## **B9**

## Emily Dai B.S.

Advisor(s): Joseph Gallombardo M.D.

Co-author(s): Emily Dai, Michael Goldberg, John Gerges, Jack Flannagan, Idan Boussani, Matthew Becker, Joseph Gallombardo

## Anesthetic Management of Aortic Hemiarch Replacement: A Case Report

Aortic hemiarch replacement is a surgical procedure aimed to address pathologies of the ascending aorta and the proximal aortic arch. The optimal cerebral perfusion technique for the procedure remains a subject of ongoing debate.

A 58-year male with a history of hypertension, bicuspid aortic valve, and pulmonary embolism underwent elective aortic hemiarch replacement due to a 5.1 cm ascending aortic aneurysm with moderate aortic regurgitation extending into the proximal aortic arch. Preoperative transthoracic echocardiography (TTE) revealed preserved LV function and moderate aortic insufficiency. Anesthetic management requires hemodynamic stability, coagulation control, and organ protection. Pre-operative management included standard ASA monitoring, arterial and central venous access, pulmonary artery catheter placement, and bilateral cerebral oximetry. Anesthesia was induced with propofol, fentanyl, and rocuronium, then maintained with isoflurane. Intraoperatively, TTE guided continuous hemodynamic monitoring, and cardiopulmonary bypass was initiated with moderate hypothermia (28°C). Unilateral antegrade cerebral perfusion (ACP) via the innominate artery provided continuous cerebral perfusion to the right hemisphere with collateral flow to the left hemisphere via the Circle of Willis during the 25-minute circulatory arrest. Cerebral oximetry values remained stable throughout. An estimated 1,200mL of blood loss was managed with cell salvage, transfusion of 2 units of PRBCs, 2 units of FFP, and cryoprecipitate for coagulopathy. The patient was transferred to the ICU on low-dose vasopressors, extubated after 12 hours with no neurological deficits, and discharged on day 7.

This case demonstrates that unilateral ACP via the innominate artery, combined with careful intraoperative monitoring and coordinated multidisciplinary care, provided reliable cerebral protection during circulatory arrest and should be considered for cases involving aortic arch repair.