INTRODUCTION

Stents are placed in the ureter after open surgical procedures and endoscopic procedures in order to maintain the patency of the ureter. The ureteral stents frequently result in “stent syndrome” which constitutes frequency, lumbar pain, dysuria and haematuria.\(^1\) However, long-term retention of the ureteral stent can result in multiple manifestations as encrustations followed by stone formation, migration, fracture and blockade of stents. A variety of calculi have been documented in the past which can be formed in the kidney, ureter or bladder resulting in hydronephrosis, pyonephrosis or even non-functional kidney.

CASE REPORT

A 35 years old lady presented to the urology outdoors with 4 years history of pain in the left lumbar region. This was associated with the radiation of pain from the loin to the groin. She also complained of repeated bouts of burning micturition. About 2 years ago she was diagnosed as a case of vesical calculus with a suspicion of left ureteric calculus, but the patient did not follow-up due to the pregnancy. Now she reported with 5 days history of something protruding out of the genitalia. This was accompanied by difficulty in micturition. There was no past history of haematuria or pyuria. However, she had been on regular analgesics and courses of antibiotics from local doctors. She gave a past history of left ureteric reimplantation about 15 years ago. However, she denied of having any knowledge of intraoperative stent placement. Moreover, the details of the procedure were not available and the patient did not know much about it.

On examination she was a healthy young lady with stable vital signs. Abdominal examination revealed a faint lower midline scar with deep tenderness in the hypogastrium. Examination of the genitalia showed a hard stick like tube with concretions / stone around it (Figure 1). The rest of the systemic examination was normal. On laboratory investigations the haemoglobin levels, total / differential leucocyte counts, random blood sugar and serum urea / electrolyte / creatinine were normal. Numerous pus cells per high power field were seen in the urinalysis, however, the urine culture did not reveal any growth. X-ray KUB showed a large radio-opaque shadow in the region of the bladder, suggestive of a vesical calculus, with another faint radio-opaque shadow extending into the perineum (Figure 2). Ultrasound KUB was suggestive of mild left hydronephrosis with a large vesical calculus. Accordingly EUA/ vesicolithotomy was planned. The projecting hard stick like tube could not be pulled out, so it was cut flushed to the urethral meatus. The bladder was then

ABSTRACT

A 35 years old lady presented with history of something coming out of the genitalia for the last 5 days. She also had history of pain in the left lumbar region which was initially investigated but the patient did not follow-up. About 15 years ago she also underwent left ureteric reimplantation. On examination, a stick like tube was protruding out of the urethral meatus which was fixed to the underlying vesical calculus. The calculus was evident radiologically and on ultrasound. The projecting portion of the stick like tube was cut and the vesical calculus with the inner portion of the tube was removed by open procedure. On evaluation of the specimen, it was found that the vesical calculus was fixed to the plastic tube which had concretions around it. This plastic tube had been placed after the ureteric reimplantation done 15 years ago and the patient was not aware of it.

Key words: Ureteral stent. Calculus. Encrustation. Ureteral reimplantation.
opened through the phannensteil incision. A large vesical calculus was removed which showed the inner portion of the hard stick like structure fixed to the vesical stone (Figure 3). On removal of the concretions from the stick like structure the plastic tube was evident. The bladder was closed in layers, drain was placed and the wound closed in layers. Postoperatively she made a good recovery.

**DISCUSSION**

Double-J (DJ) ureteral stents are commonly placed for short-term (4-12 weeks) for prevention or relief of upper urinary tract obstruction and following reconstructive surgery. Complications with long-term placement (3-6 months) of DJ stents are more likely to occur if the patient does not come for follow-up and the stent is retained or forgotten for months or years. In our society due to the economic burden, plastic tubes (polyurethane) are being used in place of DJ stents. The paediatric size (4/5 gauge) nasogastric tubes are commonly used. An ideal ureteral stent should be biocompatible, radio-opaque, cost-effective, relieve intra/extra ureteral obstruction, resist encrustation, resist infection and cause little discomfort. Such an ideal stent does not exist. The DJ stents being used these days are made of vortek, bio-soft duo, pellethane or blended polymers of polyurethane. The plastic tubes (polyurethane) create problems due to the non-opacification on conventional radiography. However, all stents are prone to the degradational effects especially in the acid medium.

