

Dengue in a Post PCNL Patient – Vigilance and Suspicion Matters

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Authors' contributions

Author SPD wrote the protocol and first draft of the manuscript. Authors NC and NM collected the data, analysed and interpreted the patient data. Author MS managed the literature searches. Author SPD drafted the work, substantively revised it and was a major contributor in writing the manuscript. All authors have read and approved the manuscript.

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Case Report

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ABSTRACT

Dengue is a rapidly spreading mosquito-borne viral disease. The spectrum of clinical manifestations ranges from subclinical infections to severe dengue with leaky membranes, haemorrhagic manifestations, shock and organ dysfunction and finally death. Haematuria with fever in a post PCNL setting is a common finding. Severe haematuria require transfusion in around 11.2-17.5% patients and angioembolization in around 0.8% cases. We present a case of haematuria with fever in a young patient who underwent PCNL for partial staghorn calculus. She developed fever on second post-operative day, diagnosed dengue positive on fifth post-operative day, became anuric and went into dengue shock syndrome on sixth post-operative day. She recovered well after haemodialysis and multiple platelet and packed cell transfusion on eleventh post-operative day. We here want to highlight the importance of a multidisciplinary team approach and high level of vigilance and suspicion for dengue when a post-operative PCNL patient develops fever with haematuria.

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ABBREVIATIONS

PCNL – Percutaneous Nephrolithotomy; DJ Stent – Double J Stent.

1. INTRODUCTION

Dengue infection in a postoperative patient may add to significant derangement in the body's homeostasis and may result in increased morbidity and sometimes mortality. Dengue is a rapidly spreading mosquito-borne viral disease. The spectrum of clinical manifestations ranges from subclinical infections to severe dengue with leaky membranes, haemorrhagic manifestations, shock and organ dysfunction and finally death. Recently there is an increase in unusual presentations with severe disease and manifesting the disease under the stressful situations e.g. post-operatively after any major surgery [1,2].

There are only few case reports on acute presentation and clinical manifestations of dengue in patients after surgery [3,4] and further few cases if we consider urological cases [2,5]. Minor haematuria following PCNL is common. Minor post-operative fever after PCNL is also common depending upon the type of stone fragmentation and pre-existing infection. But fever with haematuria post-PCNL is less common as compared to fever alone. Whenever this occurs, apart from surgical point of view, we should also think of simultaneous medical problem like dengue. We describe here a case of dengue haemorrhagic shock in a young female who developed fever with haematuria following PCNL surgery. This is the third case of post-PCNL dengue case to be reported as per the best of our knowledge.

2. CASE REPORT

A 35-year young lady admitted to our hospital with right partial staghorn calculus. She underwent standard PCNL using 20 Fr rigid Dresden nephroscope for the same and DJ stent was kept alongwith the nephrostomy post-operatively. Serial dilatation using Amplatz's metallic dilators were used for the tract dilatation. She had no co-morbid conditions. Her baseline creatinine was 0.8mg/dl. Her pre-operative urine culture grew *Escherichia coli* and antibiotics were started 48 prior to the planned surgery as per the

sensitivity report. She never had fever pre-operatively. Post-operatively she had developed fever on second day and then multiple febrile peaks on day 3 onwards. Later on, she developed haematuria and thrombocytopenia. We, initially thought of bacterial sepsis because of positive urine culture pre-operatively. So, we stepped up the antibiotics and send the blood and urine cultures again. Both the culture reports came negative. Her thrombocytopenia was worsening, so we took a physician opinion and work up for thrombocytopenia was done. It was then that NS1 antigen for dengue came positive. But till that time, it was post-operative day 5 and her platelets went down to 20,000, she became oliguric and haemoglobin fell to 7.6 mg/dl. Next day, her haematuria increased and she went into dengue shock syndrome and became anuric with serum creatinine of 8mg/dl. She went into diffuse capillary leak syndrome. A nephrologist intervened immediately and she underwent 4 sessions of haemodialysis, 10 units of platelet transfusion, 2 units of packed cell transfusion and 4 units of fresh frozen plasma. Within two days her kidneys responded and she recovered well. The creatinine came to normal on eleventh post-operative day alongwith the normal platelet counts. During her whole stay in the intensive care unit she was continued on intravenous antibiotics and other supportive medications.

