

An Urgent CABG Complicated by Coronary Artery Intramural Hematoma from Percutaneous Intervention with Corresponding Electrocardiogram and Echocardiogram Changes in the Setting of Renal Transplantation

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Introduction

- Coronary artery bypass grafting is the most commonly performed cardiac surgery in adults
- The complexity of these procedures can vary by vessel involvement, preexisting valvular disease, and other cardiac considerations
- A coronary artery intramural hematoma is a rare complication of percutaneous coronary intervention which involves rupturing the coronary vasorum or tearing the tunica intima layer of the coronary artery potentially as a result of plaque compression

Learning Objectives

- Discuss anesthetic management considerations for coronary artery intramural hematomas.
- Identify the importance of multidisciplinary care and communications to optimize hemodynamics in complicated cardiac surgery

Case Description

- 78-year-old male with a history of hypertension, hyperlipidemia, and end-stage renal disease status-post renal transplant presented to the emergency room with diaphoresis and abdominal pain with electrocardiogram and biomarker evidence of acute coronary syndrome
- Cardiac catheterization revealed significant left main and right posterior descending (PDA) coronary artery stenosis
- Angioplasty was performed on the PDA with subsequent concern for PDA intramural hematoma with inferior ST-segment changes and anticoagulation with heparin and cangrelor was initiated
- Cardiothoracic surgery was consulted and proceeded with coronary artery bypass grafting (CABG)
- ASA Classification: 4 with increased risk of major hemodynamic shifts intraoperatively
- Intraoperative transesophageal echocardiogram demonstrated hypokinetic inferior and inferoseptal segments at the basal level with dilated atria and right ventricle
- Following sternotomy, a small serosanguinous pericardial effusion and a distal PDA hematoma were noted
- Vigilant hemodynamic monitoring and intervention with thoughtful vasopressor use due to renal history
- Patient had a successful operation - extubated POD1 and discharged POD5

