

# ACUTE AORTIC INSUFFICIENCY AND AORTO-ATRIAL FISTULA

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## Background

The differential for acute aortic insufficiency is broad. Aorta-atrial fistulas are rare but important considerations that require early diagnosis and timely treatment.

## Clinical Presentation

A 66-year-old woman with hypertension and aortic regurgitation presented to another facility for progressive dyspnea on exertion and fatigue. Troponins were elevated and echocardiography demonstrated severe aortic insufficiency, an aortic valve vegetation, and elevated pulmonary artery systolic pressure. She received antibiotics, diuresis and 48 hours of heparin. She was transferred for higher care and found to be tachycardic, hypothermic, extremely and with an ejection flow murmur.

An emergent echocardiogram again showed severe aortic regurgitation but noted a bicuspid aortic valve with thickening suspicious for vegetation, as well as a coronary aortic sinus to right atrial fistula.

## Imaging

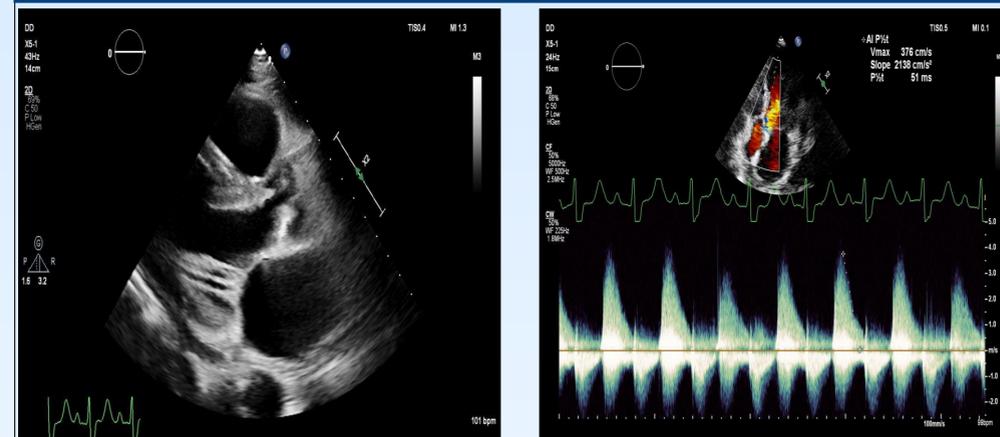


Figure 1: PLA view of aortic valve

Figure 2: AI pressure T1/2 showing severe AI

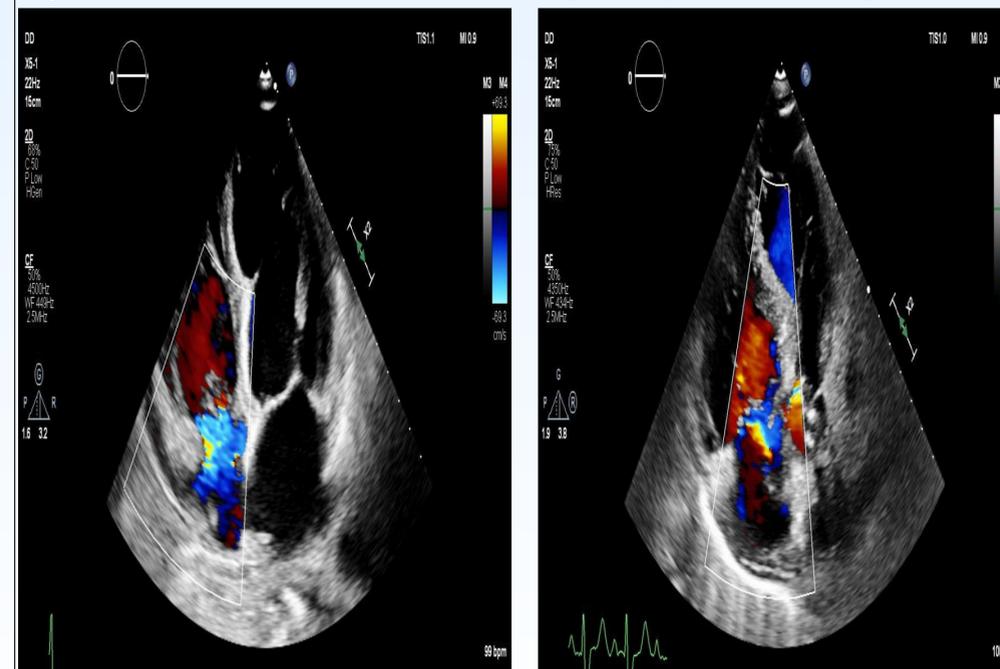


Figure 3: Off axis 5 chamber showing abnormal tricuspid regurgitation flow

Figure 4: Off axis 5 chamber showing diastolic flow from aorta into right atrium

## Decision Making

Cardiothoracic Surgery was consulted, and in anticipation of intervention the patient received inotropic support and CRRT for volume status optimization. Despite this, she rapidly developed resistant hypotension, decompensated into PEA arrest, and ultimately passed.

## Conclusion

Cause of death was Sinus of Valsalva Aneurysm (SOVA) rupture. Records revealed a decades-long history of aortic regurgitation on prior echocardiograms without mention of bicuspid aortic valve (BAV). This patient's chronically undiagnosed BAV and acute infective endocarditis led to aneurysm rupture and the formation of a left-to-right shunt, resulting in her death.

The consequences of SOVA rupture are dire and definitive treatment is surgical repair. Timely diagnosis is essential and SOVA should be included in the differential for acute aortic insufficiency and heart failure.

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No Disclosures for any author