Acute intraoperative cardiac events can pose several dilemmas in patients with coronary vasospasm. The typical treatment for acute cardiac events would be to optimize myocardial oxygen supply. However this may not be the most appropriate response to relieve coronary spasm. Therefore thorough understanding of triggers and unique treatment options for coronary vasospastic disorders is important for successful management.

A 59 year old male with a history of recent anterior cervical discectomy and fusion (ACDF) at C4-C7 was admitted for recurrent chest pain and shortness of breath with wide QRS complex along with anterior ST elevations that resolved with nitroglycerin. Cardiac catheterization showed diffuse non-obstructive coronary artery disease and 80% stenosis of proximal posterolateral branch. Echocardiogram showed mildly reduced ejection fraction with mildly dilated left atrium. Cardiac MRI showed evidence of non-ischemic cardiomyopathy with no structural abnormalities. The patient was diagnosed with coronary vasospasm and treatment with calcium channel blockers started. No other significant comorbidities are present.

The following day, the patient concurrently complained of sudden worsening pain, paresthesia, and significant weakness of his upper extremities. An MRI revealed a hematoma at C5-C6 with compression and he was scheduled for cervical spine C4-6 decompressive laminectomy. Anesthetic technique included general anesthesia with standard induction and endotracheal intubation. In addition to ASA standard monitors, arterial line was placed. Anesthesia was maintained with propofol and dexmedetomidate to facilitate intraoperative neuromonitoring with somatosensory and motor evoked potentials. At wound closure, the patient was noted to have sudden diffuse ST depressions and hypotension. Treatment was started with phenylephrine and ephedrine, wound was partially closed and the patient was turned supine. Chest compression was initiated to treat pulseless electric activity followed by cycles of epinephrine, sodium bicarbonate, and calcium chloride. Reversible causes of PEA were investigated including testing an arterial blood gas, blood chemistry, and intraoperative transesophageal echocardiogram without conclusive etiology. Cardiac rhythm shortly converted to ventricular fibrillation and patient underwent three cycles of defibrillation two minutes apart prior to return of spontaneous circulation. The patient remained intubated and transferred to the intensive care unit. The next day patient demonstrated no focal deficits with regain of consciousness and was extubated successfully.

Coronary vasospasm is a sudden intense vasoconstriction of the coronary artery that causes near to complete occlusion of the vessel that may precipitate lethal ventricular arrhythmias. Perioperative management requires prompt initiation of therapy with calcium channel blockers (CCB) or nitrates to prevent the occurrence of major adverse cardiac events. Precipitating factors that significantly alter the autonomic nervous system activity including epinephrine, ephedrine and
pure alpha agonists like phenylephrine have been shown in previous cases to trigger vasospasms and should be avoided. It is very important to formulate a management plan to prevent and manage potential triggers in a known case of coronary vasospasm. Moreover a high index of suspicion when there is history of angina unrelated to exertion also can identify yet to be diagnosed cases and lead to appropriate management.