Introduction:

- Gerbode defect is defined as an abnormal connection between the left ventricle and the right atrium.
- The pathophysiology of Gerbode defect is a deficiency of the membranous septum separating the left ventricle (LV) from the right atrium (RA), resulting in a LV-to-RA shunt.
- Gerbode defects are classified according to their position in relation to the tricuspid valve (TV): supravalvular (direct) Gerbode defects and infravalvular (indirect) Gerbode defects.

Hospital Course:

- 34-year-old female with a history of mitral valve replacement with porcine prosthetic valve seven years prior due to severe mitral regurgitation who presented to the Emergency Department with two days of new-onset palpitations, fatigue, shortness of breath, nausea, and vomiting.
- Electrocardiogram collected in the ED showed normal sinus rhythm (Figure 1).
- The etiology of her clinical presentation was discovered to be due to severe prosthetic mitral valve regurgitation (Figure 2).
- The patient underwent redo sternotomy, mitral valve replacement with a bioprosthetic valve, intra-aortic balloon pump (IABP) placement and sternal plates.
- Initial post-operative transthoracic echocardiogram (TTE) showed functioning bioprosthetic mitral valve and severe tricuspid valve (TV) regurgitation.
- Two additional TTEs spaced one week apart showed no changes.
- Transesophageal echocardiogram (TEE) showed a new shunt between the LV and RA consistent with a supravalvular Gerbode defect (Figure 3).
- This finding was later confirmed with ventriculogram.

Imaging:

Figure 1. Standard 12-lead electrocardiogram (ECG). Normal sinus rhythm.

Figure 2. Transthoracic Echocardiogram (TTE). Parasternal long axis view showing flail posterior mitral leaflet with severe regurgitation.

Figure 3. Transesophageal Echocardiogram (TEE).

Panel A and Panel B. 4-chamber view with right ventricular focus illustrating the Gerbode defect with color aliasing.

Panel C. Short axis view at the left ventricular outflow tract level showing Gerbode defect with color aliasing.

Discussion:

- Gerbode defects were initially described as rare congenital findings.
- Iatrogenic causes of Gerbode defects are increasingly being recognized.
- In our case, a patient with a complex cardiac history of two open, bioprosthetic mitral valve surgeries, was found to have a supravalvular Gerbode defect following the patient’s second surgery.
- Interestingly, the Gerbode defect eluded detection on multiple TTEs until a TEE was performed.
- This case highlights that a high index of suspicion needs to be maintained to detect these emerging iatrogenic VSDs.

References: