

Eugene [eugenelauct@hotmail.com]Pneumovesical ureteric reimplantation using T-fastener: a novel technique

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Introduction

Bladder anchoring during pneumovesical ureteric reimplantation (PUR) can be difficult. Here we describe our new technique of using T-fastener (Kimberly Clark, USA) to tackle this problem.

Methods

T-fastener was applied to all patients who underwent PUR in our center since 2011.

Results

17 consecutive cases had been performed between 2011 and 2015. No bladder dislodgement or air leak was observed in all operations. No morbidity or mortality has been associated with the use of T-fasteners.

Conclusion

This technique is simple to learn and transferrable. It decreases intra-operative complications and helps to climb the learning curve.

Introduction

Pneumovesical ureteric reimplantation (PUR) has been a major advancement in pediatric urology [1-4]. However anchoring the bladder to the abdominal wall remains to be a time consuming step of the operation. Here we describe our new technique of employing T-fastener (Kimberly Clark, USA) (figure 1) in PUR, based on a modification of the technique reported by Yeung previously [4].

Methods

Under cystoscopy, the anchoring sites over the lateral walls of the bladder were decided along the skin crease. Stab incision was made and the T-fastener was inserted one on each side (figure 2). The T-fastener is a needle like device consisting of an introducer needle, a metal bar at its tip and a plastic button at the other end. The metal bar is attached to the plastic button via a suture, and can be tightened after the needle shaft is withdrawn (figure 3 and 4). Once the bladder was anchored with tightening of T-fastener suture, three 5mm ports were inserted. The bladder was insufflated with carbon dioxide to create pneumovesicum. Cohen cross trigonal reimplantation was done through a submucosal tunnel created across the bladder trigone. At the end of operation T-fastener sutures were loosened and cut at skin surface after being secured with a grasper. The metal bar is then removed via the working ports.

Results

17 consecutive patients were operated between January 2011 and December 2015. All PUR were performed uneventfully. There was no complication or mortality associated with the use of T-fasteners. Characteristics and clinical outcomes of patients are summarized in table 1.

Discussion

Bladder anchoring to the abdominal wall remains as one of the major hurdles in PUR [3]. When not done properly, it can result in air leak or bladder dislodgement, which in turns are common causes leading to conversion to open. In addition this seemingly simple step can be time consuming and may take up to 30 minutes to perform. Previously two angiocatheters were inserted into the bladder percutaneously, where the suture passed from the first angiocatheter was caught and brought out by a loop passed via the second angiocatheter. Since the two angiocatheters have to be placed close to each other for better bladder fixation, manipulation to pass the suture through the catching loop accurately was difficult when they were almost parallel.

T-fastener was originally designed for percutaneous gastrostomy but it has now been applied to other operations [5]. T-fastener allows anchoring of bladder to abdominal wall with only one single puncture site. This tight anchoring results in less air leak and bladder dislodgement, which translates into decrease in conversion rate and shorter operations. Most importantly, no sophisticated manipulation or fine control is necessary during the

anchoring process, making the skill much more transferrable and can result in a shorter learning curve.

In conclusion, using T-fastener in PUR is feasible and safe in children. The technique is easy to learn. Common problems of bladder dislodgement and air leak can be prevented.

Disclosures

The authors have no conflicts of interest to declare.

References

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Figures

Figure 1. A T-fastener.

Figure 2. T-fastener inserted under cystoscopic view.

Figure 3. Metal bar detached from the needle.

Figure 4. Metal bar tightened against bladder wall.