worsening of the renal function. Magnetic resonance urography is appropriate in order to determine anatomical details of ureteral pathology. Patients who underwent Politano-Leadbetter ureteral reimplantation and presented with late supravescical ureteral dilation must be investigated for possible transsigmoid reimplantation.

### **Compliance with ethical statements**

*Conflicts of Interest:* None.

*Financial disclosure:* None.

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