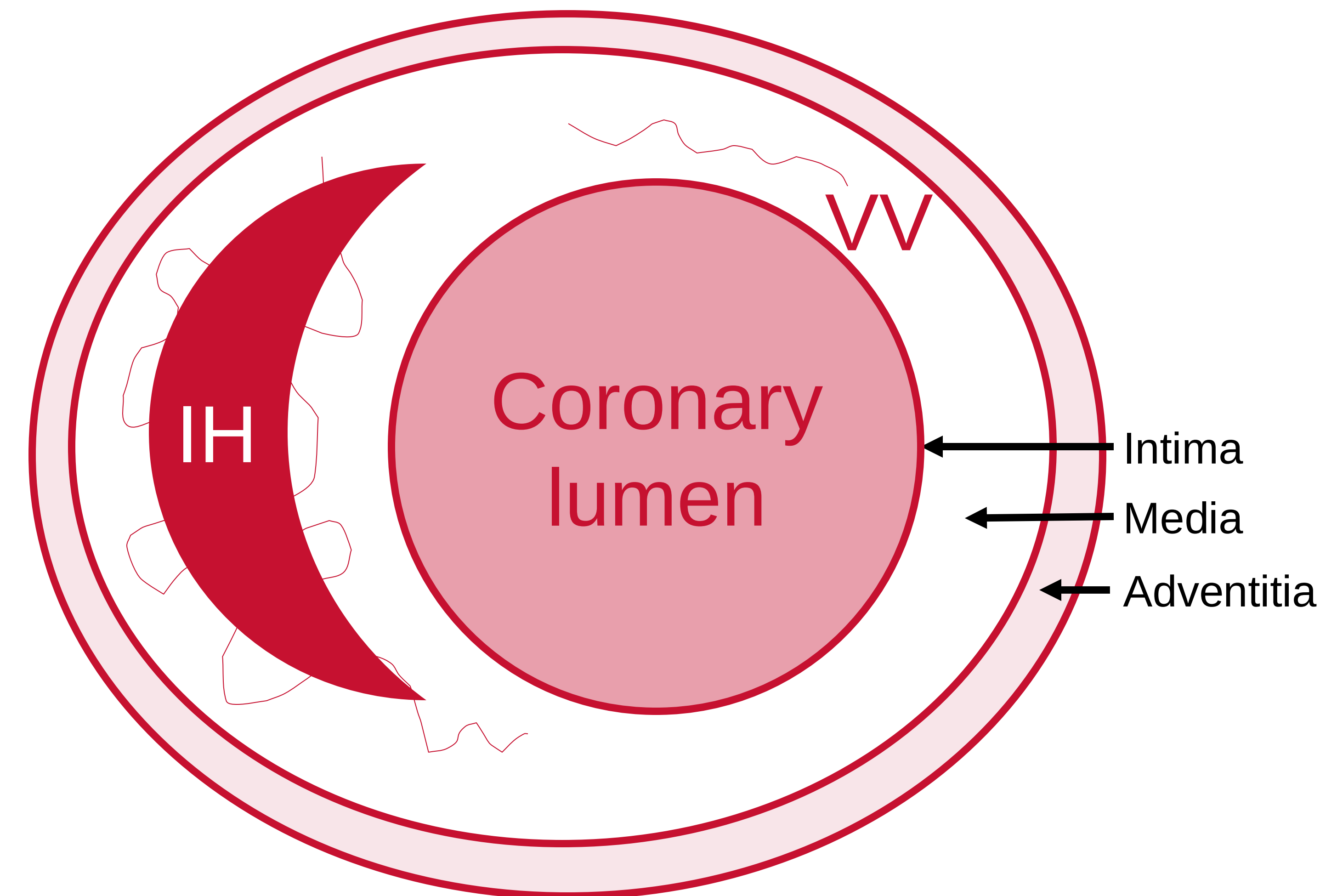


Figure 1. Intramural graphical representation. IH = intramural hematoma, VV = vasa vasorum

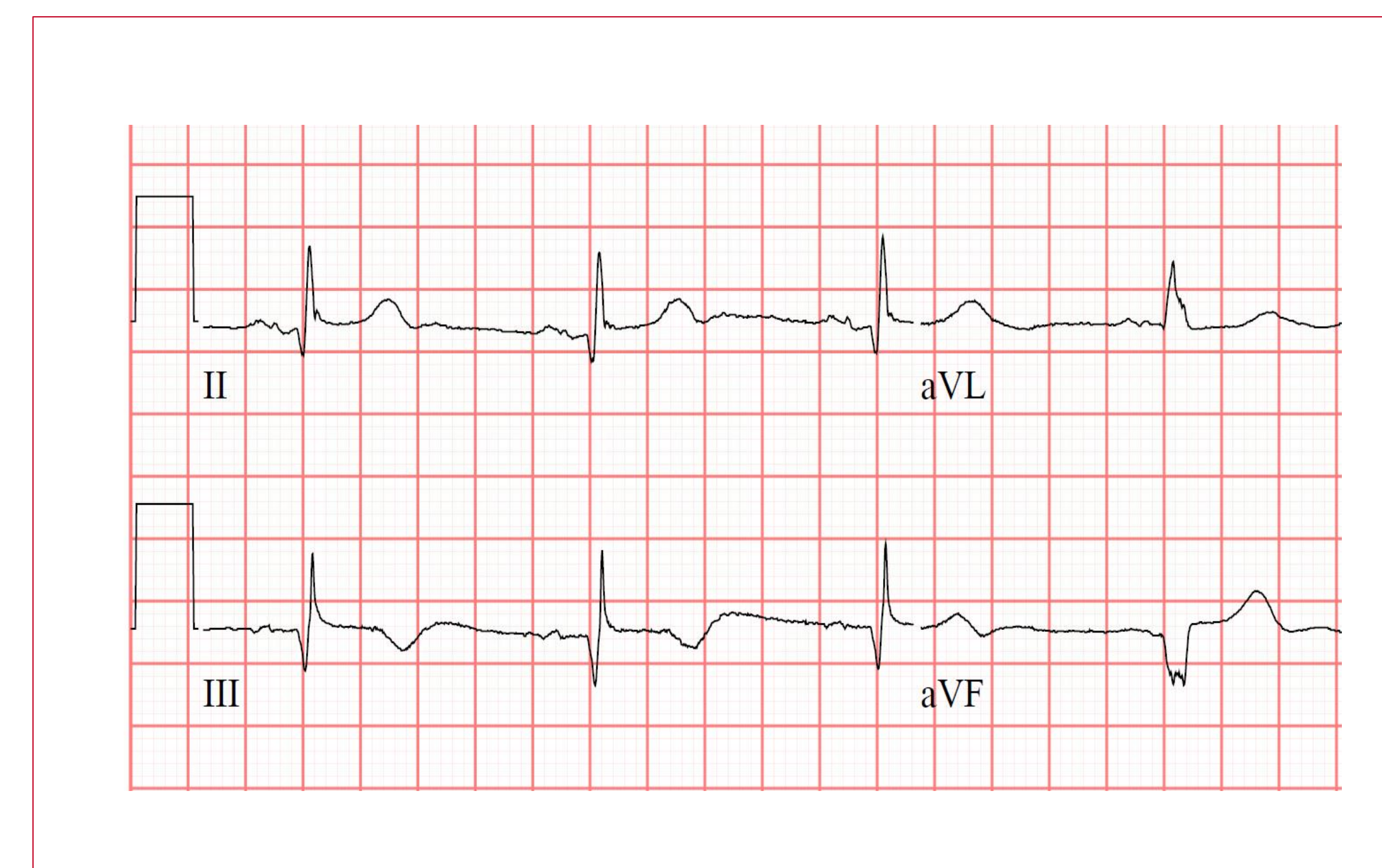


Figure 2. Electrocardiogram demonstrating inferior infarct with ST-segment elevation in II, III, and aVF

