

Common yet rare: dengue fever immediately after coronary artery bypass grafting: A case report

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SUMMARY

Dengue fever occurring in the immediate postoperative period after coronary artery bypass grafting (CABG) presents a clinical dilemma due to risks of thrombocytopenia-related bleeding and graft thrombosis. We report a case of dengue fever shortly after CABG and was successfully managed with temporary cessation of dual antiplatelet therapy (DAPT), careful hemodynamic monitoring, and judicious fluid management. This case highlights the importance of early recognition and individualised decision-making in dengue-endemic regions.

CASE PRESENTATION

A 45-year-old man with hypertension, diabetes mellitus and dyslipidaemia was admitted for pneumonia and improved after two weeks of treatment. Prior to discharge, he developed giddiness with ST-segment elevation on electrocardiography. Further evaluation revealed triple-vessel coronary artery disease with distal left main stem involvement, requiring urgent CABG. A left internal mammary artery graft to the left anterior descending artery and sequential saphenous vein grafts were performed. An intra-aortic balloon pump was inserted pre-induction, and postoperative inotropic support was required.

Immediate postoperative chest radiography was unremarkable. Within hours, he developed persistent high-grade fever and was commenced on empirical antibiotics. Blood and urine cultures, repeat chest radiography, COVID-19 and malaria screening did not identify an alternative infective source. Given persistent fever despite antibiotics and progressive thrombocytopenia, dengue testing was performed. NS1 antigen was positive within 24 hours of fever onset, supporting acute dengue infection. Dengue serology was not performed as NS1 positivity established the diagnosis during the viraemic phase. DAPT had already been initiated as platelet counts were initially normal.

By postoperative day four, platelet count declined to $78 \times 10^9/L$ and DAPT was withheld following multidisciplinary discussion. During the critical phase, he developed mild hypotension and a right pleural effusion suggestive of plasma leakage, without active bleeding. Fluid management was guided by bedside echocardiography, bedside ultrasound, urine output and fluid balance monitoring.

Bedside echocardiography demonstrated preserved left ventricular function with minimal pericardial effusion. Intravenous crystalloid therapy was carefully titrated to maintain perfusion while avoiding fluid overload.

Platelet counts improved to above $100 \times 10^9/L$ by postoperative day eight. In the absence of bleeding manifestations, with haemodynamic stability and resolution of the critical phase, DAPT was reintroduced. He recovered without haemorrhagic or graft-related complications and remained well at three-month follow-up.

DISCUSSION

Dengue fever is endemic in Malaysia and across many tropical countries. As such, dengue infection must be considered in any postoperative patient presenting with unexplained fever, even in the immediate period following major surgery. Early recognition is crucial, as the critical phase, typically occurring between days 3–7 of illness, is characterised by thrombocytopenia and increased vascular permeability leading to plasma leakage.^{1,2}

Postoperative fever after CABG is commonly attributed to bacterial infection or the systemic inflammatory response associated with cardiopulmonary bypass. In this patient, however, early NS1 positivity, progressive thrombocytopenia and subsequent plasma leakage strengthened the diagnosis of acute dengue infection after exclusion of alternative infective causes. Although dengue serology was not performed, NS1 antigen positivity during the early febrile phase is highly specific for acute dengue infection.

While guidelines recommend lifelong aspirin after CABG and DAPT in selected cases, antiplatelet therapy must be reassessed in the presence of thrombocytopenia. Although no specific guidelines exist, therapy is generally withheld when thrombocytopenia becomes clinically significant or bleeding risk outweighs thrombotic risk.^{3,4} In this case, DAPT was withheld when platelet counts fell below $100 \times 10^9/L$ after multidisciplinary discussion. Daily assessment included chest drain output, haemoglobin trends and clinical examination for haemorrhagic manifestations. Prophylactic platelet transfusion was not administered as there was no active bleeding. DAPT was resumed after platelet recovery above $100 \times 10^9/L$, absence of bleeding manifestations,

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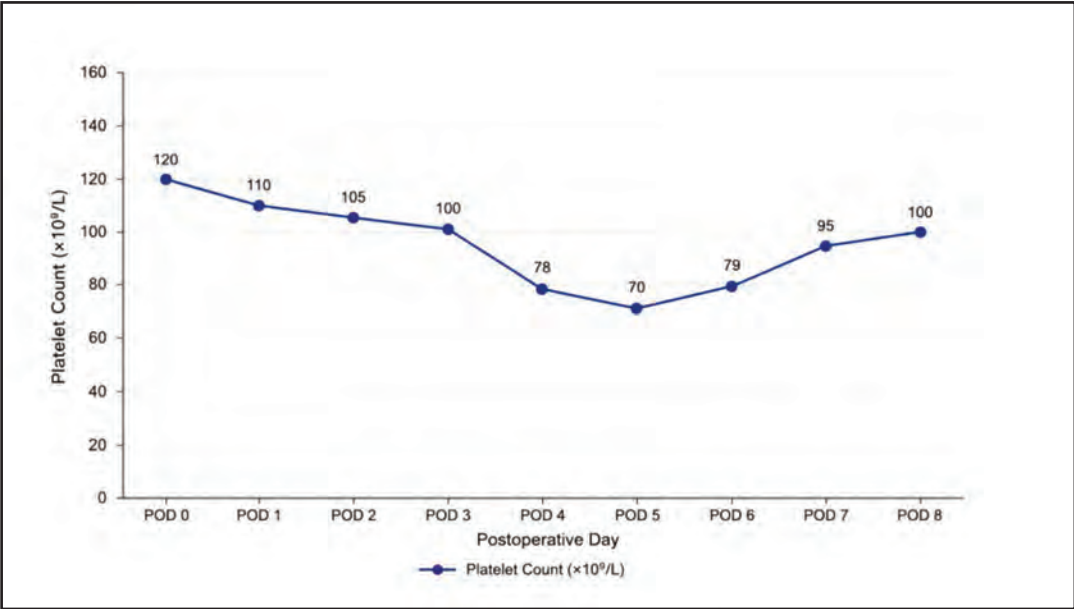


Fig. 1: Serial Platelet Count Trend

haemodynamic stability and resolution of the dengue critical phase, without subsequent thrombotic or haemorrhagic complications.

Dengue-related plasma leakage may lead to hypovolaemia, yet postoperative cardiac patients are vulnerable to fluid overload and pulmonary congestion. Although small pleural effusions are common after CABG, the timing of onset during the thrombocytopenic phase of confirmed dengue infection together with concurrent hypotension suggested dengue-associated plasma leakage as a contributing factor. Fluid management during the critical phase therefore requires careful balance. The World Health Organization dengue guidelines recommend judicious crystalloid resuscitation with close monitoring of clinical parameters.¹ Bedside echocardiography demonstrated preserved ventricular function with only minimal pericardial effusion, while serial point-of-care ultrasound assessment of fluid status guided therapy. These findings helped exclude significant postoperative cardiac dysfunction as the cause of haemodynamic instability and allowed fluid administration to be tailored while avoiding both hypoperfusion and excessive volume loading.

Postoperative management in such complex scenarios necessitates heightened vigilance and close multidisciplinary collaboration among cardiac surgeons, cardiologists, infectious disease specialists, intensivists and haematologists. In this case, delayed discharge allowed continued monitoring and ensured complete recovery from both dengue infection and recent cardiac surgery.⁵ Although reports of dengue in the immediate post-CABG setting remain limited, favourable outcomes can be achieved through early recognition, multidisciplinary care and individualised management

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