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Retraction

Retracted: Technique of Intravesical Laparoscopy for Ureteric Reimplantation to Treat VUR

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The article titled "Technique of Intravesical Laparoscopy for Ureteric Reimplantation to Treat VUR" [1] has been retracted as it was found to be substantially similar to a previously published article by the same authors. The first article, "Laparoscopy in the management of pediatric vesicoureteral reflux," by Atul A. Thakre, B. Sreedhar, and C. K. Yeung was published in Indian J Urol. 2007 Oct–Dec; 23(4): 414–419, while the second article, "Technique of Intravesical Laparoscopy for Ureteric Reimplantation to Treat VUR" was published in Advances in Urology in June 2008.

References

[1] A. A. Thakre and C. K. Yeung, "Technique of intravesical laparoscopy for ureteric reimplantation to treat VUR," *Advances in Urology*, vol. 2008, Article ID 937231, 3 pages, 2008.

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Methodology Report

Technique of Intravesical Laparoscopy for Ureteric Reimplantation to Treat VUR

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The prevalence of vesicoureteral reflux (VUR) has been estimated as 0.4 to 1.8% among the pediatric population. In children with urinary tract infection, the prevalence is typically from 30–50% with higher incidence occurring in infancy. When correction of VUR is determined to be necessary, traditionally open ureteral reimplantation by a variety of techniques has been the mainstay of treatment. This approach is justified because surgical correction affords a very high success rate of 99% in experienced hands and a low complication rate. In that context the purpose of presenting our *surgical technique: laparoscopic intravesical ureteric reimplantation* is to highlight the use of laparoscopy to perform ureteric reimplantation for the management of pediatric VUR.

1. SURGICAL TECHNIQUE: LAPAROSCOPIC INTRAVESICAL URETERIC REIMPLANTATION

The patient is positioned supine with the legs separated apart for cystoscopy and bladder catheterization intraoperatively. For small infants, the surgeon can stand and operate over the patient's head whereas for older children, the surgeon usually stands on the patient's left side. The video column is placed between the patient's legs at the end of the table. The port placement is preceded by transurethral cystoscopy to allow placement of the first camera port under cystoscopic guidance. The bladder is first distended with saline and a 2-0 monofilament traction suture is passed percutaneously at the bladder dome under cystoscopic vision, through both the abdominal and bladder walls. This helps to keep the bladder wall from falling away when the first camera port site incision is made and during insertion of the cannula. A 5-mm Step port (Tyco Healthcare Group LP, Conn, USA) is then inserted under cystoscopic vision. A urethral catheter is then inserted to drain the bladder and start carbon dioxide insufflation to 10–12 mm Hg pressure. The urethral catheter is used to occlude the internal urethral meatus to secure CO_2 pneumovesicum, and it could also serve as an additional suction irrigation device during subsequent dissection and ureteric reimplantation. A 5-mm 30-degree scope is used to provide intravesical vision. Two more 3–5 mm working ports are then inserted along the interspinous skin crease on either side of the lower lateral wall of the distended bladder under vesicoscopic guidance (see Figure 1). A 3-4 cm long segment of an Fr 4 or 6 catheter is then inserted into the respective ureter as a stent to facilitate subsequent ureteral mobilization and dissection, and secured with a 4-zero monofilament suture (see Figure 2). Intravesical mobilization of the ureter, dissection of submucosal tunnel, and a Cohen's type of ureteral reimplantation is then performed under endoscopic guidance, in a similar manner to the open procedure.

The ureter is mobilized by first circumscribing it around the ureteral orifice using hook electrocautery (see Figure 3). With traction on the ureteric stent using a blunt grasper, the fibrovascular tissue surrounding the lower ureter can be seen and divided using fine 3-mm endoscopic scissors and diathermy hook, while preserving the main ureteric blood supply (see Figure 4). Mobilization of the ureter is continued for 2.5 to 3 cm to the extravesical space. Once

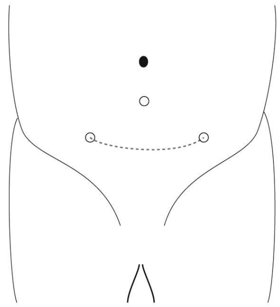

Figure 1: 5-mm working ports inserted along the interspinous skin crease on either side of the lower lateral wall of the distended bladder under vesicoscopic guidance.

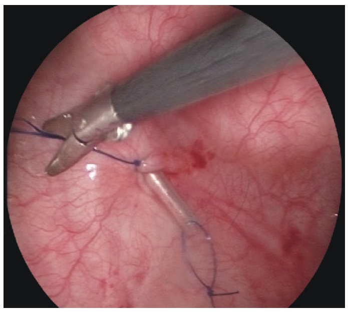

Figure 2: A 3-4 cm long segment of an Fr 4 or 5 catheter is inserted into the ureter as a stent to facilitate subsequent ureteral mobilization and dissection, and secured with a 4-zero monofilament suture.

