Endourology

Case report of ureteroscopy assisted laparoscopic ureterolithotomy for multiple large ureteric calculi

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ABSTRACT

Managing patient having multiple large ureteric calculi at different locations in ureter with minimal invasive surgery is always a challenge for the surgeon. We hereby present the case report of ureteroscopy assisted laparoscopic ureterolithotomy for multiple large ureteric calculi in proximal and distal ureter in a young female. In this unique and novel method ureteroscopy and laparoscopy was done simultaneously over the patient using two camera units and two surgeons. This approach avoided open ureterolithotomy scar and also extensive dissection of ureter. This unique surgery can be considered as confluence of endourology and laparoscopy.

Introduction

Although urolithiasis is fairly common, use of laparoscopic ureterolithotomy is uncommon in this era of advance minimal invasive methods like ureteroscopy and Percutaneous nephrolithotomy which can be used for proximal ureteric calculi also. With advancement in energy sources like lasers, pneumatic lithotripsy and Extracorporeal shock wave lithotripsy (ESWL) use of open ureterolithotomy or laparoscopic ureterolithotomy has become even more limited.1,2 Managing patient having multiple large ureteric calculi at different locations in ureter with minimal invasive surgery is always a challenge for the surgeon. We hereby present the case report of ureteroscopy assisted laparoscopic ureterolithotomy for multiple large ureteric calculi in proximal and distal ureter in a young female. This approach avoided open ureterolithotomy and also multiple incisions on ureter as the stones were located in different locations.

Case presentation

A 18 year young girl was referred to our hospital from a surgeon for management of right ureteric multiple large calculi. The patient had undergone right sided double-j (DJ) stenting by the referring surgeon for acute right sided renal colic 10 days back. Now the chief complaints of the patient were dull aching right flank pain with dj stent insitu. Urine culture was negative for any bacterial or fungal growth. Ultrasonography was suggestive of right sided multiple ureteric calculi located in proximal and distal ureter with size ranging from 8mm to 2.5 cm with right DJ stent insitu with moderate hydronephrosis and hydroureter. Parenchymal thickness of right kidney was 16mm.

X ray KUB showed right DJ stent in situ with right side multiple large ureteric calculi in proximal and distal ureter [Fig. 1]. DTPA scan showed GFR of 42.5ml/min for right kidney and 58.6ml/min for left kidney. As the patient was a young female we gave her option of this unique method of ureteroscopy assisted laparoscopic ureterolithotomy to avoid scar over abdomen of open surgery.

After complete preoperative work up and valid written consent patient was given general anesthesia and a lithotomy position was given with right side up. Laparoscopy port insertion was done. Right upper ureter was meticulously dissected. Right proximal ureter incision was taken over the bunch of calculi in proximal ureter. Calculi were extracted and placed into a glove bag intraabdominally [Fig. 2]. After clearance of proximal ureteric calculi, ureterolithotomy site was kept open and perurethral ureteroscopy was introduced in right ureter simultaneously with help of another urosurgeon. The large stones in lower ureter were pushed back into the ureterolithotomy site and with the help of triprompt forceps they were handed over to the laparoscopic surgeon [Fig. 3]. The laparoscopic surgeon and the surgeon performing the ureteroscopy worked simultaneously using two different camera units. Once all the stones of the lower ureter were basketed in the intraabdominal glove bag a check ureteroscopy was performed to rule out any residual calculi but it was negative. Ureterolithotomy site was closed with vicryl 2.0 laparoscopically and a drain was kept. The patient was discharged on day 3 without any complaints. Post-operative x ray KUB showed complete clearance with DJ stent and drain insitu.

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Discussion

Patients with ureteric calculi of stone size varying from 0.5 to 1 cm are effectively treated either by ureteroscopy using advance energy sources like laser or medical expulsion therapy or non-invasive modalities like extracorporeal shock wave lithotripsy mostly for proximal ureteric calculi. Very rarely we encounter ureteric calculi which are large and located at different locations in ureter. Since these stones can remain silent they are found accidentally on abdominal radiograph taken for some other reason, hence leading to permanent renal damage/dysfunction. Treatment of such calculi needs combining different surgical techniques. The procedures like ureteroscopic lithotripsy or non-invasive procedures like ESWL are deemed to fail because of large stone burden and hardness. European association of urology guidelines for ureterolithiasis suggests laparoscopic or open ureterolithotomy in such rare cases. In cases of large ureteric stones, open or laparoscopic ureterolithotomy remains the procedure of choice. Increased stone burden as in giant ureteric stones are one of the most common indications of open ureterolithotomy.

In this surgery we avoided scar of open surgery as well as multiple ureteric incisions and extensive dissection as stones were located in different locations. This also avoided the risk of infection and trauma to ureter as no energy source was used to fragment distal ureteric calculi. Ureteroscopy also helped in assessing the clearance of stones by doing check scopy at the end of procedure. The main advantages with this method are decreased postoperative pain, shorter hospital stay and quicker convalescence in comparison to open surgery.

Conclusion

This is the case report showing the use of ureteroscopy assisted laparoscopic ureterolithotomy to manage multiple large ureteric calculi. The essence of this procedure is minimal surgical trauma to ureter and also cosmetic benefit to patient as it avoids scar over abdomen. This unique surgery can be considered as confluence of endourology and laparoscopy.

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Declaration of competing interest

None.

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Fig. 1. X RAY KUB showing Right sided DJ stent insitu with Right multiple ureteric calculi.

Fig. 2. Laparoscopic extraction of calculi and placement into a glove-bag intra-abdominally.

Fig. 3. Handing over the distal ureteric calculi to laparoscopic surgeon with help of ureteroscope and its trippron forceps.