Encrusted and stone formation around the long forgotten stents are commonly encountered.\(^2,3\) In such cases X-ray KUB forms the primary investigation. If there are no encrustations, then cystoscopic removal can be attempted. The stent is removed by grasping with forceps under fluoroscopy guidance to monitor uncoiling of renal end. Even when no surface encrustations are visible on X-ray, the lumen of such stents are filled with calcified material and this may prevent uncoiling or straightening of the renal coil and difficult removal. If the stent is not moving easily and appears to be fixed, then the cystoscopic removal should be avoided as forceful removal can damage the upper urinary tract and also cause the fracture of the stent. In such a situation if the percutaneous nephrostomy is available then the stent should be removed through nephroscope after tract dilatation or open approach should be contemplated. If X-ray KUB shows encrustations on renal end, USG and IVU should be done. If USG shows moderate to gross hydronephrosis and/or pyonephrosis and IVU shows poor or non-function then percutaneous nephrostomy is essential to relieve obstruction and assess kidney function. ESWL (extracorporeal shock wave lithotripsy) can also be performed in order to break the encrustations on the renal coil. If the encrustations are larger than 3 cm, ESWL may fail and PCNL will be required for removal. Encrustations are usually made up of struvite,\(^4\) and accordingly broad spectrum antibiotic with Gram negative cover is required. The vesical calculi formed around the bladder end of the stent can be removed endoscopically after fragmentation using ultrasound, pneumatic or electrohydraulic energy. However, in large stones, as in this case, open procedures may be required. Encrustations along the stent in mid-ureter are rare and may require ureteroscopic fragmentation or open surgical exploration. At times due to the secondary changes in the ureter, open procedures may include ureteric reimplantation.

Iliteracy among the patients, improper follow-up, inadequate communication between the treating surgeon and the patient may play an important role in the aetiology of stent retention, as was seen in this patient. A stent registry should be maintained by all urologists for prevention of such complications. The patient's name, address, telephone number, date of insertion and type of stent recorded. The patient should be made aware of the importance of stent insertion and its timely removal. A reminder letter or phone call should be made in case the patient fails to keep his or her appointment. The main factor of the illiteracy among the patients may contribute significantly in our society. With a careful methodical approach most patients with retained or forgotten stents can be successfully and safely managed. To avoid such complications, stent should be removed between one and three months of placement.\(^5\)

Another serious problem associated with the use of ureteral stents is fracture in situ.\(^6,7\) The placement of indwelling ureteral stents adjunctive to ESWL treatment has been a widespread practice, so the fracture can be noted, especially in those patients who have a long retained forgotten ureteral stents. Cases of multifractured stents are rarely encountered and even rarely uretero-arterial fistula has been documented.\(^8,9\) Finding a stent with encrustation / stone around it and protruding
from the urethral meatus, as in this case, has not been documented in the past. The forgotten ureteral stent in a solitary functioning obstructed kidney should be considered as an emergency and to be attended promptly in the least morbid and minimally invasive manner (double guide wire and single impulse mode lithoclast).7

This case report also highlights an important discussion on the use of polyurethane stents in place of DJ stents. The DJ stents are easily seen and recognized on plain X-ray KUB, however, the polyurethane stents are not visible on the X-rays and can be easily missed. As in this case the stent remained for so many years and the problem could not be diagnosed. The validity for using a substitute for DJ stent is debatable. The economic constraints may force many urologists to use the alternatives but the extent of subsequent sequel may go against it.

REFERENCES