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Renal pelvic perforation due to double J stent insertion in a nine year old child: An unusual complication of a routinely done procedure

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Abstract

Double J (DJ) stenting is a routinely done procedure in endourology for various indications. Though a commonly done procedure DJ stenting is not without complications. We present a case of renal pelvic perforation due to DJ stenting and stent malposition leading to morbidity to a nine year old child. This case reiterates the importance of use of fluoroscopy in all cases of DJ stenting and use of retrograde pyelography whenever there is difficulty in DJ stenting.

Keywords: Renal pelvic perforation, double J stent, malposition, difficult stenting, fluoroscopy, retrograde pyelography

Introduction

A 9 year old male child with history of severe right abdominal pain of 1 week duration was referred to us with antecedent history of right double J (DJ) stenting done for the right renal pelvic calculus of 1cm in size. Child was in severe pain and on examination there was tenderness in right iliac fossa and lumbar region. X-ray KUB (Kidney, Ureter, and Bladder) revealed radiodensity at the level of L3 vertebra and a DJ stent with proximal tip towards spine and coiling of stent distal to the calculus. His total leucocyte count was 9800, creatinine was 0.6mg/dl, urine analysis was normal.

Informed consent was taken from child parents for repositioning of the stent and right mini PCNL (percutaneous nephrolithotomy). Under general anesthesia after removing the DJ stent retrograde pyelogram (RGP) was done and false passage was delineated parallel to renal pelvis. Retrograde placement of guidewire was not possible. Supine Percutaneous renal access was gained through middle calyx and tract dilated to 20Fr. After removing the calculus, posterior renal pelvic wall perforation noted, confirming renal pelvic perforation during initial stent placement. Antegrade DJ stent placed and child discharged on postoperative day two. DJ stent removed after 6 weeks and the child is under follow up since 3 months.

Discussion

Although a common procedure, ureteral stent placement is not without complications. Various complications of DJ stenting includes stent discomfort, irritative bladder symptoms and hematuria, stent migration, vesicoureteric reflux, encrustation, malposition, stent fracture, forgotten stent, renal parenchymal perforation, vascular complications like renal vein perforation and ureter arterial fistula, migration into inferior vena cava and right atrium^[1-3].

Probable reasons for this unusual complication leading to morbidity of the child in this case includes (i) DJ stenting done without fluoroscopy guidance (ii) using undue pressure while passing guide wire against resistance at level of calculus resulting in perforation of renal pelvic wall which was already weakened by edema and inflammation by the impacted calculus (iii) not confirming position of DJ stenting postoperatively.

Postoperative X -ray KUB helps in confirming normal position of DJ stent and may reveal an inappropriate positioning or curling of the double-J stent.

Conclusion

Double J stenting to relieve obstruction and pain especially in the presence of obstructing calculus should be done cautiously

under fluoroscopy guidance and using retrograde pyelography whenever there is difficulty. Worsening of symptoms should raise the suspicion for stent malposition^[4].



Fig 1: (A) Non contrast CT KUB showing right renal pelvic calculus. (B) X-ray KUB showing proximal tip of DJ stent towards spine at the level of L2 vertebra with loop formation of the stent distal to the calculus.

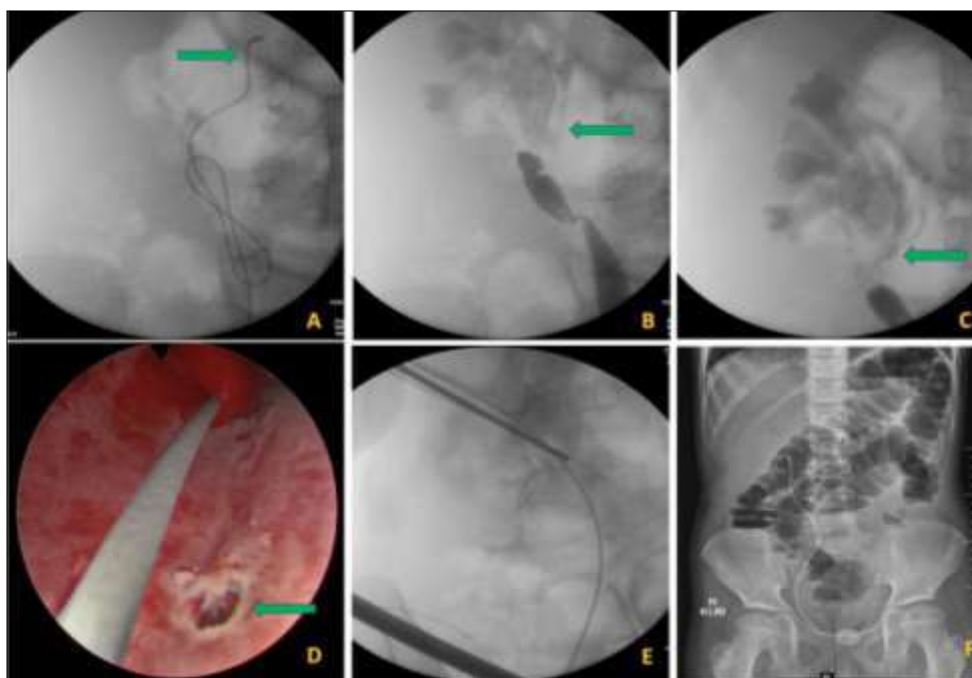


Fig 2: (A) Fluoroscopic image of malposition of DJ stent (arrow). (B & C) Contrast extravasation into false passage outside pelvis of the kidney (arrows). (D) Posterior renal pelvic wall perforation nephroscopy view (arrow). (E) Antegrade DJ stenting. (F) Postoperative X-ray KUB showing complete removal of calculus with DJ stent in situ.

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