



INTRARENAL PSEUDO ANEURYSM AFTER PERCUTANEOUS NEPHROLITHOTOMY–A CASE REPORT

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ABSTRACT

We report a case of intrarenal pseudo aneurysm of the right kidney after supine percutaneous nephrolithotomy (PCNL). He presented with severe haematuria. He was evaluated by renal angiography, which showed a pseudo aneurysm with leak of contrast material, which was managed by endovascular approach using coil embolization. We report this case for its rarity.

INTRODUCTION: Renal stones are a common problem worldwide. Treatment of renal stone varies from ESWL, RIRS, and PCNL. PCNL is the preferred treatment of choice for large renal stones more than 2 cm in size. Percutaneous renal procedures can lead to several renovascular injuries such as hematomas, arteriovenous fistulas or pseudo aneurysm. The reported incidence of renal pseudo aneurysm following percutaneous nephrolithotomy (PCNL) is 0.6 to 1% (1) and it is usually assessed by renal angiography. Selective renal embolization is currently considered to be the most appropriate technique in the treatment for these complications (2). We report a case of renal artery pseudo aneurysm followed by PCNL.

KEYWORDS :

CASE REPORT

A 68-year-old man known to have left renal lower calyceal calculus of about 2.5 cm was admitted, evaluated and posted for left PCNL. He underwent ultrasound guided anterior calyceal puncture followed by dilatation using fluoroscopy in supine position. Perioperative period was uneventful, stone clearance was 100 present and patient was discharged on third postoperative day. After 2 weeks he presented with gross hematuria. He was hemodynamically stable. On evaluation he was found to have anemia, significant Hb drop from 11 to 8g%. Bleeding profile were within normal range. He underwent cystoscopy, clots evacuated and found to have continuous bleeding from left ureteric orifice. After obtaining informed consent, he was immediately shifted to cath-lab for left renal angiogram. Right femoral puncture was done, 6fr JR catheter was placed in left renal artery which showed left renal middle arcuate artery large aneurysm with active bleeding. A 6 fr mullin sheath was inserted in left renal origin. A 4fr JR catheter was placed in left renal middle arcuate artery into which IMWCE-38-4-4 coil was loaded and deployed. Post procedure a check angiogram was done which showed no flow through the aneurysm. There were no further episodes of hematuria and the patient was discharged 3 days after the procedure. Patient kept on regular follow-up.

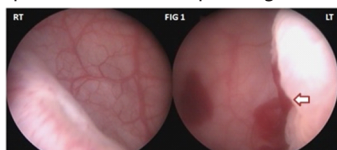


FIG 1: Cystoscopy pictures showing right and left ureteric orifice. Arrow head showing active bleeding from left ureteric orifice.

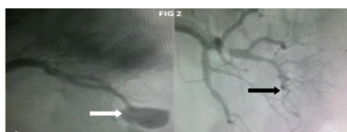


FIG 2: Angiogram pictures A) Pseudo aneurysm (white arrow)

with extravasation of contrast 2) post embolization with coil (blackarrow)

DISCUSSION

Percutaneous Nephro Lithotomy (PCNL) is the preferred technique for treating larger kidney stones (over 2cm in diameter) located within the kidney. PCNL is a boon for the treatment of larger intra renal calculi as it avoids a very large incision and its associated complications. As reported, the complete success rates of PCNL were 89.4% [3], which provides overall significantly higher stone-free rates than retrograde intrarenal surgery [4]. However, severe haemorrhage after percutaneous nephrolithotomy is a rare complication (less than 1%) but can be life-threatening [8].

Arterial pseudo aneurysm arises from a transected or punctured artery that leaks into a contained hematoma cavity. Which could subsequently bleed into a contained space. This bleeding vessel may be a third order branch of the renal artery, which is a deep, substantial artery branch. This transected arterial branch may be either partially thrombosed or in spasm initially, leading to its non-recognition in the operating room. As the patient increases activity, the occluding clot may possibly get dislodged, accounting for the delayed occurrence of hematuria.

Pseudo aneurysm is usually assessed by CT angiography or renal angiography. Selective renal embolization is currently considered as the most appropriate technique in the treatment for Renal vascular complications with a success rate greater than 80% and low complication rate [2] [5] [7]. Pseudo aneurysms must be occluded with a permanent agent at the fistulous point where the risk of hemorrhage is greater. In contrast to surgery, the endovascular management is a minimally invasive procedure that provides the occlusion of the fistula itself as well as the proximal portion of venous drainage and helps salvaging the kidney in many patients.

Many substances can be employed for embolization like Ethanol ; gel foam particles ; micro coil ; detachable balloons; N-butyl-2-

cyanoacrylate . Ethanol injected intra-arterially has been used to reduce the vascularity of tumors to facilitate their surgical resection; selective arterial injection exhibit luminal thrombus with endothelial loss and varying degrees of medial necrosis, leading to its occlusion. Gel-foam embolization has several shortcomings, including: 1) reflux of embolic material into the normal arteries, particularly if a small distal vessel has not been super-selectively cannulated; 2) a larger vessel may be difficult to occlude and it may also in more generalized embolization of the arterial tree; 3) gel foam can undergo resorption and allow re cannulation of the vessel. In moderate-sized vessels, steel coils or detachable balloons may also be used. Coil embolization is a minimally invasive procedure to treat an aneurysm by filling it with material that closes off the sac and reduces the risk of rupturing or rebleeding.

Embolization can be divided into the following types [2]:

- Central: occlusion of the main trunk artery with patency of its branches (causing possible development of collateral circulation, preventing necrosis of tissues);
- Peripheral: occlusion of all arteries of 100–200 µm (collateral circulation is considerably restricted, causing possible blood flow in capillary vessels); and
- Capillary: occlusion of the whole artery bed, leading to complete ischemia and development of acute necrosis.

In this case we did coil embolization using IMWCE-38-4-4 Coil as it is a minimally invasive procedure. Perioperative period uneventful.

CONCLUSIONS

Super selective renal artery embolization used in emergency cases of bleeding into the urinary tract after PCNL or NSS is a minimally invasive, safe, and effective procedure. Because of the difficult operating conditions and problematic bleeding locations, treatment attempts often lead to nephrectomy. Moreover, there is often an increased risk of intraoperative and postoperative complications. In these cases, embolization is an organ-sparing treatment that maintains renal function.

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