

A HUGE RIGHT STAGHORN RENAL STONE : A CASE REPORT

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Abstract

Introduction: Urolithiasis is a very common problem. Open stone surgery is used less commonly due to its invasiveness and availability of above mentioned techniques. We introduce a case, that due to heavy and complex stone burden and increased chance of failure of percutaneous nephrolithotomy, Open stone surgery is performed and preferred for stone removal.

Case presentation: The patient is a 58-years-old, male, had previously examined at the Dompu Hospital and referred to Urology Departement in RSUDP NTB due to a large right Staghorn kidney. After full evaluation and due to extensive spread of stone horns to the even peripheral calyces, open stone surgery performed successfully, that postoperative dynamic renal studies revealed, and evaluate kidney function.

Conclusion: In spite of wonderful advances in endourologic stone surgery, open stone surgery still has its role, but it must be done in experienced centers with good surgical expertise to retain good and make acceptable functional kidney, postoperatively

Case presentation

A 58-year-old, male with complained that he felt pain on his right flank one month ago and worsening in the last one week. The pain felt intermittent and sometimes persistent and the intensity of 4 on verbal analog score. Sometimes the pain is felt radiating to the back. A few day before admission the patient complained of feeling pain when urinating, decrease urine volume, and incomplete urination. Other complains were nausea and vomiting since one week ago. Urinating with blood, fever dizziness were denied.

The patient had a similar symptom (right

flank pain) about 5 years ago. He also had complained of cloudy urine with blood and stone, feeling pain when urinating, decrease urine volume, and incomplete urination. He has a history of hypertension. There is no history of trauma, surgery or diabetic mellitus.

There is no similar complain in the patient's family and there is no history of hypertension and diabetic mellitus. There

was no history of allergies of drugs or foods. The patient has a habit of rarely consuming water, the patient just consuming water approximately 1 liter per day. Beside that, every day the patient have a smoking habit but was stopped since he had those symptom. Physical examination shows blood pressure 140/90 mmHg, heart rate 90 bpm, respiration rate 20 times per minute, temperature 36 °C. Flank-Costo Vertebrae Angle (CVA) region. Percussion : CVA flank (+/-) or pain on right side of flank.



Figure 1. KUB X-Ray showed large staghorn right kidney

In Plain Abdominal Radiograph and Non Contrast Abdominal CT Scan, Staghorn renal stone dextra with size 7.5 cm x 5 cm and does not cause hydronephrosis was reported.

Due to large volume of stone and its complexity, the patient is scheduled for right anatomic nephrolithotomy.

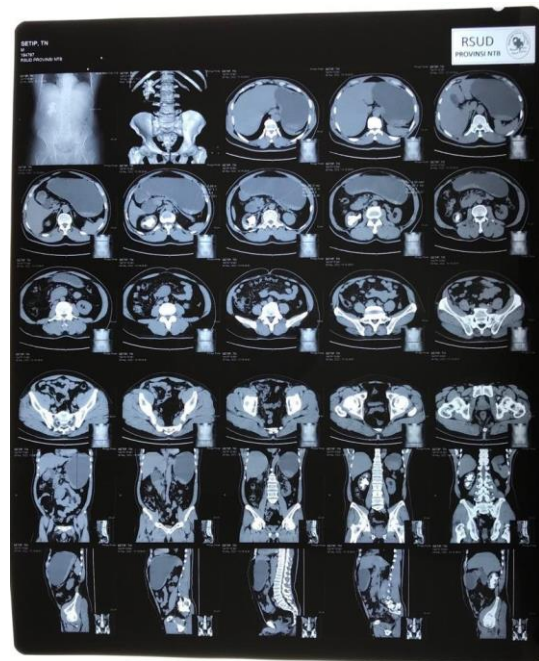


Figure 2. CT Scan Abdomen Non Contrast showed staghorn renal stone dextra 7,5x5cm and no hydronephrosis

He was not candidate for PCNL, It was impractical due to volume of the stone and increased rate of complications and failure. The patient underwent open stone surgery, with right flank incision, after ligating the renal artery and opening the kidney with nephrotomy incision, the stone removed completely within 5 min after artery ligation. The ligature released after 10 min.



Figure 3. The stone weight was 128 grams. Stone biochemical analysis was in favor of **struvite** stone.

Urine cultures, one month, two month, 6 month and, one and two years after operation, all were negative. Also ultrasonography of the kidneys 6 month,

one year and two years after operation were unremarkable

Discussion

ESWL, PCNL and TUL are advanced noninvasive or less invasive techniques of renal and ureteral stones treatment. In the last few decades, with the improvement in endourological surgery and the invention and evolution of extracorporeal shock-wave lithotripsy, the indications for open surgery in stone disease have become rare, although open surgery still has a role in selected cases.^{1,2,3} Open stone surgery, are losing its role day and day, but sometimes its using becomes inevitable due to patients characteristics, failure of primary therapy for stone removal, complex stone burden, renal anatomic problems (such as ureteropelvic junction obstruction and infundibular stenosis with or without renal caliceal diverticulum) or an additional target of therapy apart from stone removal such as the treatment of stones in a primary obstructive mega ureter.^{1,2}

The level of evidence for the currently available guidelines is not adequate, mainly because of lack of properly designed, large prospective randomized trials that compare different options.³

Open surgery if required, may be replaced by laparoscopic procedures. Nevertheless, centers with the equipment, expertise and experience in the surgical treatment of renal stones report a need for open surgery in 1-5 4% of cases.¹

We have some types of open stone surgery, like pyelolithotomy that is used in the case of renal pelvic stones or renal pelvic stones with extension to one or two major calyces (that extended pyelolithotomy is used), simple nephrolithotomy or anatomic

nephrolithotomy (that is used in the case of simple calyceal stones or staghorn stones, respectively).

PCNL is a valuable treatment option for complete Staghorn stones with a stone-free rate approaching that of open surgery. Moreover, it has the advantages of lower morbidity, shorter operative time, shorter hospital stay and earlier return to work.⁴ Percutaneous nephrolithotomy (PNL) is superior to shockwave lithotripsy (SWL) or open surgery in the treatment of Staghorn calculi.⁵

In a retrospective study on the 780 procedures performed for stone removal, 42 were open surgical procedures (5.4%) including pyelolithotomy and anatomic nephrolithotomy in 29 cases (69%). The most common indications for open surgery were complex stone burden (55%); failure of extracorporeal shock wave lithotripsy or endourological treatment (29%) and anatomic abnormalities such as ureteropelvic junction obstruction, infundibular stenosis and/or renal caliceal diverticulum (24%). Average hospital stay was 6.4 days. The stone -free rate after surgery was 93%. In conclusion, open stone surgery continues to represent a reasonable alternative for a small segment of the urinary stone population.⁶

Open surgery for stones of the upper urinary tract has very few indications; failure or complications of other techniques, greater than 2 cm stones, hard stones, anatomical abnormalities and complex stones. Open surgery for stone may be difficult and need specific tools. For the kidney, the anatomic nephrotomy is an effective procedure which spares renal function.⁷

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Abbreviations

ESWL, extracorporeal shockwave lithotripsy; IVP, intravenous pyelography; Staghorn; OSS, open stone surgery; PCNL, percutaneous nephrolithotomy; TUL, transureteral lithotripsy.

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