

CASE REPORT

Early calculi formation around a double J stent in a baby

Ravibindu Ranawaka¹, Supul Hennayake², Anju Goyal²

1. Consultant Paediatric Surgeon, Sirimavo Bandaranayake Specialised Children's Hospital, Peradeniya.

2. Consultant Paediatric Urologist, Royal Manchester Children's Hospital, United Kingdom.

Key words: Calculi formation; Double J stent.

Introduction

Urinary calculi formation around long standing and forgotten stents are a recognised complication [1,2,3]. Interestingly, 30-60% of patients with calcium oxalate stones have increased urinary calcium excretion in the absence of raised serum calcium level (idiopathic hypercalciuria seen in 5% to 10% of healthy people) [4]. We report on a baby with previously no known metabolic abnormality developing calculi around a double J stent within 10 weeks following its insertion at pyeloplasty. To our knowledge, there are no similar case reports in the literature.

Case



Figure 1. On table x-ray at attempted cystoscopic stent removal



Figure 2. Specimen of stones with attached JJ stent

A baby boy with antenatally diagnosed pelviureteric junction obstruction underwent standard open Anderson-Hynes pyeloplasty at 4 months of age. His left kidney was dysplastic with grade 5 vesico-ureteric reflux and had split function of 8% in MAG 3 scan. There were no posterior urethral valves.

A JJ stent was left across the anastomosis. The post-operative period was uneventful. Due to a delay in getting down the patient and theatre non availability, the baby was finally brought in for cystoscopic stent removal at ten weeks after pyeloplasty. There were concretions visible over the lower end of the stent. The stent was found to be stuck at the renal pelvis and could not be retrieved. On table X-ray showed two stones at the upper end of the stent (Figure 1). The facilities for PCNL and ESWL in babies under one year of age were not available to the institution. The only minimally invasive therapy available was laser lithotripsy. Laser lithotripsy was attempted but failed as there were mechanical problems with the machine. Open pyelolithotomy was therefore performed. A 2cm diameter calculus attached to the JJ stent and a separate 1cm calculus from an upper calyx were removed (Figure 2). The pyelotomy was closed without a stent.

Postoperative ultrasound scan confirmed complete stone clearance. Analysis of calculi showed composition of calcium phosphate (73%) and magnesium ammonium hexahydrate (27%). After extensive investigation for possible aetiological factors for urolithiasis, hypercalciuria without

Correspondence: Ravibindu Ranawaka, Sirimavo Bandaranayake Specialised Children's Hospital, Peradeniya.
E-mail: rrvibindu@yahoo.com

Early calculi formation around a double J stent in a baby

hypercalcaemia was diagnosed. Potassium citrate was commenced and one year following stone removal, child remains free of stones.

His follow up ultrasound and MAG 3 scans showed resolution of obstruction at right renal pelvis.

Discussion

The practice of the unit is to remove the double J stent approximately six weeks after its insertion. However, the procedure was delayed due to circumstances beyond the authors' control. Radiological imaging to monitor the status of double J stents may be indicated when these are kept for longer periods. It is extremely rare to form such large calculi in association with a ureteric stent so early after its insertion. In such cases thorough investigations should be done to look for any underlying biochemical abnormality.

The ideal mode of treatment for this baby with a 2cm diameter calculus in the renal pelvis and another 1cm diameter calculus in an upper calyx would have been mini percutaneous nephrolithotomy. Unfortunately, the hospital which is the tertiary stone centre of our hospital trust where major stonework is managed did not have facilities to provide anaesthesia for babies less than one year of age due to clinical governance issues.

Of the other modes of treatment, ESWL would not have

good success rate due to the high stone density in this single functioning kidney. Laser lithotripsy, although not the ideal option due to the same reason, was the only other minimally invasive therapy available. Having failed this, open pyelolithotomy was resorted to.

The uniqueness of calculi formation around a double J stent so early in a baby is of interest to surgeons who routinely insert stents in reconstructive urological procedures.

References

1. Xu C, Tang H, Gao X, et al. Management of forgotten ureteral stents with holmium laser. *Lasers Med Sci.* 2009; 24:140-3.
2. Monga M, Klein E, Castañeda-Zúñiga WR, Thomas R. The Forgotten Indwelling Ureteral Stent: A Urological Dilemma. *The Journal of Urology*: 1995; 153; 1817-1819
3. Park K, Jeon SS, Park H, Kim HH. Clinical features determining the fate of a long-term, indwelling, forgotten double J stents. *Urological research*: 2004;; 32:416-20.
4. Menon M, Resnick MI: Urinary lithiasis: Etiology, Diagnosis and Medical management. In: Walsh PC (eds): *Campbell's Urology*. Pennsylvania: Saunders, 2002;3229-3291.