

Laparoscopic-Assisted Anorectal Pull-Through for Persistent Cloaca in Two Girls

Nasir BUSTANGI¹, Céline GROSOS², Manuel LOPEZ³, Thomas GELAS⁴, Pierre MOURIQUAND⁵, François VARLET⁶, Pierre-Yves MURE⁷

^{1, 4, 5, 7}Department of Pediatric Surgery and Urology, Hospital Femme Mère Enfant, Hospices Civils de Lyon and Claude Bernard University, France

^{2, 3, 6}Department of Pediatric Surgery and urology, University Hospital of Saint Etienne, Saint Etienne, France

Abstract: ***Aim:** The aim of this study was to present our technique and the surgical approach for assisted laparoscopic anorectal pull-through and the initial out-come in two girls with persistent cloaca. **Patients and methods:** Laparoscopic assisted anorectal pull-through was done in 2 girls with persistent cloaca between 2008 and 2011 in two different French centers. Diverting colostomy was performed during the neonatal period. The common channel length was 2.5 and 4 cm respectively and their surgical repair was performed at 16 and 6 months of age respectively. The first girl had a delayed surgical repair for growth problem. The laparoscopic pull-through, the anoplasty and the mobilization of the urethra were done at the same time. **Results:** Laparoscopic assisted pull-through was successfully performed in the two girls. There was no intra-operative or postoperative complication. Length of stay was 15 and 12 days respectively. The colostomy was closed at 9 and 3 months of age. Anal dilatation was started 3 weeks after the surgery and continued for 4 months after closure of the colostomy. Follow-up was 30 months and 18 months, respectively. **Conclusion:** Simultaneous laparoscopic assisted pull-through and urethral mobilization for the management of persistent cloaca is a feasible, effective and safe surgical option. This technique provides an optimal view of the pelvic organs, better identification of fistula and minimizes abdominal scars. Large prospectively conducted studies with prolonged follow-up periods are required to further validate this approach.*

Keywords: cloaca, Laparoscopy, pull-through

1. Introduction

Persistent cloacas are complex malformations that requires complex surgical treatment, and prolonged follow-up. An abdominal approach is often necessary, especially if the common channel is long [1-4]. Laparoscopic approach is frequently used in high to intermediate types of anorectal malformations with excellent results. Different techniques have been previously described [5]. In this article, we present early outcomes of two cases of persistent cloaca treated with laparoscopic assisted anorectal pull-through technique.

Case 1:

She was diagnosed during the antenatal period with pelvic organ anomalies. Induction of delivery was done at 34 weeks of gestation because of preeclampsia. She was born with respiratory distress and significant abdominal distention. Clinical examination confirmed the presence of a single genital opening.

In the first day of life the patient was taken to the OR to introduce a diverting left colostomy by laparotomy.

Vaginostomy and cystostomy were performed with a urinary catheter left in both the vagina and urinary bladder.

At the age of 11 months new cystoscopy and vaginoscopy were performed followed by a contrast study through the colostomy, which showed a common channel of 25 mm length, a urethra of 15 mm in length in the upper part of the common channel and a rectum located approximately 3 cm from the skin.

The operation was done at the age of 16 months because of growth retardation.

First time Installation: started with dorsal decubitus, 3 Trocars were initially used.

The first 5mm Trans-umbilical trocar for the (30°) optic with two 3mm trocars in the right and left iliac fossa(Figure 1).

The 4th 3 mm trocar was added later in the right flank to facilitate the dissection of the rectum.



Figure 1

We started by Insufflation of gas at 9mmHg. We found a lot of Adhesion because of the vaginostomy in the neonatal period with large vagina. A trans-parietal suspension suture was passed through the upper part of the vagina to facilitate the dissection. Dissection of the rectum laterally and after completing the dissection of the rectum we passed an elastic tape behind the rectum and suspending it through the added

trocar in the right flank, which added an excellent view for careful dissection. The fistula was identified and then closed with X-suturing with 4-0 vicryl. Complete Liberation of the rectum was achieved with an ideal length for pulling it down.

Second time Installation: Ventral Decubitus for the posterior sagittal ano-rectoplasty with urethroplasty and vaginoplasty (dorsal decubitus) at the same time.

The patient was discharged from the hospital on day 15. The first follow up visit was 3 weeks post operatively with good micturition and excellent local results. Anal Dilatation using a Hegar dilator size 12 was started.

The colostomy opening was closed at the age of 20 months. Vaginoscopy and cystoscopy were done at the same time and they showed persistence of a very short common channel with minimal fusion at the posterior part of the Vulva.

In the last follow up visit at 3 years of age, the patient had occasional episodes of stool and urinary incontinence. She had also a mucosal prolapse. X-ray showed fecal impaction. She was on regular laxative treatment and responded very well.

Case 2

She was a full term born in another hospital and was transferred to our Center 24 hours after birth. Clinical examination confirmed a single genital opening (Fig 2).

Transverse right colostomy was done on the second day of life; during the same surgery we performed cystoscopy and vaginoscopy, we found a vagina filled with meconium, a short urethra, and a urinary bladder with good capacity.

The initial estimated length of the common channel was between 4 and 5 cm. A urinary catheter was kept in the

vagina and a supra-pubic catheter in the bladder for several days. Pelvic MRI and cystography were done before the surgery (Fig 3, 4).



