CASE REPORT

UROLITHIASIS

Conservative management of accidental gall bladder puncture during percutaneous nephrolithotomy

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Percutaneous nephrolithotomy (PCNL) has been an excellent option for the management of kidney stones. There have been many complications in regards to solid organ injury during PCNL. Here we discuss an interesting case of 45-year-old woman, who underwent PCNL for right renal staghorn calculus, and had an accidental puncture of the gall bladder. Post operatively, the patient was conservatively managed and recovered well. A small number of cases has been reported until now in literature.

Key Words: percutaneous nephrolithotomy ‹› staghorn calculus ‹› gall bladder

CASE REPORT

A 45–year–old woman was admitted to our hospital and surgery was planned for right staghorn calculus (Figure 1). Ultrasound showed multiple calculi in the right kidney; 38 mm in the pelvis, 21 mm in the lower pole and 16 mm in the upper pole with moderate hydronephrosis. Intravenous urography showed right renal staghorn calculus with delayed excretion suggestive of impaired right renal function.

Under general anesthesia, initial ureteric catheterisation and retrograde pyelogram was performed. The procedure was carried out with the patient in prone position using a C–arm and bull's eye technique. Lower pole puncture was done and the stones in the lower calyx, middle calyx and pelvis were cleared. A separate puncture was indicated for clearance of the upper pole stone. An upper pole puncture was done under C–arm guidance and bile was observed gushing out of the needle when the stiletto was removed. The needle was withdrawn quickly and another puncture was done. The procedure was not abandoned and mini perc was done. Near complete clearance was achieved in our case. A surgical gastroenterologist consultation was obtained intraoperatively. Nasogastric tube was inserted immediately after the urological procpedure. A 20 Fr Foley catheter was kept as a percutaneous nephrostomy tube and the patient was put on antibiotics according to urine culture and sensitivity along with metronidazole.

In the immediate post operative period, the patient was closely monitored with parameters such as pulse rate, blood pressure, abdominal girth monitoring, water balance and nasogastric tube aspirate. The patient had two episodes of vomiting in the immediate post operative period and mild distension of the abdomen. Abdominal distension lasted for 18–24 hours and resolved with conservative management. An ultrasound was performed twenty four hours after surgery and revealed minimal collection in the gall bladder fossa (<10 ml) with pelvic collection (<50 ml). A 72 hour scan was done which showed resolution of the gall bladder fossa collection. The patient had no signs of peritonitis and responded well to conservative line of management. She was

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discharged home on post operative day five and was followed up after two weeks with renal function test and liver function tests which were within normal limits. According to Clavien Dindo grading system for surgical complications this case fits into grade 2.

DISSCUSSION

Percutaneous nephrolithotomy is the treatment of choice for large (>2 cm) renal staghorn calculi [1, 2]. Gall bladder injury occurs when the access needle punctures the distended gall bladder. It constitutes a small number of all complicated visceral injuries during PCNL. Till date, only six cases have been documented in literature [3]. This complication is life threatening if mismanaged [4]. Other organ injuries such as spleen, liver and colon have been documented, with gall bladder injuries being the least common. Cases of biliary peritonitis have been reported in literature [5]. A well distended gall bladder is in close proximity to the right kidney and medial right–sided percutaneous renal access may increase the risk of gallbladder injury. It is significant to bear in mind that gall bladder injury is not a common complication but is still commonly encountered in thin individuals. Most of the cases in the literature have undergone immediate cholecystectomy [6]. In our case, PCNL was not abandoned and the patient did not undergo cholecystectomy; our case was instead managed conservatively. In the post operative period, close monitoring is required, both clinical and by means of ultrasound. If there is deterioration in the clinical scenario, then immediate cholecystectomy has to be done. In our case, the leak subsided and spontaneous closure of perforation occurred, most probably due to the use of a two piece diamond tip needle, which is supposed to be less traumatic as compared to other conventional needles.

Figure 1. *Kidney–ureter–bladder X–ray showing the burden of calculi in the right kidney.*

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