

## Case Report

# Laparoscopic Pyelolithotomy for Recurrent Stone in Previously Operated Ectopic Pelvic Kidney

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An ectopic kidney is a rare congenital anomaly that has been associated with complications as reflux, hydronephrosis, nephrolithiasis, and sometimes renal failure. Calculous diseases in the pelvic kidney due to their anatomical characteristics pose a significant challenge to the surgeon. We herein report a case of transperitoneal laparoscopic pyelolithotomy for treatment of renal pelvis stone in an ectopic pelvic kidney who had already undergone open pyelolithotomy in past. A 34 years old man presented to our hospital with pain abdomen for five months and a history of left open pyelolithotomy done almost eleven years back. Computed tomography scan revealed severe hydronephrosis and 3.5 cm calculus in the pelvis of ectopic malrotated left kidney. The patient underwent left laparoscopic pyelolithotomy, complete stone clearance was achieved, 20 fr drain was placed with no DJ (Double J) stent. For two consecutive days there was significant drain output, subsequently cystoscopy with DJ stenting was done then drain output was reduced. On fifth postoperative day the drain was removed and he was discharged. In a patient with a malrotated pelvic kidney with recurrent stone and past surgery, proper pre-operative evaluation & the selection of the most appropriate surgical technique play a crucial role to get the best surgical outcome.

**Keywords:** Ectopic kidney, laparoscopy, pyelolithotomy, renal pelvic calculus.**INTRODUCTION**

A kidney that fails to ascend from pelvic to renal fossa is considered an ectopic pelvic kidney. The pelvic kidney is typically an incidental finding but may present due to underlying obstruction or calculous diseases. Incidence of the ectopic kidney was estimated at 1 at 900 at autopsy.<sup>1</sup> Based on the exact stone burden, location of the kidney, as well as the anatomy of the pelvicalyceal system, treatment of stones, is decided. Previously open surgery was the only option available, nowadays minimally invasive surgery as ESWL (Extra Corporeal Shock Wave Lithotripsy), PCNL (Percutaneous Nephrolithotomy) (laparoscopically or USG guided), flexible ureteroscopy, a laparoscopic pyelolithotomy is a viable option which is described in the literature.<sup>2-4</sup> We present a rare case of recurrent stone in a previously operated pelvic ectopic kidney managed by laparoscopic pyelolithotomy which as per our knowledge have never been reported earlier.

**CASE PRESENTATION**

A 34 years man presented with pain abdomen for 5 months with a history of left open pyelolithotomy done almost 11 years back at another

hospital. His medical history was unremarkable. Physical examination showed no abdominal abnormalities. The patient's baseline biochemical and hematological investigations were normal. On further evaluation, he was found to have a 3.5 cm renal pelvis stone in the left ectopic pelvic kidney. (Figure 1)

He was posted for left laparoscopic pyelolithotomy once pre-operative fitness was obtained. The patient was placed in the supine position after prior RGP (retrograde pyelography). 3 standard ports were made (one 10 mm and two 5 mm). Omentum found to be adhered to the pelvis, adhesion lysis was performed. The left renal pelvis was identified after reflecting the colon. Stone was extracted under vision, post pyelotomy. The pelvis was closed using interrupted vicryl 2-0 sutures and re-retro peritonealisation of the kidney was done, a 20 Fr drain was placed. Haemostasis was achieved and port sites were closed. Left RGP (retrograde pyelography) showed well delineated PCS, with no extravasation of contrast seen; hence DJ Stenting was not done. Complete stone clearance was documented with plain x-ray KUB postoperatively. For 2 consecutive days his drain output was significant. Cystoscopy with left RGP was done on post operative day 3, which showed mild HDN (Hy-

dronephrosis) with contrast leak. Left DJ stenting was done with 6 fr/26 cm stent. Patient was discharged on 5th post-operative day after removing foleys with DJ stent in situ. (Figure2)

**Figure 1.** Preoperative images showing ectopic kidney with a stone in renal pelvis



**Figure 2.** Post-operative X ray KUB showing DJ stent in situ with complete stone clearance



## OUTCOME AND FOLLOW-UP

He was reviewed after 4 weeks; x ray showed no radio opaque shadow with DJ Stent in situ, subsequently DJ Stent was removed.

## DISCUSSION

The ectopic kidney is thought to be a maldevelopment of the ureteral bud and Wolffian duct in a developing fetus.<sup>5</sup> The ectopic pelvic kidney is more prone to hydronephrosis and stone formation than kidney which is placed normally. Urinary stasis due to abnormal pelvic position, abnormal ureteric insertion and malrotated kidney also leads to nephrolithiasis.<sup>6</sup> Renal anomalies are associated with an increased incidence of stone formation due to obvious nondependent drainage.<sup>6</sup> Treatment of renal stone in ectopic pelvic kidney is very challenging and is more so in the

previously operated kidney. As in our case patient has undergone open pyelolithotomy eleven years back. Based on the burden of the stone and pelvicalyceal system anatomy treatment could range from ESWL, flexible ureteroscopy, PCNL, and laparoscopic pyelolithotomy.

Demirkesen et al.<sup>7</sup> reported that ESWL for normally placed kidneys had a higher stone-free rate than that of any anomalous kidney, ESWL viewed as a treatment modality with a poor success rate. Flexible ureteroscopy is considered a treatment method for small to medium-sized renal calculi in an ectopic kidney especially when the course of ureter is tortuous.<sup>8</sup> Laparoscopic-assisted PCNL for a pelvic kidney was performed in 1985 by Eshghi et al.<sup>9</sup> First laparoscopic pyelolithotomy was reported by Chang and Dretler in 1996.<sup>10</sup> It can be performed via transperitoneal, retroperitoneal, and transmesenteric approach. A laparoscopic pyelolithotomy is a good option for the treatment of solitary pelvic stone in an ectopic kidney with large stone burden. In our case stone was too big for ESWL or even flexible ureteroscopy and PCNL; we decided to go for laparoscopic transperitoneal approach.

In presence of laterally or anteriorly directed pelvis in an ectopic kidney laparoscopic pyelolithotomy can be easily performed specially for single kidney in renal pelvis. It gives complete stone clearance in a single sitting with minimal postoperative morbidity.

Kamat et al.<sup>11</sup> have found laparoscopic pyelolithotomy to be an effective procedure with low morbidity.<sup>11</sup>

## CONCLUSION

Laparoscopic pyelolithotomy is considered a safe procedure for pelvic kidney with a lateral or anteriorly directed pelvis in selected cases of intermediate to large renal stones in renal pelvis. It provides maximum stone clearance with less intraoperative blood loss and least morbidity. To improve post operative outcome, DJ stenting should be done and which could be removed subsequently.

## CONFLICTS OF INTEREST

None.

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