



Bleeding the Line: Anesthetic Management of Hemorrhagic Shock After Type A Aortic Dissection Repair Without CPB Return

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BACKGROUND

- Detecting early hemodynamic instability in the perioperative setting remains challenging and requires continued vigilance
- Rapid identification and management of hemodynamic changes are essential to ensure patient safety during cardiac procedures
- Perioperative bleeding is a well-recognized complication following aortic surgery
- Severe hemorrhage after separation from CPB is often managed by returning to bypass, though this is not always feasible or necessary

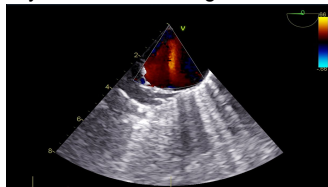
CASE DESCRIPTION

- 58 year-old male with PMHx of HTN and nephrolithiasis presented to an outside hospital with chest and right leg pain
- Right leg appeared cold and dusky on examination
- CTA revealed Type A aortic dissection with a dissection flap extending into the right femoral artery
- Taken emergently to the OR for hemiarach replacement and aortic valve resuspension under deep hypothermic circulatory arrest

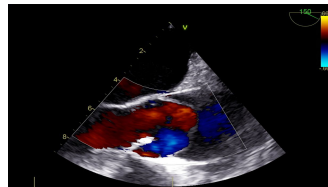
CLINICAL COURSE

- Pre-induction arterial line placement
- Induction with midazolam, fentanyl, lidocaine, propofol, and rocuronium
- Post-Induction/intubation 9Fr dual-lumen central line with PA catheter placement
- Weaned from cardiopulmonary bypass (CPB) on dobutamine and norepinephrine
- Approximately 30 minutes after separation from CPB, exsanguination from the proximal portion of the aortic graft was noted with severe hypotension
- Received epinephrine and norepinephrine boluses, 5 units of crossmatched pRBCs, 4 units fresh frozen plasma, 20 units cryoprecipitate, and 5 units of platelets
- Surgical team identified and repaired the bleeding graft without returning to CPB
- Vascular surgery team confirmed right leg reperfusion with return of color and oxygen saturation
- Extubated POD 1 without neurologic sequelae. Delayed pericardial effusion drained uneventfully POD 10. Discharged to rehab POD 13

Pre-Op



1. Descending Aorta demonstrating true and false lumen of dissection

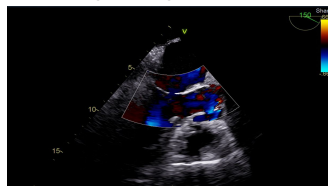


2. Mid Esophageal Aortic Valve long axis view demonstrating ascending aortic flap. Valve is competent

Post-Op



3. Descending aortic flap, with flow demonstrated in the true lumen and decreased flow through false lumen



4. Mid-esophageal long axis view with tube graft and resolved ascending aortic flap. Trace AI

DISCUSSION

- Early detection and management of perioperative hemodynamic changes are critical in preventing catastrophic progression
- CPB and aortic dissection surgery produce profound hemodynamic and coagulopathic alterations, increasing the risk of postoperative bleeding
- Prolonged CPB duration is associated with adverse outcomes such as coagulopathy, stroke, and increased mortality
- Prompt initiation of Massive Transfusion Protocol (MTP), utilization of rapid infuser device, and large-bore central vascular access allowed for anesthesia-led management and resuscitation without return to CPB
- Effective closed-loop communication and teamwork was a key factor in achieving a successful outcome in this case

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