Spontaneous cervical spinal epidural haematoma in a recent drug-eluting coronary stent recipient – A therapeutic challenge

Sir,

Spontaneous spinal epidural haematoma (SSEH) is a rare, acute complication following myocardial infarction (MI) therapy.[1] We describe the perioperative challenges in a case of SSEH following primary percutaneous transluminal angioplasty (PTA) and coronary stent placement.

A 56-year-old male diabetic was diagnosed with acute MI. His 2D echocardiography showed apical hypokinesia with a left ventricular ejection fraction of 50%. He underwent primary PTA with drug-eluting stents placed in the left anterior descending and right circumflex arteries. He received antiplatelets (aspirin 300 mg and ticagrelor 180 mg) and anticoagulants (heparin 8000 IU) during coronary intervention. He developed quadriplegia with 0/5 power in all four limbs 12 hours after the PTA. The patient was referred to our centre for further management. Magnetic resonance imaging (MRI) of the spine showed acute epidural haematoma at the cervical level (C3 to C6) with spinal cord compression [Figure 1a]. His preoperative investigations, including coagulation profile, were within normal limits. Within 24 hours of hospital admission, he underwent emergency C4-6 decompressive laminectomy in the prone position.

Continuous cardiac output (CO) and stroke volume variation (SVV) monitoring was started via a left radial arterial line connected to the FloTrac/EV1000 system. Following an opioid-based induction with intravenous fentanyl 3 µg/kg and titrated doses of thiopentone 2 mg/kg, he was paralysed with rocuronium 1 mg/kg and using a C-MAC video laryngoscope, he was intubated with an 8.5 mm ID reinforced endotracheal tube. Anaesthesia was maintained with air, oxygen, and sevoflurane with intermittent doses of fentanyl and rocuronium. A right internal jugular venous line was placed to monitor the systemic vascular resistance (SVR). His post-intubation baseline values were – heart rate – 72 beats/min, mean arterial pressure (MAP) – 80 mmHg, cardiac output (CO) – 6.6 L/min, stroke volume variation (SVV) – 7% and SVR – 598 dynes/sec/cm⁵. During haematoma evacuation, the patient lost around 500–750 ml blood leading to severe hypotension with MAP – 40 mmHg, CO – 3.5 L/min, SVV of 30% and SVR – 796 dynes/sec/cm⁵. He received fluids (2000 ml), blood products [packed red blood cells (2 units), fresh frozen plasma (1 unit) and platelets (6 units)] and noradrenaline 0.1-0.2 µg/kg/min to attain a target CO >4 L/min and SVV <13%. The total blood loss was around 1500 ml. Postoperatively, he was sedated and ventilated. Postoperative echocardiography revealed no new regional wall motion abnormality. He was gradually weaned, and the trachea was extubated after one week. His postoperative cervical spine MRI showed adequate spinal canal decompression with a small residual haematoma [Figure 1b]. Aspirin was restarted on the fifth postoperative day (POD) and clopidogrel on the seventh POD. The patient was discharged after two weeks with improvement in upper limb power to 3/5; however, the lower limb power remained 0/5.

SSEH is a well-described, life-threatening complication following acute MI treatment.[2] A majority of these cases are managed conservatively.[1] In patients with significant neurological deficits, as in this patient, early surgery minimises permanent neurological damage.[3] Anaesthetic induction in a patient with a recent MI and impending respiratory failure can be catastrophic if done without appropriate haemodynamic monitoring. Five lead electrocardiogram and CO were used to monitor the cardiac function in this patient.[4] Intraoperative bleeding due to the residual antiplatelet effect of the dual antiplatelets given for coronary stenting resulted in circulatory collapse. Further, sympathetic tone loss due to high cervical spinal cord compression worsened haemodynamic instability.[5] On the other hand, the residual antiplatelet effect prevented stent thrombosis.

Figure 1: (a) Preoperative MRI spine showing extradural haematoma (arrows) in the spinal canal, (b) Postoperative MRI spine showing small residual haematoma (arrows)
and avoided coronary ischaemia intraoperatively. Lesion at the cervical level and prone position surgery with flexed neck ruled out the use of transoesophageal echocardiography for intraoperative haemodynamic monitoring in this case. With goal-directed fluid management targeting CO >4 L/min and SVV <13%, haemodynamics were maintained throughout the perioperative period. Prophylactic platelet transfusion can lead to stent thrombosis. But in this case, haemostasis could be achieved only after intraoperative platelet transfusion. In this patient, MRI was repeated to rule out blood recollection before restarting antiplatelets. Immediate early surgery aided by advanced haemodynamic monitoring, judicious use of platelets to control bleeding during surgery, and prompt restarting of antiplatelets after surgery can facilitate favourable clinical outcomes in SSEH patients following PTA.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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