Takotsubo cardiomyopathy presenting during a surgery under local anesthesia: a case report

Ming Yew, Yan-Syun Zeng, Wan-Jung Cheng, Li-Kai Wang, Jen-Yin Chen
Department of Anesthesiology, Chi Mei Medical Center, Tainan, Taiwan

Background

Takotsubo cardiomyopathy (TCM), characterized by transient left ventricular (LV) dysfunction without angiographic evidence of coronary artery lesion, mainly affects postmenopausal women and is often triggered by stressful situations¹. Here we present a case of TCM, whose initial manifestations were tachycardia and pulmonary edema during a surgery under local anesthesia (LA).

Case report

A 68-year-old female without past medical history underwent paranasal sinus surgery under LA. Premedications (diphenhydramine 30 mg IM, atropine 0.3 mg IM and midazolam 2.5 mg IV push) were given 0.5 h before surgery. Gauze packing and local infiltration of nasal cavity were done with lidocaine–epinephrine. However, sinus tachycardia with intermittent short-run VT and desaturation occurred toward the end of operation. Anesthesiologists were called for help. Supplemental O₂ via facemask was given. The breath sound (BS) was diffuse rhonchi and wheezes, and several puffs of inhaled fenoterol (100 µg/puff) were given. Rapid sequence intubation was done in view of persistent desaturation (SpO₂ 71–80%) and hypotension. Much pink foaming sputum and diffuse crackles in BS were noted, while arterial blood gas showed poor oxygenation and mild CO₂ retention. IV infusion of dopamine (11 µg/kg/min) was started for hypotension at OR. At ICU, blood level of high-sensitivity troponin I was 4563.2 ng/L, 12-lead EKG showed T-wave inversion in leads V1–6, and chest X-ray revealed bilateral pulmonary edema. Echocardiography demonstrated an ejection fraction of 50% with anteroseptal LV hypokinesia. Coronary angiogram showed a myocardial bridge of LAD without other coronary artery lesion. TCM was diagnosed. The patient was treated with isosorbide, furosemide and aspirin. She was extubated 3 days later and was discharged 6 more days later without sequelae. Echocardiography 1 month later showed no regional wall abnormality of LV.

Discussion

Catecholamine excess has been postulated as a pathogenic mechanism for TCM. Exposure to epinephrine, pain on LA injections and emotional stress in this patient may have induced vasoconstriction or vasospasm and subsequent myocardial stunning that caused TCM².

Learning point

Since stress is a possible trigger of TCM, emotional stress and pain should be avoided by adequate sedation, reassurance and analgesia in the perioperative setting.

References

1. Gianni M, Dentali F, Grandi AM, et al. Apical ballooning syndrome or takotsubo cardiomyopathy: a systemic review. *Eur Heart J*. 2006;27:1523–9.
2. Wittstein IS, Theimann DR, Lima JA, et al. Neurohumoral features of myocardial stunning due to sudden emotional stress. *N Engl J Med*. 2005; 352:539–48.