Figure 2



Figure 3: Fistula between the rectum and the common channel

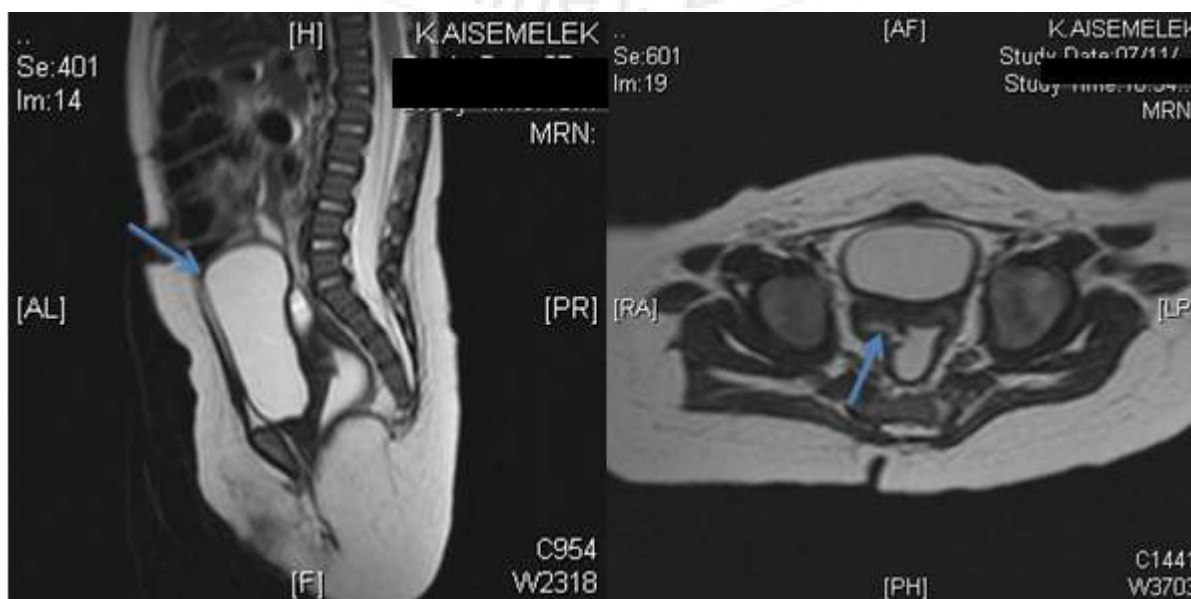


Figure 4: MRI showed the fistula communication with very high urinary bladder

Surgery was done at 6 months of age. Installation: dorsal decubitus. We started by Insufflation of gas at 8 mmHg. We

used 4 trocars: 5-mm umbilical trocar for the 30° optic, two 3-mm para-umbilical trocars on both side of the umbilicus and the 4th, 3mm in the left iliac fossa. (Fig 5).



Figure 5

The rectum was dissected circumferentially and mobilized. The fistula was transected and tied with 4-0 vicryl. (Figure 6) After perineal dissection, the rectum was pulled out after the identification of the levator muscles complex. Anoplasty was done by Nixon technique (two flaps technique).



Figure 6: (Laparoscopic view of the Uterus) (Fistula ligation and ansection)

Urogenital malformation was repaired by total urethral mobilization during the same operation. (Figure 7) patient was discharged at day 12.



Figure 7: Immediate post-operative result with urinary catheter in place

Anal dilatation was started 3 weeks after the operation and continued for 4 months after the closure of colostomy. The last follow-up visit showed a mucosal prolapse for one patient with an excellent calibrated anus and satisfied external aspect for the two patients.

3. Discussion

Our technique is similar to the Georgeson technique described for the high anorectal malformation [5]. We are similar in our two cases to Nguyen than hLiem in his 10 cases [6].

Different sites for the trocars can be used, as seen in the 10 cases reported by Nguyen, the umbilicus was not used but instead they placed the optic in the midline 2 cm above the umbilicus [6].

For the others trocars we can find the right and the left iliac fossa are the most frequently used with 4th additional trocar as needed.

The laparoscopic view can provide an optimal clear view of the anatomy in small pelvises and help guide careful dissection.

Our technique revealed that simultaneous laparoscopic assisted pull-through and urogenital sinus mobilization for persistent cloaca is a safe and effective surgical approach. Long operative times can be decreased through laparoscopy, especially for the complicated cases.

Table 1

Patient	Age at operation	Operative time	Hospital stay	Follow-up	Soiling
1	16 months	300 min	15 days	30 months	Rarely
2	6 months	300 min	12 days	18 months	NO

2. Results

There was no intraoperative or immediate postoperative complication. Length of stay was 15 and 12 days respectively. The colostomy was closed at 9 and 3 months.

Large Volume patients and long follow-up is needed to evaluate the real functional out-come in the long term.

References

- [1] Hendren WH. Cloacal malformations: experience with 105 cases. *J Pediatr Surg* 1992; 27:890-901.
- [2] Leclair MD, Gundetti M, Kiely EM, et al. The surgical outcomes of total urogenital mobilization for cloacal repair. *J Urol* 2007; 177:1492-5.
- [3] Peña A. The surgical management of persistent cloaca: results in 54 patients treated with a posterior sagittal approach. *J Pediatr Surg* 1989; 24:590-8.
- [4] Levitt MA, Peña A. Cloacal malformations: lessons learned from 490 cases. *Sem in Pediatr Surg* 2010; 19:128-38.
- [5] Georgeson K, Inge TH, Albanese CT. Laparoscopically assisted anorectal pull-through for high imperforate anus — a new technique. *J Pediatr Surg* 2000; 35:927-30.
- [6] Nguyen ThanhLiem et Al, Laparoscopic rectal pull-through for persistent cloaca: an easier approach for a complex anomaly. *J Pediatric Surgery* (2012) 47, 815–818.

