

Learning Objectives

What are the perioperative considerations in caring for a patient with an almost entirely thrombosed mechanical mitral valve after inadvertent discontinuation of warfarin therapy?

Perioperative Considerations in Hindsight

Communication with Care Team – careful coordination between the CCU, CTS, and cardiac anesthesia teams.

Access – we chose to obtain an arterial line and central venous access before induction. In addition, the CTS team placed CPB cannulas in the groin prior to induction in case of collapse.

Patient's Clinical Status – patient was desaturating and becoming more somnolent in the CCU. Oxygenation and ventilation requirements escalated to BIPAP prior to surgery.

Post-op Care – transport to ICU with multiple vasoactive and inotropic agents.

Case Description

A fifty-nine year old female with a prior mechanical mitral valve (MV) replacement presented with weakness, lightheadedness, and palpitations after three weeks of missed anticoagulation doses. Diagnostics revealed an extensively thrombosed MV with a pressure gradient of 24 mmHg, severely dilated right-sided chambers, and severe pulmonary hypertension of 105/66 mmHg. The patient underwent a redo MV replacement with a bioprosthetic valve to minimize future complications from medication noncompliance. Cardiopulmonary bypass cannulas were placed in the groin prior to induction of general anesthesia in case of hemodynamic decompensation. Direct visualization showed the bileaflet valve nearly entirely occluded with only a few millimeters allowing for forward flow. She required dobutamine, norepinephrine, and vasopressin for support following cardiopulmonary bypass, and her hospital stay was uneventful.

Discussion

Standard of care after mechanical MV placement is life-long warfarin therapy (goal INR of 2.5 to 3.5) to prevent thrombosis of the valve. Without therapeutic anticoagulation, clot forms limiting forward flow and increasing embolic risk. This case exemplifies how important anticoagulation adherence is, and it's miraculous this woman did not suffer a stroke or hemodynamic collapse with the degree of valve obstruction. Preoperative echocardiography estimated her PASP were 70-90 mmHg (105/66 mmHg on RHC), with normal being < 20 mmHg. Her MV pressure gradient was over double the threshold for severe MS.

