



Under Pressure: Redo Mitral Valve Replacement in a Renal Transplant Recipient with Severe Pulmonary Hypertension

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BACKGROUND

- Re-operative cardiac surgery carries increased risk due to adhesions, previous sternotomy, and altered anatomy
- Pulmonary hypertension (PH) significantly elevates the risk of right ventricular failure, hypoxia, and hemodynamic instability during anesthesia
- Renal transplant recipients undergoing non-transplant surgery have elevated risk of AKI and mortality
- In patients with multiple comorbidities (e.g., transplant, immunosuppression, prior endocarditis), careful preoperative planning and monitoring are essential
- This case illustrates the anesthetic considerations, intraoperative monitoring, and hemodynamic management strategies for a patient with severe PH and a history of renal transplantation undergoing redo-MVR

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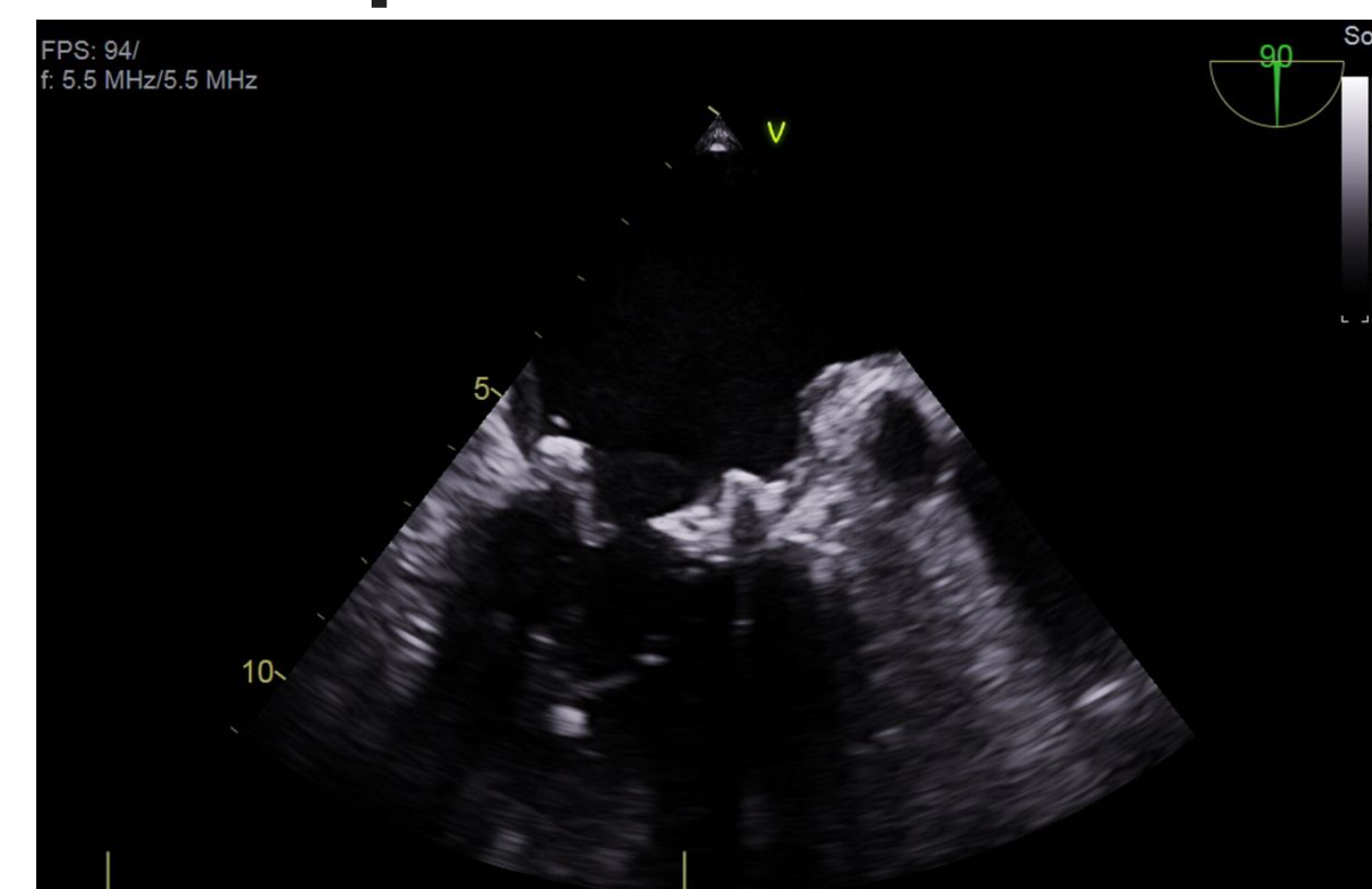
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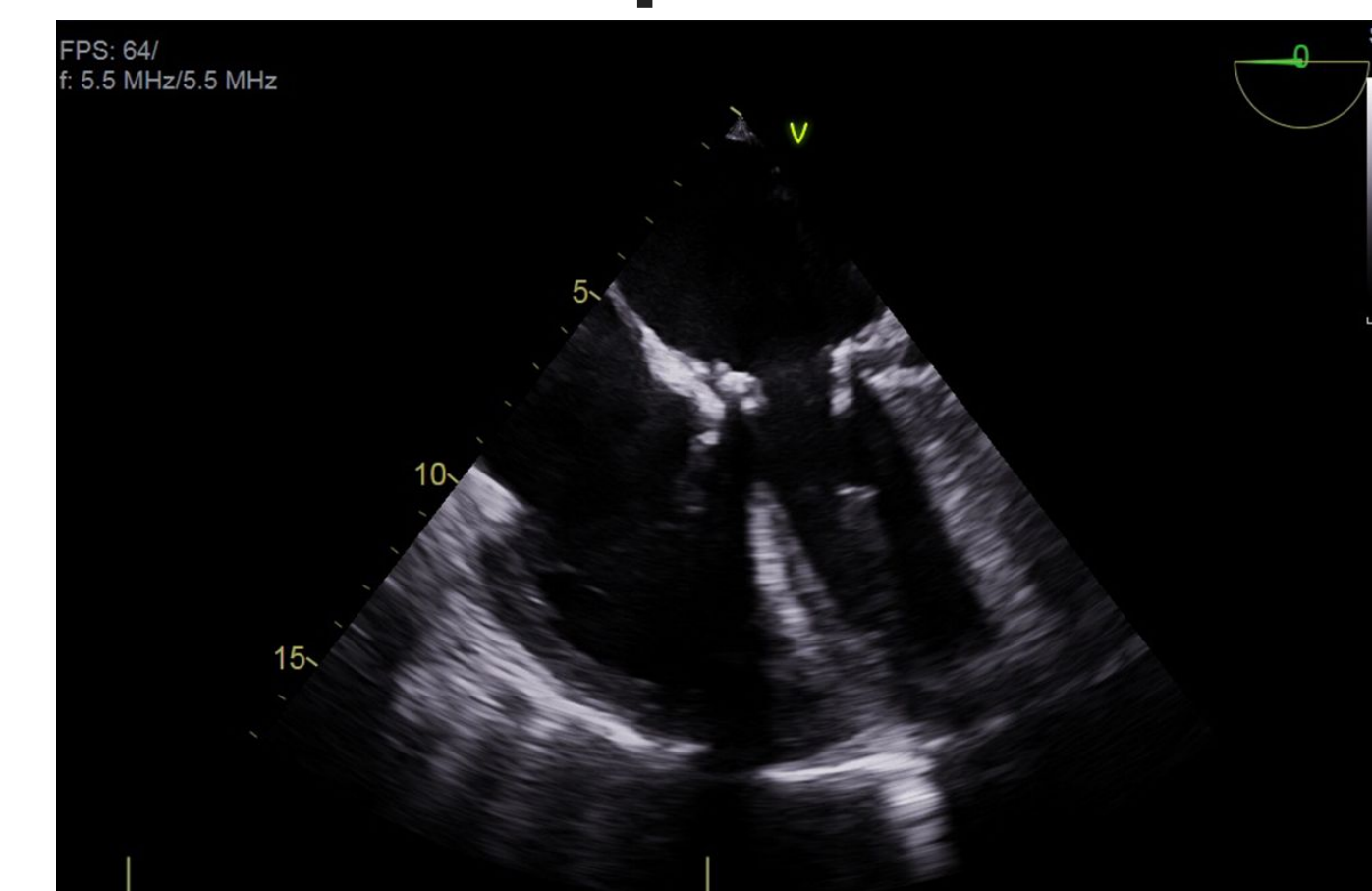
CASE PRESENTATION

- **Patient:** 64-year-old male with a history of hypertension, hyperlipidemia, osteoarthritis, anemia, renal transplant (2023), and bioprosthetic MVR (2019) for endocarditis secondary to a spinal infection
- **Presentation:** Worsening dyspnea. Echocardiography revealed severe intra- and paravalvular mitral regurgitation. Scheduled for redo sternotomy and MVR
- **Pre-op details:** Patient neglected to take his immunosuppressant and anti-rejection medications on the day of surgery; preoperative administration of immunosuppressant and anti-rejection meds with sip of water and IV stress-dose steroids. Pre-induction arterial line was placed
- **Anesthesia induction:** Midazolam, lidocaine, fentanyl, propofol, and rocuronium
- **Intra-op monitoring:** Post-induction a 9 Fr central line with pulmonary artery (PA) catheter placed; baseline PASP of 70 mmHg. Milrinone initiated
- **Weaning from bypass:** Milrinone + vasopressin + norepinephrine + epinephrine gtt; PASP decreased to 20s
- **Post-op course:** Extubated overnight; off all pressors and inotropes by postoperative day one; discharged day six without neurologic sequelae

Pre: Bioprosthetic Mitral Valve

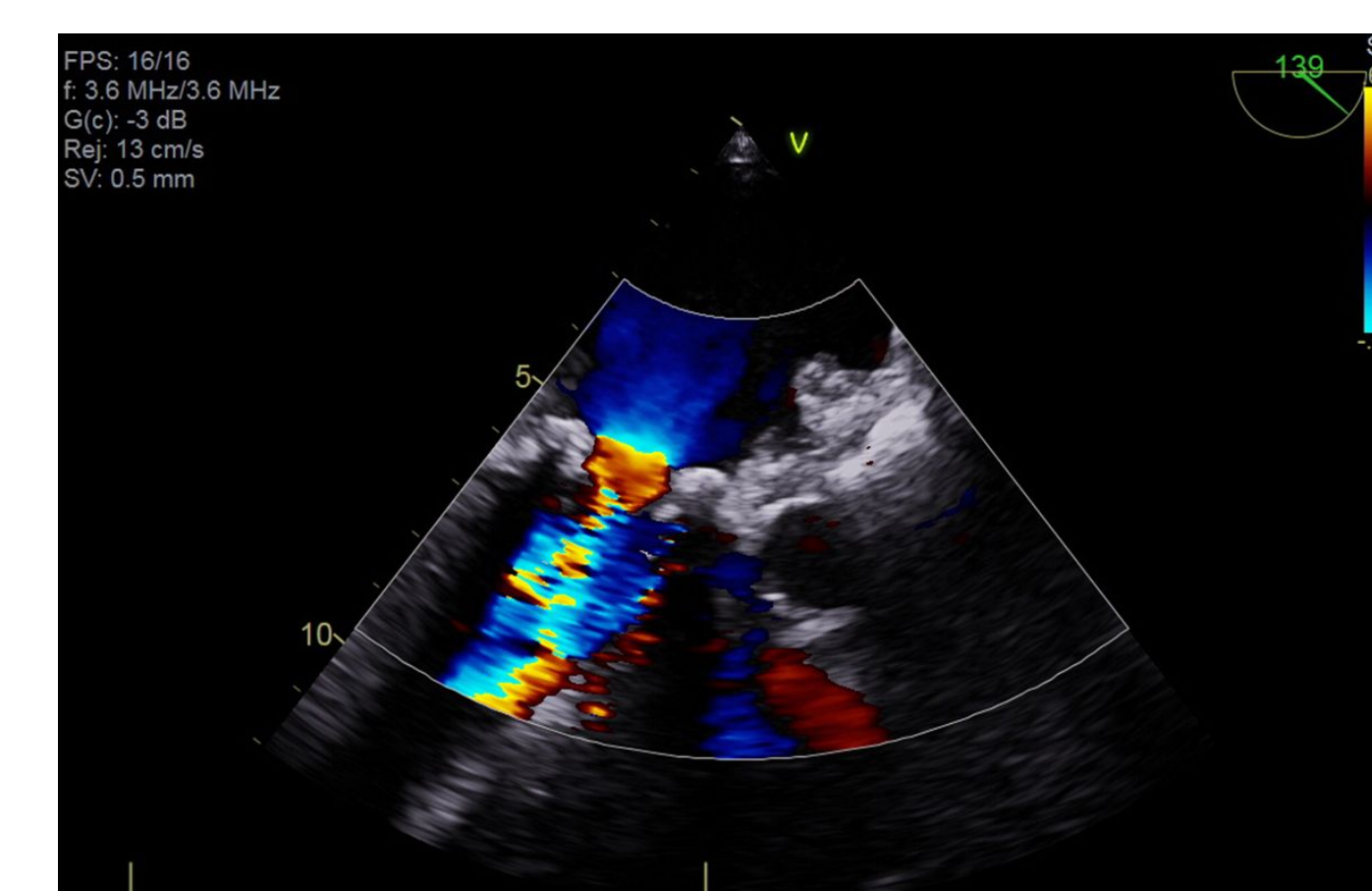
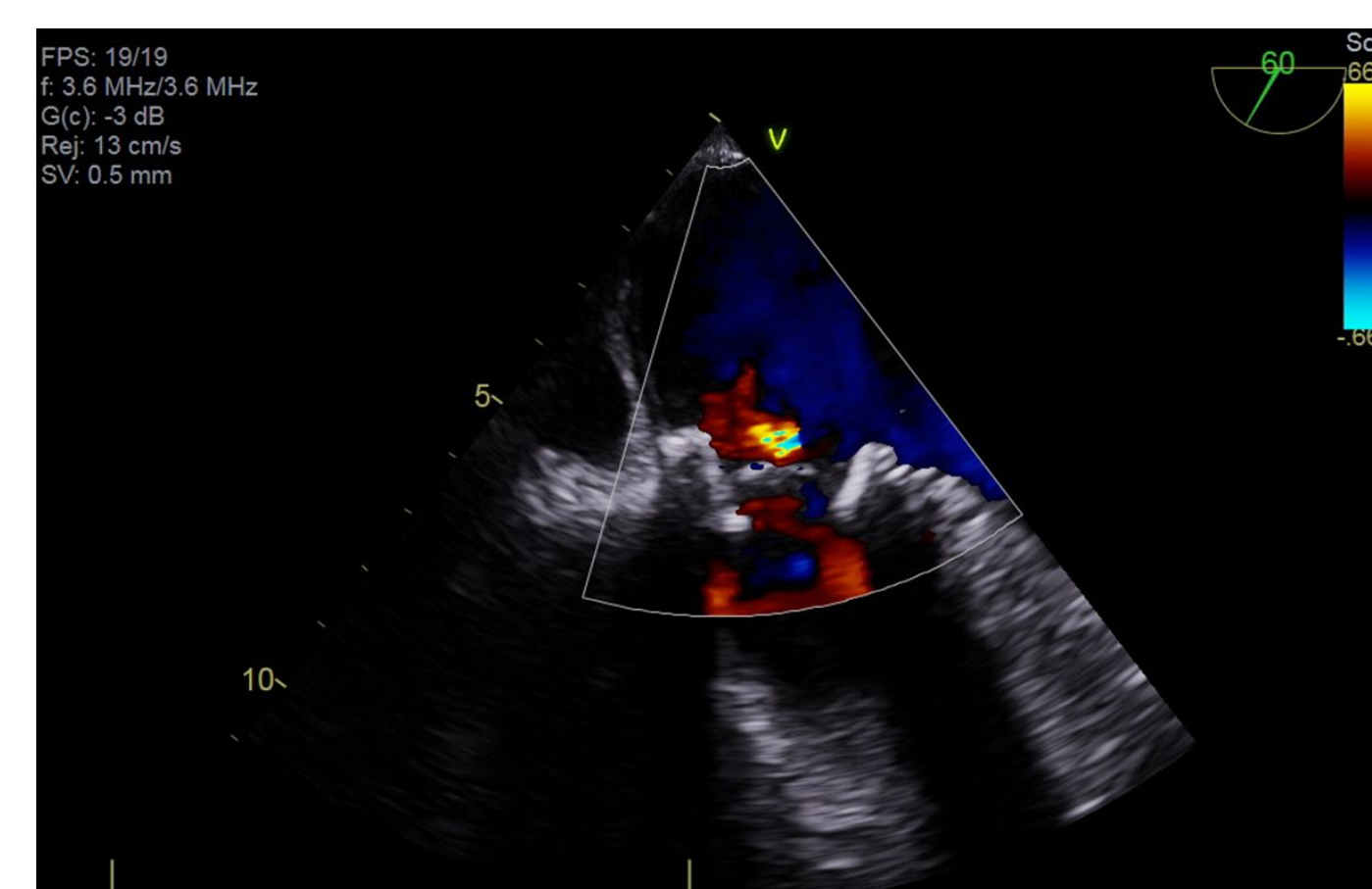


Post: New Bioprosthetic Mitral Valve



TEE

TEE with
Color Flow
Doppler



DISCUSSION

Redo Sternotomy/MVR

- increased risk of bleeding, adhesions, and prolonged operative times
- requires meticulous planning and advanced monitoring

Pulmonary Hypertension

- major predictor of perioperative morbidity and mortality
- Goals: decrease RV afterload, maintain preload/ perfusion, avoid hypoxia/hypercarbia/ acidosis

Hemodynamic Management

- PA catheter revealed PASP 70 mmHg; early milrinone initiated
- Milrinone + vasopressin + norepinephrine + epinephrine to maintain cardiac output

Renal Transplant Considerations

- continue immunosuppressive and anti-rejection,; coordinate with nephrology
- preserve renal perfusion and avoid nephrotoxins

Clinical Outcome

- early extubation, and uneventful recovery underscores the importance of careful planning and adaptability