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<http://www.pediatricurologycasereports.com>**Totally encrusted ureteral stent in a 5 years old boy with solitary ectopic pelvic kidney: A case report****Ibrahim Alnadhari<sup>1,2</sup>, Abdulelah M Ghilan<sup>1</sup>, Mansor Altowaity<sup>1</sup>, Morshed Salah<sup>1,2</sup>**<sup>1</sup>*Urology and Nephrology Center, at Al-Thawra Modern General and Teaching Hospital, Sana'a, Yemen.*<sup>2</sup>*Department of Surgery, Al Wakra hospital, Hamad Medical Corporation, Doha, Qatar***ABSTRACT**

Management of retained encrusted ureteral stent is challenging. A 5 years old boy with congenital right solitary pelvic kidney found to have missed totally encrusted ureteral stent with large renal pelvis, ureter and bladder stone. The age of patient, anatomical consideration and severity of encrustation make the management options limited. Single incision and pyelolithotomy, ureterolithotomy and cystolithotomy with removal of the stent was carried out.

**Key Words:** Retained ureteral stent; encrustation; ectopic kidney.

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**Introduction**

The use of ureteral stents has become an integral part of many urological procedures. They provide drainage from upper urinary tract to the bladder in cases of renal and ureteral obstruction secondary to variety of intrinsic or extrinsic factors such as calculi, strictures, congenital anomalies, pelvic malignancies, retro-peritoneal tumors and fibrosis [1-3].

Despite advances in stents and their materials, problems related to the use of ureteral stent,

such as infection, encrustation, stone formation, occlusion, migration and breakage still faced complications in urology practice [1, 2]. Retained ureteral stents especially those that are encrusted can be challenging for management and removal [1- 3].

Forgotten stents in children are a source of severe morbidity, additional unnecessary hospitalization and definitely financial burden [4].

A completely encrusted double J (JJ) stent in a solitary, ectopic kidney of 5 years old boy is presented.

**Case report**

A 5 years old boy brought by his parents with history of recurrent abdominal pain associated

with crying during micturition. Patient is a known case of right solitary ectopic pelvic kidney and had history of right ureteral stent insertion three years before current presentation to relieve obstruction caused by ureteric stone. He was missed from follow up because of the negligence and poor financial condition of his parents.

At the time of presentation, he had stable vital signs. His abdomen was soft and not-tender. Complete blood count, renal function tests, liver function tests and serum electrolytes were normal.

Postoperative abdomen X-Ray showed severely encrusted right ureteral stent with stone formation in the renal pelvis, along the ureter and in the urinary bladder [Fig. 1].



**Fig. 1.** Abdomen X ray film shows severe encrustations around ureteral stent, renal pelvis and in the bladder.

Intravenous urography showed dilatation of the pelvicalyceal system with moderate hydronephrosis [Fig. 2].

Ultrasound showed ectopic single right kidney in the presacral region with malrotated aspect with large stone involving the renal pelvis and calyces with evidence of ureteral stent extending between the bladder and renal pelvis with peri-stent calcifications and 4 cm bladder stone.



**Fig. 2.** Intravenous Urography shows solitary pelvic kidney with significant hydronephrosis.

After counselling the patient parents, under general anesthesia, through a single small oblique incision in the right lower abdomen, retroperitoneally, pyelolithotomy then ureterotomy in the middle ureter and removal of the ureteric stones. Cystolithotomy done at the end. The stent and the stone burden were removed completely [Fig. 3 & 4]. A new JJ stent and drain were put.

The Drain was removed in the 3<sup>rd</sup> postoperative day and the JJ stent was removed after 2 weeks.



**Fig. 3.** Oblique lower abdominal incision and removal of the renal pelvic stone through pyelotomy.



**Fig. 4.** Demonstration of the stones with the extracted retained ureteral stent.

Abdomen x-ray and ultrasound showed complete stone clearance [Fig. 5]. Stone analysis showed Ca-oxalate with uric acid component.



**Fig. 5.** Abdomem X-ray shows no residual stone and new JJ stent.

### Discussion

Severely encrusted forgotten ureteral stent is one of the difficult problems in urological practice. Major complications associated with retained stents include infection, migration, fragmentation, stone formation, and ureteral obstruction [2, 3]. These complications, in addition to the potential need for multiple surgical interventions and the lack of defined therapeutic guidelines for treatment represent a real challenge for urologist [1-3]. Risk factors for stent encrustation including poor patient compliance to follow-up, long indwelling time, sepsis, pyelonephritis, lithogenic history, chronic renal failure, pregnancy and congenital abnormalities [1-3]. Some series reported poor compliance as the most common reason for retention of these stents [1].

Multimodal approach is often required for the management of forgotten ureteral stents to achieve successful retrieval of the retained stent and removal of associated stone burden

[1-5]. Although there are no standard and specific guidelines for the management of encrusted ureteral stents, many authors have reported their series and proposed their own management algorithms [1-2]. These include multiple urological modalities which may require single or multiple endourological sessions. The advanced endourologic technology has enabled the removal of all the retained stents utilizing complete endourologic approach. However, in some cases of severe encrustations, endoscopic manipulations may fail and the options of open or laparoscopic surgery are considered [1-3].

Our patient has solitary ectopic kidney with severely totally encrusted ureteral stent and fortunately still he has normal serum creatinine which indicate partial obstruction. Our treatment option was based upon the pediatric age of the patient, anatomical position of the kidney and the severity of encrustation and stone burden. We found that single incision with removal of all the stones with the retained ureteral stent in one session was wise decision.

### Compliance with ethical statements

*Conflicts of Interest:* None.

*Financial disclosure:* None.

*Consent:* All photos were taken with parental consent.

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