INTRODUCTION

Ureteric stenting is a common urological procedure. Ureteric surgeries, trauma, genitourinary oncology, transplantation and reconstructive urological surgeries are common procedures where Double-J (DJ) stent is placed. With increased use, complications have been encountered which cause significant morbidity. Bladder irritation symptoms, painful micturition, haematuria and flank pain are early complications. Late complications include infection, encrustation, migration and fragmentation. Fragmentation is a relatively less common complication.2

We report a case of fragmentation of DJ stent and spontaneous migration of coiled upper end of DJ from renal pelvis to urinary bladder.

CASE REPORT

A 56 years old male with known history of diabetes mellitus and ischemic heart disease presented to Emergency Department with complaints of fever, vomiting, loss of appetite and left lumbar pain for 15 days. Investigations revealed leukocytosis, raised renal profiles (creatinine 6 mg/dl, urea 118 mg/dl) and pyuria. Culture and Sensitivity (C/S) examination of urine showed growth of *E.coli* with colony count of $10^8$. Ultrasound examination (USG) showed atrophic scarred right kidney with stones and mildly hydronephrotic left kidney. There was radio-opaque shadow of 1cm in the line of left ureter in middle portion. He was given intravenous (I/V) antibiotics according to C/S. Left ureterorenoscopy and lithoclasty of stone followed by DJ stenting was performed. His renal profiles improved, but did not become normal. Fever settled and appetite improved, however, pyuria persisted.

On the 25th postoperative day he was again admitted with fever and raised renal profiles. USG showed moderate hydronephrosis. Plain X-ray showed a broken DJ stent at upper end (Figure 1). Percuntaneous nephrostomy was performed under local anesthesia. Patient became afebrile and his renal profiles improved to normal after one week. DJ stent was removed per urethra. However, upper coiled end remained in renal pelvis. Removal of the upper end was planned to be performed after 1 - 2 months with the help of flexible URS or nephroscope. After one month patient complained of painful micturition and interrupted stream. USG showed normal left kidney and piece of coiled DJ stent in the bladder. Coiled DJ stent was seen in bladder (pelvis) on X-ray (Figure 2). DJ stent (the coiled and broken end) had spontaneously migrated to the bladder from renal pelvis. This piece of DJ stent was removed per urethra (Figure 3).

DISCUSSION

Wide spread use of DJ stent in past 2-3 decades has resulted in an increase in possible complications like stone formation, encrustation, stent migration, fragmentation, forgotten DJ stent and its complications. Fragmentation of DJ stent is a rare complication. Fragmentation has been attributed to various factors including stent material, length of indwelling time, hostile factors in urine and infection. At present, commonly used biomaterials are polyurethane, silicone, parallax, C-flex and silitex. Every biomaterial has its own merits and demerits. Polyurethane DJ stent is more commonly used being versatile, less expensive and has good luminal urine flow and drainage due to large side holes, however, chances of spontaneous fragmentation are more. Faqih and colleagues observed that when stents...
are left indwelling for more than 12 weeks, encrustation occurred in 76.3%, stent migration in 3.7%, infection in 6.7% and fragmentation in 0.3%. These findings were supported by Kumar and colleagues who reported that stent fragmentation occurred over a period of 14 weeks. Chua and Morales reported fragmentation of stents in 47 weeks on average with a median time of 20 weeks. In this case, stone fragmentation occurred within a period of 8 weeks.

Various explanations for the fragmentation reported in literature are hostility of urine, interaction with urine and extensive inflammatory response and long indwelling time. Mardis and Kroeger have suggested that fragmentation occurred at a site where kinking of stent is allowed to occur before insertion or at the time of insertion. In other study, Zisman and colleagues observed that all breakage lines passed through side holes.

Retrieval of proximally fragmented stent part is difficult and challenging job. Bladder portion of DJ stent can be removed in most of the cases per urethra. However, percutaneous nephrostomy or flexible ureterorenoscopy and rarely open surgery has been described for the removal of pelvic portion of DJ stent. In this case, pelvic portion of DJ stent migrated spontaneously from renal pelvis to urinary bladder, and we removed it per urethra. To our knowledge, this is probably the first case ever reported in literature where a fragmented portion of a DJ stent has spontaneously migrated from renal pelvis to bladder. Explanation of this migration is very difficult. Probably straightened limb fortunately entered into ureter and by peristalsis migrated to bladder, and easily removed per urethra.

REFERENCES