CASE REPORT OPEN ACCESS

Proximal Migration of Ureteric DJ Stent: A Case Series

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ABSTRACT

Background: DJ stents are routinely used in urological procedures. Rarely these may dislodge or migrate.

Case Series: Here we report proximal migration of DJ stent in three children with pelvi-ureteric junction (PUJ) obstruction treated with dismembered pyeloplasty. Ureteroscopy and retrieval of migrated DJ stents were performed in each of these patients.

Conclusion: Proximal migration of DJ stent, though rare, can cause significant morbidity and complicates it's removal. Proper size and positioning of stent is required for pediatric patients.

Key words: DJ stent; Proximal migration; Children

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INTRODUCTION

Ureteral stent placement is a common practice in urology practice. Stenting improves patient care by preventing or relieving the complications associated with ureteral obstruction and injury but they can invite further complications of their own.[1] Of note is proximal migration of stent into ureter or renal pelvis.[2,3] This has been found to occur in increased frequency in pediatric patients.[2] Here in, we present three cases referred with proximal migration of DJ stent.

CASE SERIES

Case 1: An 18-month-old male child underwent open dismembered pyeloplasty for right PUJ obstruction. A 3Fr and 14cm DJ stent was placed during the procedure. After 2 months, just before DJ removal, X-ray showed that whole of the stent had migrated to renal pelvis (Fig.1). The ureter was patulous enough to allow pediatric ureteroscope and it was removed with a grasper. The procedure was uneventful.

Figure 1: Xray shows DJ stent in Rt renal pelvis and a coil in right lower calyx.

Case 2: A 4-year-old boy underwent open dismembered pyeloplasty on right side for PUJ obstruction. During the procedure, a 4Fr 16cm DJ stent was placed. It was found to be in situ post-operatively (Fig.2A). A month later, before removal of the stent, it was found to be proximally migrated into the renal pelvis (Fig.2B). The narrowest caliber ureteroscope 6/7.5Fr, that can admit a grasper, could not be inserted into the ureter. Through a 4/4.5Fr pediatric ureteroscope, we finally managed to have a hold of the DJ stent and removed it by a RIRS stone basket. There was no urethral or ureteric injury and he is doing well postoperatively.

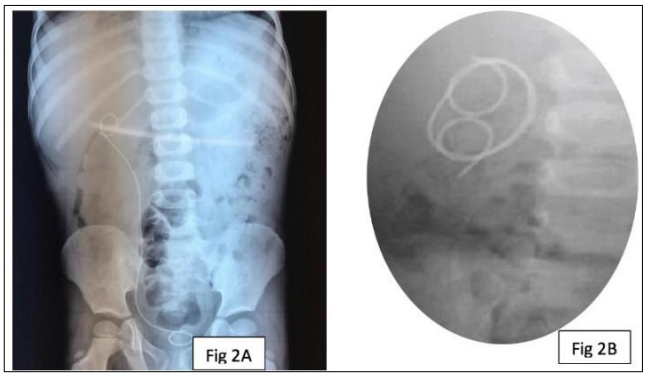

Figure 2: 2A) Immediate postoperative X-ray showing properly placed DJ stent; 2B) Image from C-arm monitor showing DJ stent migrated into renal pelvis.

Case 3: A 10-year-old boy underwent left open dismembered pyeloplasty for PUJ obstruction and during the procedure a 5Fr 24cm DJ stent was placed. However when he was readmitted for removal a month later, the lower end of the stent was up-migrated into the ureter (Fig.3). The lower end of DJ stent was not visible on cystoscopy. The DJ stent was removed by 6.5Fr ureteroscope and grasper.

Figure 3: Follow-up picture of the patient with a healed incision and the umbilical cord sloughed off.

DISCUSSION

Proximal migration of DJ stent is rarely encountered, occurring in 0.6 to 3.5% of the cases.[4] It has been found in few studies that the migrated group had significantly less distal curl, implying that the low stent- to-ureter length ratio may be important because the curl in the bladder was inadequate to maintain stent position.[1] It is important to measure accurately the distance from the ureterovesical to the ureteropelvic junction or mid kidney on imaging.[1]

Placement of the curl in the renal pelvis instead of the upper calyx has less risk of migration.[5] The length of the curl for an 18cm DJ stent is approximately 4cm. While placing the stent from the renal pelvis during a pyeloplasty, urethral catheter should be clamped to fill the bladder. As the stent reaches the filled bladder reflux of urine is seen; the stent is then pushed a further 4cm (the length of J loop) for a proper distal curl. This method which is followed in our department allows placement of stent without the use of C-arm. Increased indwelling time is also considered one of the factors of stent migration.[1] Moreover, our all the three cases have a dilated pelvis, which might be a factor in allowing proximal migration.

Various methods of retrieval of migrated DJ stents have been described. Ureteroscopy with use of grasping forceps, helical basket, and ureteral balloon dilator tip have been described in adults.[6-9] In a study on 37 adult patients, ureteroscopy has been used to retrieve the stents with a 91.9% success rate without complications.[10] Ureteroscopy and removal of migrated DJ stent may be feasible in children, but it is difficult in young children and infants due to the small anatomical caliber of the ureter. Similarly, we encountered difficulty in stent retrieval in our second case owing to small ureteric caliber not allowing adequate size ureteroscope.

In conclusion, proximal migration of DJ stent though rare can cause significant morbidity of its removal. Proper size and positioning of stent is required for pediatric patients. The position of stent should be confirmed by imaging after placement.

Consent: Authors declared that they have taken informed written consent, for publication of this report along with clinical photographs/material, from the legal guardian of the patient with an understanding that every effort will be made to conceal the identity of the patient however it cannot be guaranteed.

Authors' Contribution: All the authors contributed fully in concept, literature review, and drafting of the manuscript and approved the final version of this manuscript.

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