3. DISCUSSION

Around 1 in 4 dengue virus infections are symptomatic and approximately 1 in 20 patients with dengue virus disease progress to develop severe, life-threatening disease [6]. The 2009 WHO classification provides the criteria for dengue warning signs [7].

The presence of dengue in a post-operative setting is a havoc for the surgeon. Fever following PCNL develops in upto 32.1% [8] of cases and is managed successfully conservatively with intravenous antibiotics and other supportive treatment. Fever may also originate from the release of the inflammatory mediators during surgical manipulation, or as a part of systemic inflammatory response syndrome [9].

Bleeding in the post-PCNL period is serious only in around 0.8% of the cases that necessitates surgical intervention, such as angiographic

embolization [10]. There is also a wide variation in the rate of blood transfusion for haemorrhage described in the literature ranging from 11.2% to 17.5% [11]. Thinking of a medical cause of bleeding in a surgical patient is usually late as in our case.

There are minor chances of fever post-operatively when a staghorn or a partial staghorn stone is fragmented due to presence of the bacteria inside the stone. But haematuria alongwith fever post-operatively in a PCNL patient indicates either a severe infection or some major vascular injury intra-operatively. The surgeons always think of their causes first. But uneventful intra-operative and post-operative periods rule out major vascular injury.

The situations of presence of dengue in a post-PCNL or any post-operative setting are rare. Till date to the best of our knowledge only two cases of post-PCNL fever with haematuria are reported in the literature. In one case, fever and gross haematuria started on second post-operative day and settled on eighth post-operative day after diagnosing with dengue haemorrhagic fever and was managed conservatively [5]. In the other case, patient developed multiple fever spikes on third post-operative day, diagnosed dengue NS1 antigen positive, underwent two sessions of haemodialysis along with multiple platelet transfusion and recovered on 12th post-operative day [2]. Our is the third case to be reported.

Our patient developed fever on second post-operative day, thrombocytopenia on post-operative fourth day and diagnosed dengue on fifth post-operative day. She became anuric on sixth post-operative day and developed dengue shock syndrome. She recovered on eleventh post-operative and her serum creatinine came down to normal value of 1.0 mg/dl with normal platelet counts.

There are similar cases of dengue haemorrhagic fever and shock described in the literature. These include presentation as atypical presentation following major abdominal surgery, dengue in patients recovering from coronary artery bypass graft, dengue in post renal transplant patients [1,3,4].

The management of dengue in the presence of dengue haemorrhagic shock and capillary leak syndrome with acute renal shut down as in our case is very difficult. A multidisciplinary team approach is needed in such cases as we did. We

involved a physician and a nephrologist. Though DJ stent and the nephrostomy were present still patient went into acute renal failure and required haemodialysis. Although she recovered well after the convalescent period was over and she was given proper supportive management.

Bleeding diathesis in dengue occurs not only due to thrombocytopenia but also due to dysfunctional surviving platelets and increased fibrinolysis. This leads to coagulopathy with microvascular changes resulting in high morbidity and even mortality. Renal involvement in dengue could potentially cause increased mortality and long-term effects. Therefore, a multidisciplinary approach with appropriate support in the form of intravenous fluids, renal replacement therapy, platelets transfusion, packed cell volume transfusion etc are the need for such critical cases.

We should also take utmost care during transfusion of the blood and blood related products. There is a case report of transfusion transmitted dengue in a neurosurgical patient [12].

4. CONCLUSION

Vigilant clinical suspicion and early dengue serological assessment is advisable in equivocal cases with fever in dengue endemic areas, to confirm/exclude the infection in order to avoid unnecessary surgical morbidity in the presence of dengue hemorrhagic fever.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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