

# Dengue shock syndrome after percutaneous nephrolithotomy leading to hematuria and renal failure: A rare complication

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## ABSTRACT

Hematuria following percutaneous nephrolithotomy (PCNL) is a dreaded complication. It necessitates blood transfusion in up to 10% of patients. It may be severe enough in <1% of patients to require angioembolization. We present a 50-year-old male who underwent PCNL for renal pelvic calculus. Since the day of the surgery, he had low-grade fever (100°F) which worsened (102°F) from the 2<sup>nd</sup> postoperative day. His preoperative urine culture was sterile. His platelet counts started dropping and NS1 antigen for dengue was positive. He also developed anemia (hemoglobin: 7g%) and platelet counts dropped to 17,000/cmm. He developed anuria on the 7<sup>th</sup> postoperative day, with serum creatinine rising to 7 mg%. He required two sessions of hemodialysis and urine output improved. There is a need for high index of suspicion for dengue, especially when fever and hematuria coexist in post PCNL patients.

## INTRODUCTION

Hematuria following percutaneous nephrolithotomy (PCNL) is a worrisome complication. Most of these patients settle with conservative management and serious bleeding necessitates angioembolization.<sup>[1,2]</sup> Fever coexisting with hematuria following PCNL is rare. This case highlights the fact that dengue hemorrhagic fever (DHF) can present in a similar fashion and DHF is usually not thought of, in the immediate postoperative patient.

## CASE REPORT

A 50-year-old man underwent right retrograde intrarenal surgery with double J stenting for the right renal calculus (15 mm × 10 mm) and left PCNL for the left renal pelvic calculus (20 mm × 15 mm). He had no comorbidities and his baseline serum creatinine was 0.9 mg/dl. His preoperative urine culture was

sterile. Postoperatively, he had a mild fever of 100°F on the first day and started having multiple febrile spikes of 102°F and tachycardia (130 beats/min) from the 3<sup>rd</sup> day. He was detected to have thrombocytopenia (platelets 46,000/cmm) and dengue NS1-antigen tested positive. Urine culture and other tests for fever workup were negative and antibiotics were stopped. His platelet counts dropped to 17,000/cmm and hemoglobin dropped to 7 g/dl on the 8<sup>th</sup> postoperative day. He developed hematuria and was transfused four units of platelets. He developed dengue shock syndrome, hematuria with clot retention requiring bladder washes, and diffuse capillary leak syndrome. He went in to anuria and his serum creatinine rose to 7 mg/dl. He underwent two sessions of hemodialysis. He received transfusion with four units of platelet, one unit of packed red blood cells, and two units of fresh frozen plasma. His kidneys recovered with conservative treatment and platelet counts improved. His serum creatinine reached normal levels (1 mg/dl) on the 12<sup>th</sup> postoperative day.

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## DISCUSSION

Post PCNL bleeding is serious in < 1% of patients requiring angiography and embolization.<sup>[1]</sup> Hemorrhage is the most significant complication following PCNL and transfusion rates reach up to 10%.<sup>[2]</sup> Causes include arteriovenous malformation or pseudoaneurysm and rarely venous laceration. Medical causes of bleeding are rare following PCNL and rarely thought of.

Infection following PCNL occurs in around 25% of patients and is usually managed with antibiotics.<sup>[2]</sup> When patient develops fever and hematuria, still infection is the first possibility as considered by most urologists. Only one case has been reported in the English literature to the best of our knowledge, in which fever and gross hematuria started from the 2<sup>nd</sup> postoperative day. He was diagnosed to have DHF. He settled on the 8<sup>th</sup> postoperative day.<sup>[3]</sup>

Our patient had fever from the first postoperative day. However, his platelet counts dropped on the 4<sup>th</sup> postoperative day and he tested positive for NS1 dengue antigen. Only on the 8<sup>th</sup> postoperative day, he developed hematuria, clot retention, and diffuse capillary leak syndrome. He developed anuria and required two sessions of hemodialysis. His condition resolved after 3 days and his creatinine reached baseline.

There are similar cases of DHF complicating percutaneous transluminal coronary angioplasty leading to coagulopathy.<sup>[4]</sup> Dengue virus-induced coagulopathy has also been reported in renal transplant recipients, post hysterectomy, and coronary artery bypass grafting.<sup>[3,5]</sup> The management of dengue in the presence of capillary leak syndrome, and renal failure was challenging in our patient. Despite bleeding from the left kidney and presence of stent on the right side, patient developed acute renal shutdown probably secondary to capillary leak. Renal failure improved as he convalesced from dengue.

Dengue is a RNA virus with four serotypes. One serotype confers lifelong immunity against reinfection, but partial and temporary immunity against other serotypes. There are three phases in the infection; febrile phase

characterized by fever, retro-orbital pain, flushing and rash. Second is the critical phase constituted by increased vascular permeability and plasma leak and can affect multiple organ systems. This is followed by convalescent phase where lost fluid returns to the circulatory system.<sup>[6]</sup>

## CONCLUSION

Hematuria following PCNL is a dreaded complication. Fever complicating hematuria post PCNL is rare. This patient highlights the need for high index of suspicion for dengue in endemic areas and especially when fever and hematuria coexist.

### *Declaration of patient consent*

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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