1066539 - A CASE OF PSEUDO-SEVERE AORTIC STENOSIS

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Purpose: The assessment of aortic stenosis (AS) in the setting of low cardiac output continues to be difficult. A case of pseudo-AS is presented and its clinical features are reviewed.

Clinical Features: Patient consent for disclosure was obtained. A 67 year old woman, with a past history of hypertension, diabetes, and rheumatoid arthritis presented to the ER with right shoulder pain, fever and rigors; a septic shoulder was suspected. During assessment, she developed flash pulmonary edema requiring intubation. Significant ST-depression was noted inferiorly on ECG. She was diagnosed with both septic and cardiogenic shock, requiring vasopressor and inotropic support. Subsequent blood cultures were positive for group B streptococcus. An initial transthoracic echocardiogram (TTE) revealed severe left ventricle (LV) dysfunction with an ejection fraction of 10-15%, severe AS with aortic valve area (AVA) of 0.79 cm², and a mean pressure gradient (MG) of only 19mmHg. Her sepsis was treated but she continued to have episodes of pulmonary edema. A coronary angiogram that was carried out showed a 95% proximal RCA stenosis which was then treated with stenting. She did well thereafter and two weeks later was deemed a candidate for valve replacement (AVR) and bypass of the stented vessel. In the operating room, a pre-incision transesophageal echocardiogram (TEE) unexpectedly revealed normal LV function. Furthermore, the AV, although thickened, was not heavily calcified and had only moderate cusp restriction. Calculated AVA was 1.1 cm² with a MG of 20 mmHg. As the patient’s coronary disease had been treated by stenting, replacement of her moderately stenotic AV was not indicated. Surgery was therefore aborted and the patient was discharged the next day.

Conclusion: The assessment of aortic stenosis and its severity is difficult in patients with low flow states or severely depressed LV systolic function. It becomes unclear whether the valve is truly stenotic as measured, or if the measurement is a result of the inadequacy of a low-flow state to fully open an only moderately diseased AV. In the latter group, AVR for this “pseudostenosis” is unlikely to relieve symptoms and may have elevated operative risks. The patient’s initial TTE showed low gradient AS, which is defined by a calculated AVA <1.0cm², a depressed LVEF <40%, and a low MG <30mmHg. In these patients, in order to distinguish those with truly severe aortic stenosis and determine contractile reserve, dobutamine stress testing can be used. In true AS, patients with sufficient contractile reserve will have minimal change in calculated AVA with a rise in MG in response to dobutamine. Those with pseudo-severe AS will have an increase in AVA and minimal change in MG(1). In this case the low flow state brought on by ischemic and septic myocardial dysfunction clearly resulted in an overestimation of the severity of AS by TTE. With improved LV function after resolution of her ischemia and sepsis, intraoperative TEE was able to more accurately assess her AV and make the diagnosis of pseudo-severe AS. This finding prevented an unnecessary surgery.