Figure 3: The ureter is mobilized by first circumscribing it around the ureteral orifice using hook electrocautery.

adequate ureteral length is obtained, the muscular defect in the ureteral hiatus is repaired using 5-zero absorbable sutures, usually with an extracorporeal knot-tying technique (see Figure 5). A submucosal tunnel is then created as in an open Cohen's procedure. Using a diathermy hook, a small incision is made over the future site of the new ureteral orifice, usually chosen to be just above the contralateral ureteral orifice. Dissection of the submucosal tunnel is then started from the medial aspect of the ipsilateral ureteral hiatus towards the new ureteral orifice, using a combination of endoscopic scissor dissection and diathermy hook for

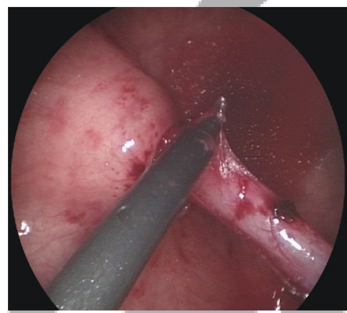

Figure 4: With traction on the ureteric stent using a blunt grasper, the fibrovascular tissue surrounding the lower ureter can be seen and divided using fine 3-mm endoscopic scissors and diathermy hook, while preserving the main ureteric blood supply.

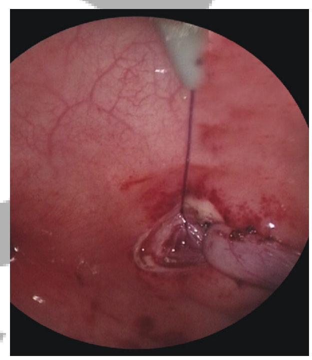

Figure 5: Once adequate ureteral length is obtained, the muscular defect in the ureteral hiatus is repaired using 5-zero absorbable sutures, usually with an extracorporeal knot-tying technique.

haemostasis. Once the submucosal tunnel dissection is completed, a fine grasper is passed and the mobilized ureter is gently drawn through the tunnel. Ureteroneocystostomy is performed under endoscopic guidance with intracorporeal suturing using interrupted 5-0 or 6-0 poliglecaprone or polydioxanone sutures (see Figures 6, 7). A ureteral stent is not routinely used except for selected patients undergoing bilateral ureteral reimplantation or those with megaureters requiring tapering ureteroplasty. The working ports are removed under endoscopic vision with evacuation of the pneumovesicum. The bladder-holding stitches are then tied. Each port site entry wound is then closed with a subcuticular monocryl suture.

2. RESULTS

The operative success for laparoscopic Cohen's is encouraging [1–3] and endoscopic intravesical ureteric mobilization and cross-trigonal ureteral reimplantation can be safely performed with routine pediatric laparoscopic surgical techniques and instruments under carbon dioxide insufflation of the bladder [1].

We have not faced any major complications with this technique. In the early part of the series when the cannulas were not secured to the bladder wall, displacement of the

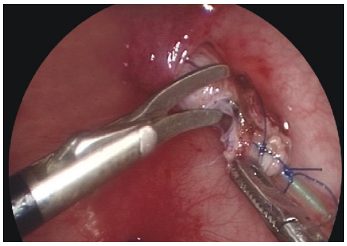

Figure 6: Ureteroneocystostomy is performed under endoscopic guidance with intracorporeal suturing using interrupted 5-0 or 6-0 poliglecaprone or polydioxanone sutures.

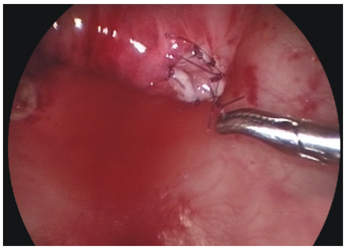

Figure 7: Completed ureteroneoctostomy.

port outside the bladder wall occurred. This resulted in gas leakage into the extravesical space, with compromise of the intravesical space and endoscopic vision. It is usually possible to reintroduce the ports but securing the ports perfectly is the key to the success of this technique [1]. We have experienced mild to moderate scrotal and suprapubic emphysema immediately postoperatively, which subsided spontaneously within 24 hours. Persistent mild haematuria up to 72 hours has also been observed, which too settles spontaneously. A recent series has reported complications of postoperative urinary leak in (12.5%) and ureteral stricture at the neoureterovesical anastomosis in (6.3%). This series also reported higher complications in patients 2 years or younger with bladder capacity less than 130 cc. [2].

3. DISCUSSION

Laparoscopic surgery has gradually made its place in surgically dealing vesicoureteral reflux. Laparoscopic extravesical and intravesical surgeries have shown good early results [1–3]. It also showed that children benefit from the improved cosmesis, more rapid recovery, and decreased postoperative analgesia requirements with the laparoscopic technique. Initial experience reported increased operative time and a steep learning curve [2], but these issues have been overcome with greater experience [1]. Greatest technical merit with high level of surgical precision is required to do this surgery. The operation desires extreme care, gentleness, and tissue respect while dissecting out the ureters. Great care needs to be taken to prevent damage to the ureteric vascularity which is an important cause which leads to developing ureteric necrosis and strictures. Laparoscopy aids fine dissection of the ureter and the submucosal tunnel with minimal trauma to the bladder wall and mucosa. The bladder can be quickly rehabilitated after surgery and normal voiding is ensured in the long term. To obtain the highest possible success with this operation, the decisive technical details described should be meticulously observed [1] supported by very good laparoscopic reconstruction skills to achieve these results.

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