



MANAGEMENT OF RESIDUAL STONE POST PERCUTANEOUS NEPHROLITHOTOMY

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DOI: <https://doi.org/10.17605/OSF.IO/7QZAX>

Article Received on 27/11/2020

Article Revised on 17/12/2020

Article Accepted on 07/01/2021

ABSTRACT

Percutaneous nephrolithotomy (PCNL) is a procedure done for kidney stones, and the presence of a residual stone post-operative is usually common.

This study compares the different options of management of these stones in our hospital (Prince Hussein Bin Abdullah medical center, Jordan), it was carried between the year 2017 and 2019, it includes about 300 patients, and they are followed radiographically for about 3 months by CT scan.

45 Patients need further management post PCNL by extra corporeal shockwave lithotripsy (ESWL), and 6 patients need another session of PCNL.

In conclusion percutaneous nephrolithotomy is the gold standard for stones that are more than 2 cm in the kidney and management of residual fragments depends on many factors including the size and location of residual fragment and equipment available.

INTRODUCTION

Urolithiasis is a common cause of morbidity worldwide, usually affect 10% of the general population.

Staghorn stones are generally composed of struvite and/or calcium carbonate apatite. these stones are associated with urinary tract infections, caused by urease-producing bacteria (Proteus, Klebsiella).

Management of these stones is by performing percutaneous nephrolithotomy, which is an effective procedure for stones with diameter of more than 2cm that are located in the kidney, it can be performed for stones with diameter less than 2 cm if other options fail, traditionally residual fragment of stones after PCNL procedure is considered significant if its more than 4-5 mm in size.

management of residual stones is important because of the risk of stone regrowth inside the kidney and urinary tract infections, and the possibility of slippage to the ureter.

Different options of management are available, including extracorporeal shockwave lithotripsy (ESWL), flexible ureteroscopy, another session of PCNL.

METHODS

This was a prospective study, Between the period December 2017 till December 2019 at prince Hussein center for urology and organ transplantation, 300 patients were followed post PCNL for about 3 months, CT scan was the imaging modality used to diagnose residual fragment in our study, we excluded patients with congenital anomalies such as ectopic kidney from our study, patients are classified in two groups according to the size of residual fragment, the first group are those with residual fragment less than 4mm, and the second group have fragments more than 4 mm in size.

The most common location for residual fragment was the lower group calyx, ESWL was the main modality used to treat residual fragments, another session of PCNL was done in patients in whom ESWL failed.

RESULTS

Of 300 patients 15% of them presented with stone related event post PCNL, including renal colic and sepsis, 56 patients have residual fragment less than 4mm that is asymptomatic, spontaneous passage of stone occurred in 35 patients, nephrolithotomy 60 patients underwent CT scan, the rest of patients are followed by KUB, 17% of our patients had residual stone of diameter more than

4mm, that required intervention including ESWL 15% and only 2% require another session of PCNL.

Bleeding and infection were an important risk factors for residual stone.

ESWL clearance rate was more than 70 %, 10% of those who failed ESWL need another session PCNL.

CONCLUSION

Management of residual fragment post percutaneous nephrolithotomy depends on many factors including size, location of stone, and composition of stone, many stone less than 4 mm can be managed conservatively.

The vast majority of patients who have residual stone more than 4mm will develop clinical problem if left untreated, ESWL have high clearance rate as less invasive procedure post operatively, flexible URS have superior clearance rate compared with ESWL, percutaneous nephrolithotomy is considered as last option when dealing with residual stone.

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