



MANAGEMENT OF CALYCEAL DIVERTICULAR STONES BY PCNL AND KEEPING A STENT ACROSS THE DIVERTICULUM

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ABSTRACT

AIM To study the effectiveness of management of calyceal diverticular stones by Percutaneous nephrolithotomy along with placement of nephrostomy tube across the diverticular neck.

MATERIALS AND METHODS

This was a cross sectional analysis done in all calyceal diverticular stone patients who were admitted in the Urology department from Sep 2015 – Feb 2019 . The total number of patients were 13 and Male were 12 and 1 female. Patients underwent pre-operative Contrast enhanced computerised tomogram or Intravenous urogram. If creatinine is elevated non contrast imaging done followed by Retrograde pyelogram during intra operative period. Among the 13 patients seven had preoperative ESWL and underwent PCNL as ancillary procedure. corresponding calyx puncture was made and stone cleared.Stenting was done followed by placement of nephrostomy tube across diverticular neck. Stone clearance checked using post operative ultrasound and X- ray KUB. Nephrostomy tube removal after 48 hrs. Stent was removed after 3 weeks All patients were followed up for a period of 6months to 3 years for stone recurrence and diverticular complications.

RESULTS

Among 13 patients 11 patients are completely free of calculus .Two patient had a residual calculus and eswl was done and was put on long term medical treatment with alkalisers.

CONCLUSION Calycealdiverticular stones required a high index of suspicion on imaging. Simple stenting along with nephrostomy tube across the neck of diverticulum has prevented any recurrence of symptoms or stone on followup.

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INTRODUCTION

Calyceal diverticulum is a rare cystic cavity lined by nontransitional epithelium communicating with the adjacent calyx. Seen in 0.45% of intravenous urograms done (3).cavity fills by passive filling of contrast. Two types are there. Type I is situated at the upper pole and communicates with the calyceal cup, usually at the fornix. Type II diverticula communicate with the renal pelvis and may become large enough to produce mass effect. Mostly they are asymptomatic .complications like stone formation, infection, bleeding occur in 25-50%.stone in calyceal diverticulum is seen in 50% due to narrow communication with calyx and pose a problem in management and prevention of stone recurrence. Procedures like PCNL, ESWL, RIRS has been done . Pcnl is the most common procedure done and gives complete clearance and also fulguration of cyst wall (1)or dilating the communication with calyx . After surgery patients need long term follow up to prevent and identify stone recurrence.

Aim To study the effectiveness of management of calycealdiverticular stones by Percutaneous nephrolithotomy along with placement of nephrostomy tube across the diverticular neck .

MATERIALS AND METHODS

This was a cross sectional analysis done in all calyceal diverticular stone patients who were admitted in the Urology department from Sep 2015 – Feb 2019. The total number of patients were 13 and Male were 12 and 1 female. Stone size ranged between 1.5 to 3 cm.5 patients had left renal stone ,8 had right side stone.9 patients had loin pain and 4 were asymptomatic and stone incidentally found. 7 had calyceal diverticulum in superior calyx(fig-3)2 in middle calyx (fig-2),4had in lower calyx(fig-4).Basic investigations like renal function test, urine culture, complete blood count were made in all patients. Pre-operative CE CT or IVP If RFT elevated we did a CT – KUB – plain followed by RGP during intra operative period. Among the 13 patients seven had

preoperative ESWL (fig-1) and underwent PCNL as ancillary procedure. Other 6 were primarily managed by PCNL.

Procedure -patients underwent ureteric catheter insertion as a first step. RGP done and under fluoro guidance directly puncturing into the diverticulum harboring the stone. Guide insertion, tract dilation upto 20 Fr by using amplatz . Stone fragmented with pneumatic lithotripsy and retrieved. Neck of diverticulum was dilated with dilator .stent was placed and nephrostomy tube across the neck of diverticulum. Stone clearance checked using post operative ultrasound and X- ray KUB.Residual calculus was Nephrostomy tube removal after 48 hrs. Stent is removed after 3 weeks All patients were followed up for a period of 6months to 3 years for stone recurrence and diverticular complications.

RESULTS

Among 13 patients Pre operative ESWL was given in 7 patients (fig-1) as single modality and stone clearance was 2% (4).But stone clearance was poor due to narrow neck and 10 patients were diagnosed preoperatively by imaging. 3 patients were diagnosed during the intra operative retrograde pyelogram. Intraoperative stone clearance was achieved in all patients except one middle calyceal and one superior calyceal stones due to difficult in access and underwent ESWL after 10 days. Patients are followed up with post op X ray KUB and USG KUB 6 monthly for checking stone recurrence.11 patients are completely free of calculus .Two patients with residual stone was given ESWL and was put on long term medical treatment with alkalisers.

CONCLUSION

Calyceal diverticular stones required a high index of suspicion on imaging. Simple stenting along with nephrostomy tube across the neck of diverticulum has prevented any recurrence of symptoms or stone on followup.

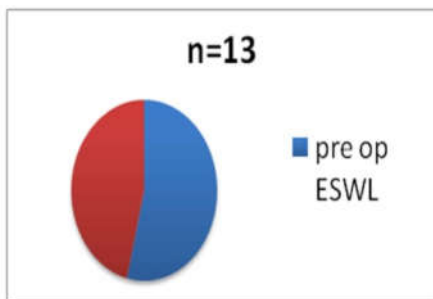


Fig 1 Patients with preop ESWL



Fig 2 IVU showing Middle calyceal diverticulum.

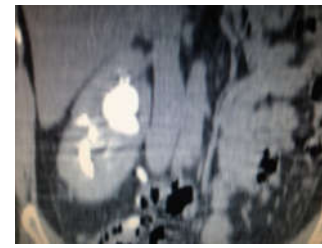


Fig 3 CT KUB showing Upper calyceal diverticulum.

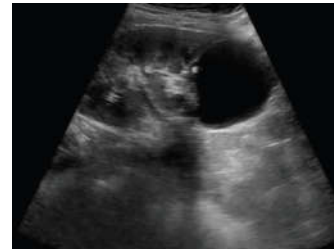


Fig 4 USG KUB –Showing inferior calyceal diverticulum.



Fig 5 RGP showing Lower calyceal diverticular stones.



Fig 6 Intraoperative picture showing calyceal calculi

Table 1 Location of Diverticulum

Superior calyx	7
Middle calyx	2
Lower calyx	4

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