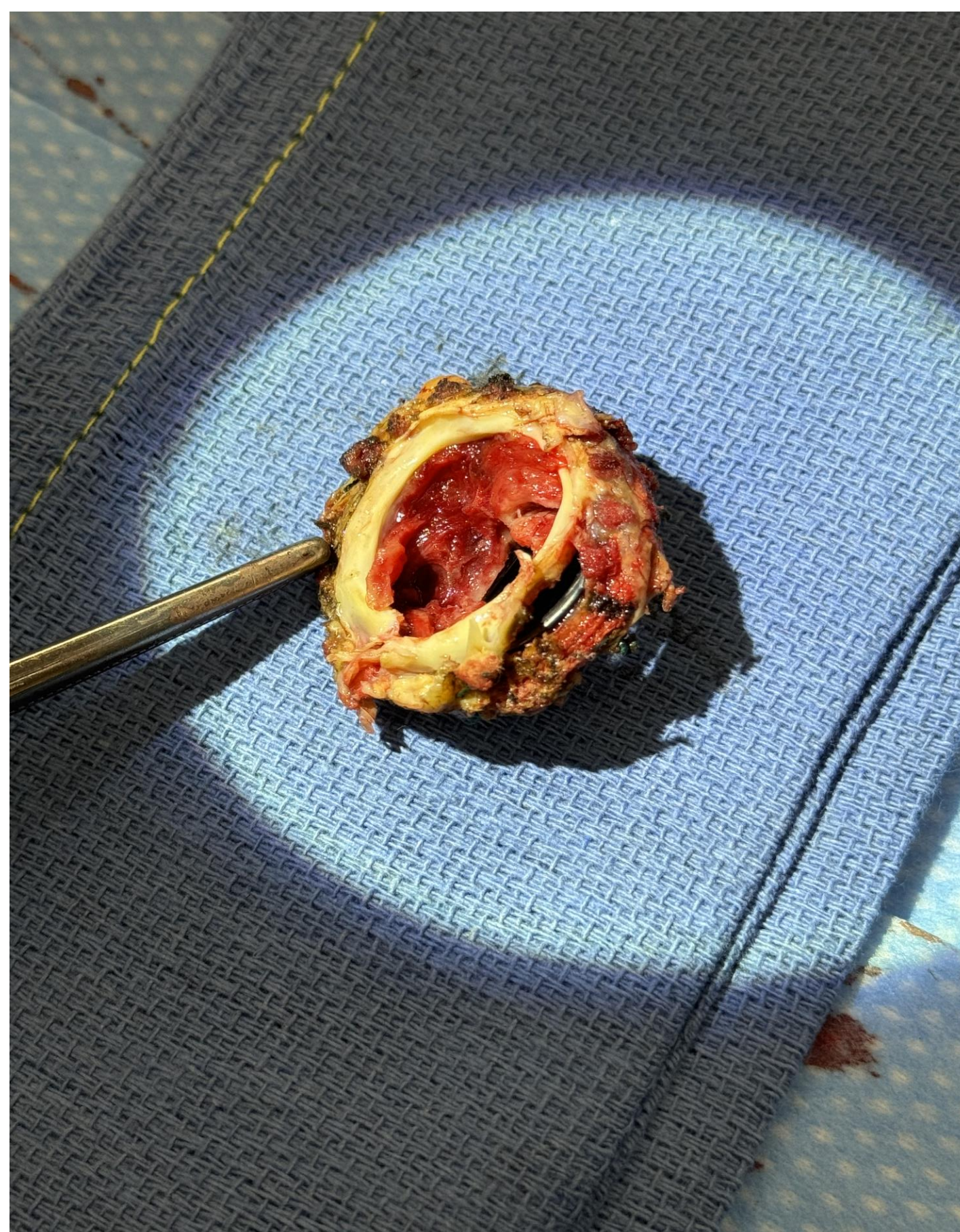


Figure One

Excised mechanical MV as viewed from the atrial side demonstrating significant fibrinous clot burden.

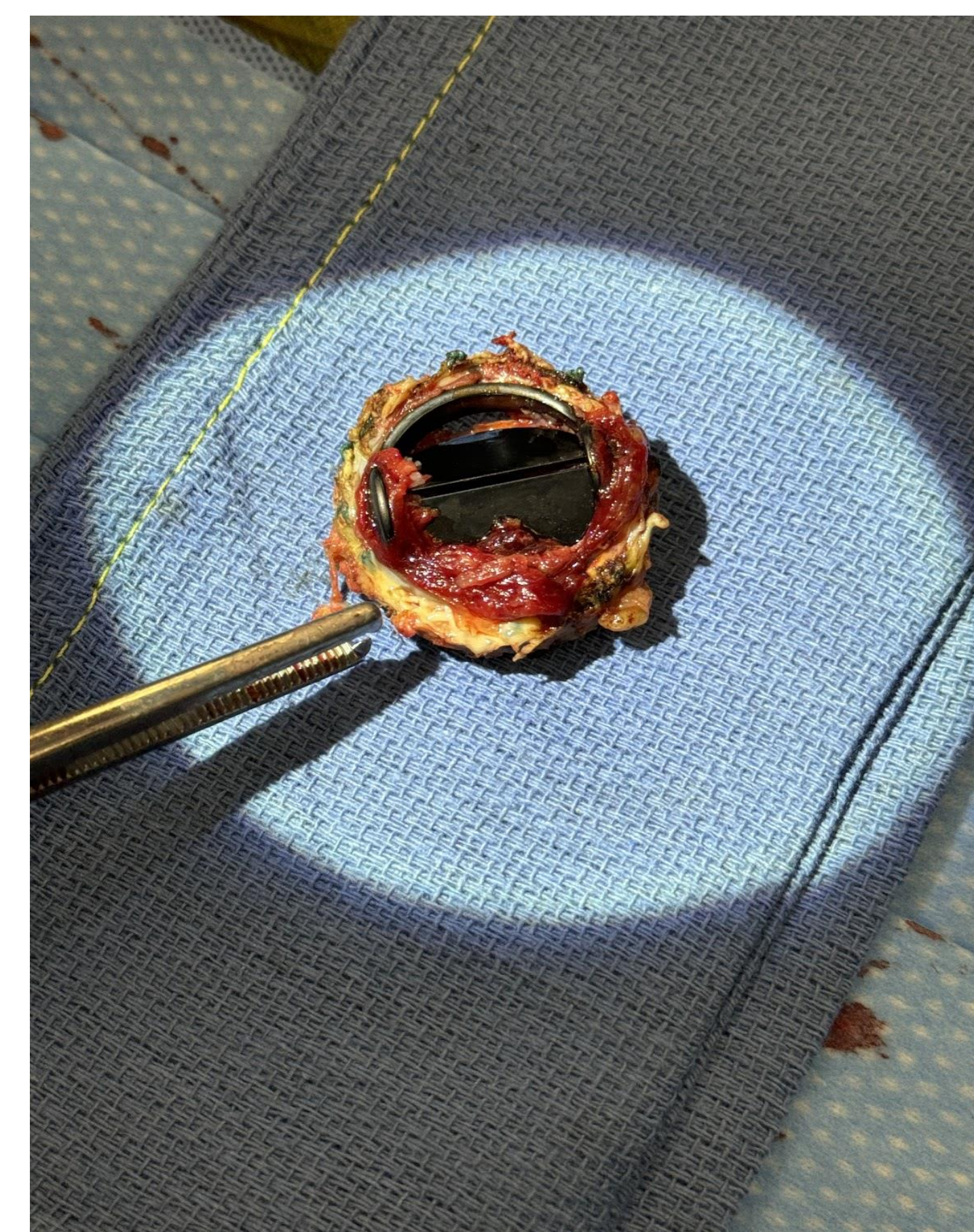


Figure Two

Excised mechanical MV as viewed from the ventricular side demonstrating the narrow opening allowing blood flow.