Perioperative concerns and intraoperative management of mitral valve repair in a patient with bacterial endocarditis secondary to infected eczema

Henna Tirmizi M.D., Shelley Ohliger M.D.
Department of Anesthesiology, Division of Pediatrics
University of Maryland Medical Center, Baltimore MD

Introduction:

Infective endocarditis (IE) is rare in the pediatric population. Incidence of endocarditis in children is anywhere from 5-40% of adults. (1) Furthermore, a large majority of pediatric IE cases are now seen in patients with congenital heart disease (CHD). (2) This can be attributed to the increased survival of patients with CHD as well as the overall decline of rheumatic heart disease, which used to be a major risk factor for IE.

Sporadic case reports have described IE in patients with severe atopic eczema. (3,4) These cases, however, have had some of history of CHD or invasive procedure (ex. acupuncture over areas of eczema). This report discusses the case of an 11 year old, without history of CHD, with severe eczema presenting with mitral valve endocarditis without prior history of instrumentation. The perioperative concerns and anesthetic management of her mitral valve repair will be discussed.

Case Description:

An 11 year old female with a history of asthma, severe eczema and multiple Staphylococcus aureus infections at eczema sites presented with a 5 day history of fever, malaise, headache and emesis. Rapid test for infectious mononucleosis was positive in emergency department and the patient was discharged.

She was called back to the hospital the following day when blood cultures were positive for Methicillin sensitive Staphylococcus aureus. At admission, patient was noted to have a new murmur on cardiac exam.

The patient was scheduled for urgent mitral valve repair. She underwent an IV induction and intubation. Large bore IVs, a radial arterial line and an internal jugular central venous line were placed. Baseline arterial blood gases revealed a hemoglobin of 7g/dL, possibly due to her inflammatory process. Surgical exposure demonstrated an approximately 2cm mass on the posterior mitral leaflet. The lesion was debrided, resulting in a 1.5cm perforation in the posterior leaflet. This was repaired with autologous pericardium. The patient was placed on low dose milrinone and dopamine prior to discontinuation of cardiac bypass, both of which were weaned by the morning of post-operative day 1.

Discussion:

A patient with otherwise normal cardiac anatomy presenting with acute endocarditis is an uncommon occurrence for the pediatric anesthesiologist. Our patient had no risk factors for endocarditis other than severe eczema with Staphylococcus aureus skin infections. Her parents stated that although she had no recent procedures, she did pointedly scratch her atopic lesions.

Recent research has shown that early surgery in patients with infective endocarditis and large vegetations (>15mm) significantly reduces the risk of death as well as the risk of systemic embolism. (5) Pre-operatively, the presence of systemic emboli need to be ruled out or evaluated. In our patient, who already had evidence of an infarct, the non-hemorrhagic nature of the patient’s stroke had to be established. Any residual deficits needed to be documented prior to the administration of anticoagulation for cardiopulmonary bypass.

This patient’s anemia and the potential for increased bleeding after cardiopulmonary bypass in the setting of active infection and inflammation needed to be taken into consideration when planning for blood product transfusion intra and post-operatively. In this patient’s case, her normal cardiac physiology and lack of underlying CHD provided ease in separating from cardiopulmonary bypass as well as a rapid post-operative recovery.

References:

6. Figure 1 - www.staphy.com
7. Figure 2 - openi.nlm.nih.gov
8. Figure 3 - Intraoperative photo courtesy of S. Kaushal MD

Figure 1: An example of atopic eczema with superimposed Staphylococcus infection.

Figure 2: Posterior Mitral Valve Vegetation

Transthoracic echocardiography revealed a vegetation on the posterior leaflet of the patient’s mitral valve with moderate mitral regurgitation. The mass was 1.75cm x 0.94cm. Right and left heart function were normal. Brain MRI uncovered an acute infarct in the left parietal lobe consistent with a septic embolus. The patient was symptomatic and there was no evidence of hemorrhage.

Figure 3: Mitral Valve Mass in situ prior to excision.