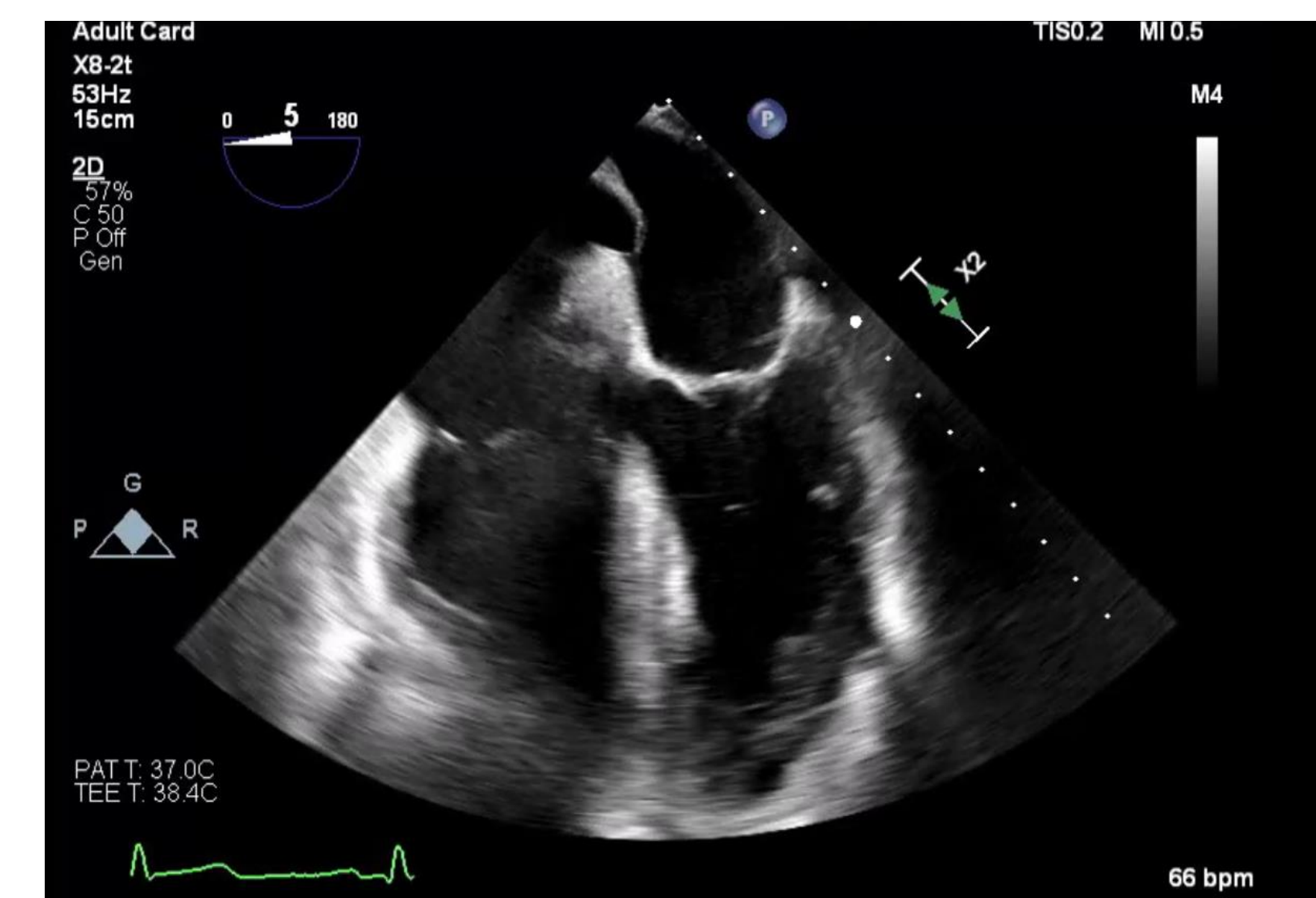


Figure 3. Mid-esophageal four chamber transesophageal echocardiogram revealed hypokinetic inferior and inferoseptal segments

Discussion

- There are currently no published treatment guidelines for coronary artery intramural hematomas
- Management options include medical therapy and further coronary intervention to avoid sequelae including hematoma progression, dissection development, and vasospasm
- Potential sequelae require special anesthetic consideration, including worsening of ischemia, cardiopulmonary bypass separation difficulties, and changes to the surgical approach
- Cardiac surgery is associated with AKI in a reported 20% to 30% of cases. Various approaches to minimizing the risk of AKI and protecting renal function in patients undergoing cardiac surgery have been suggested, including functional hemodynamic monitoring and goal-directed perfusion

References

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