INTRODUCTION
Since its introduction in 1976,1 percutaneous nephrolithotomy (PCNL) has become the gold standard treatment for renal stones requiring surgery. In addition to other complications, hemorrhage is its most common complication.1 Hemorrhage may be venous or arterial. Venous bleed is usually treated conservatively while the arterial bleed requires special attention, as it may be due to postoperative renal artery pseudoaneurysm, arterio-venous or arterio-calyceal fistula. Renal artery pseudoaneurysm is a rare complication that occurs after renal trauma, renal biopsy, percutaneous nephrostomy, PCNL and partial nephrectomy,2,3 and deserves meticulous care and treatment. Diagnosis and treatment of renal arterial pseudoaneurysm is made by renal angiography and arterial embolization, respectively.4,5

CASE REPORT
A 30-year female presented to us with complaint of right flank pain for 6 months. On examination, her abdomen was soft. Right flank was non-tender with no visceromegaly. Her laboratory investigations were within normal range. Ultrasonography showed right renal stone of 3 cm with mild hydronephrosis. The left kidney was normal. X-ray kidney ureter bladder (KUB) showed radiopaque right renal pelvic stone (Figure 1).

She underwent right PCNL. The stone was approached from the lower pole. Complete fragmentation of the stone was done and nephrostomy was placed. The patient was discharged on the 3rd postoperative day after the removal of nephrostomy. At 13th day of discharge, patient presented with the high grade fever along with gross hematuria. Prophylactic intravenous antibiotics were commenced initially and later, according to the sensitivity report, blood was transfused. Her bladder wash was done and blood clots were evacuated. She was discharged on the 5th day. After 10 days, she presented with the complaint of urinary retention and history of gross hematuria for 3 days. Perurethra catheterization and bladder wash were done with evacuation of clots. Blood was also transfused. Her cystoscopy was done which revealed a large organised clot, which was evacuated too. At night, she again developed massive hematuria. Exploration of the right kidney was planned and done, once the patient’s condition was optimized. Operative finding was a healthy kidney with clots in the renal pelvis, which were evacuated but no incidence of active bleeding. Wound was closed after placement of nephrostomy tube. The next day, she again developed gross hematuria along with bleeding in the nephrostomy tube.

Her renal CT angiogram was carried out which showed a pseudoaneurysm of interlobar branch of right renal artery. The following day, her renal angiography with subsequent selective angiembolization was done with the coil (Figures 2 and 3).

She was kept under observation for 4 days and finally discharged.

DISCUSSION
Renal calculi are nowadays treated with minimal access surgery, like PCNL and retrograde intrarenal surgery (RIRS). The stone-free rate for calculi > 2 cm is found to be 71% and 37% for PCNL and RIRS, respectively.1 There are various reports in literature related to a safety margin of PCNL, but some unique complications of the procedure still remain dreadful.1 The rate of venous hemorrhage, which needs blood transfusion, is 7.3%;
but arterial complications have a wide spectrum.\(^1\) The most challenging issue in these complications is how to diagnose these conditions because CT-guided contrast studies are helpful in nearly arterial phase and there is difficulty in performing the selective angiography.

MRI is also helpful but it has its limitations. The only modality, which is useful both for diagnostic as well as therapeutic intervention, is the selective renal angiography.\(^6\)\(\text{-}^8\)

Transarterial embolization (TAE) by direct percutaneous method is a preferred method of intervention, which involves coil embolization of the content of pseudoaneurysm under fluoroscopic control. The use of TAE technique has disadvantage of arterial injury, and hemorrhage during intervention leading to nephrectomy.

In the present case, we had intraarterial occlusion by coil and were successful.\(^9\) This method is useful and supported by many studies.\(^2\)\(\text{-}^9\)\(,^10\)

Post-PCNL hematuria may present with a potentially life-threatening condition having an underlying etiology of renal artery pseudoaneurysm or renal arterio-venous fistula. Embolization of the injured vessel is an effective, and relatively easy procedure in experienced hands, with high rate of success and immediate benefits, thus saving the patient from morbidity and mortality.

REFERENCES


