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How I Do It

# Removal of Double-J Stent in Children without Anesthesia or Cystoscopy: A Useful Technique

Atreyee Sarkar, Meghna Kinjalk

Department of Pediatric Surgery, Dr. Balasaheb Vikhey Patil Rural Medical College, Loni - 413736, Ahmednagar, Maharashtra, India

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Abbreviations DJ Stent - Double J Stent

## Abstract

**Background:** Double-J (DJ) stents are commonly used in pediatric urology, especially during surgical procedures like ureteric re-implantation, pyeloplasty, pyelolithotomy and percutaneous nephrolithotomy. Postoperatively removal of the DJ stents requires cystoscopy under anesthesia. We present our experience with a novel technique of DJ stent removal without the need of cystoscopy.

**Technique:** DJ stent was deployed with a 4-0 silk thread tied to its bladder end. In post-operative period the thread is spontaneously passed out of external urethral meatus during per-urethral voiding. On the postoperative day-7, the string was simply pulled at bed side to remove the stent.

**Result:** We used this technique successfully in 7 consecutive patients. There were no complications in this series.

**Conclusion:** Ureteral stent removal using an extraction suture is technically feasible. It is beneficial because it obviates an invasive cystoscopy, thus decreasing the cost of healthcare in limited-resource settings.

#### INTRODUCTION

Double-J (DJ) stents are commonly used in pediatric urology, especially after surgical procedures such as ureteric re-implantation, pyeloplasty, percutaneous nephrolithotomy and pyelolithotomy. Post-operatively, stent removal requires cystoscopy under general anesthesia. Readmission to hospital, considerable operatingroom time, need of general anesthesia, special equipments and invasiveness of the procedure are the disadvantages of this approach.<sup>(1, 2)</sup> Earlier, pediatric surgeons were using small-sized polythene tubes for stenting ureteral anastomosis after re-implantation or pyeloplasty. One end of these tubes was exteriorized through a small stab wound. These stents were left in situ for a week and later removed by pulling the outer end of the tube. This is difficult to handle as there is chance of unintentional, accidental, premature removal. We describe a technique of DJ stent removal by using an extraction string which obviates the need for cystoscopy.

## THE TECHNIQUE

DJ stent is deployed with a short length (10-12 cm) of 4-0 silk tied to its distal (bladder) end. In the post-operative period, under the influence of fluid current of voiding, the thread spontaneously extrudes out of urethral meatus within 3 to 4 days. If required the tread is strapped to penile shaft to avoid accidental pulling. On the seventh or eighth post-operative day, both the thread and stent are painlessly pulled out at bed side.



**Fig 1. The extraction suture technique** Silk thread attached to double-J stent is seen emerging through the external urethral meatus

#### **CLINICAL EXPERIENCE**

This is a prospective study conducted at the Rural Medical College, Loni, Maharashtra. After an open surgical procedure on the pelvi-ureteric junction (PUJ) or vesico-ureteric Junction (VUJ), DJ stent was inserted if it was considered necessary. The described technique was used in 7 patients with 10 DJ stents. (Table 1) The age group of patients was 1 to 7 years. Only those urological procedures which required short term DJ stenting were included in the study. The DJ stent was removed by string extraction technique on the postoperative day-7 in all the 7 patients. Anesthesia, sedation or cystoscopy was not required in any of them. The stent could be easily removed in all of them without any complication.

# Table 1: Clinical details of patients who underwent double-J stenting

Pt. No	Age	Sex	Side	Indication
1	2 yr	М	Unilateral	Ureteric reimplantation
2	3 yr	F	Unilateral	Nephrolithotomy
3	5 yr	М	Bilateral	Pyeloplasty
4	6 yr	М	Bilateral	Pyeloplasty
5	1 yr	F	Unilateral	Pyeloplasty
6	2 yr	М	Unilateral	Ureteric reimplantation
7	7 yr	М	Bilateral	Pyeloplasty

# DISCUSSION

DJ stents have a prominent role in pediatric urology, especially after ureteric operations.<sup>(2)</sup> Our technique has several advantages. It does not require cystoscopy or general anesthesia. Readmission to hospital and the cost associated with it are avoided.<sup>(3)</sup> Special equipments like cystoscopic grasper are not needed. It is a safe and effective method without any complications.<sup>(4)</sup> Patients with cystinuria can remove their stents at home.<sup>(5)</sup>

DJ stents are usually left in situ for a week. However, in special situations, some surgeons prefer to leave them in situ longer period. In such cases, not infrequently, patients and surgeons forget to remove the DJ stents.<sup>(1)</sup> This risk of long term retention of a DJ stent is eliminated in our technique since the extraction string is externally visible.

Small sample size is a limitation of our study. This technique requires patient compliance. The caregivers have to be counseled about the procedure and purpose of the string, lest they may mistakenly pull it out.

#### CONCLUSION

The string technique of DJ stent removal is a safe and economical alternative to the conventional technique of cystoscopic removal which is invasive and expensive.

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**Address for communication:** Dr. Atreyee Sarkar. Email: atreyee.sarkar0013@gmail.com

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