Three Episodes of Infective Endocarditis in a Patient with a Transcatheter Pulmonary Melody Valve

Elizabeth Rinaldi, BS; Jamil Aboulhosn, MD
David Geffen School of Medicine at UCLA

Learning Objectives

- Recognize signs and symptoms of infective endocarditis (IE) in transcatheter pulmonary valves

Case Description

We report a 32-year-old male with a history of congenital bicuspid aortic valve, status post Ross procedure at age 16, which resulted in his native pulmonic valve being transposed to the aortic position and a porcine valve implanted in the pulmonic position. At age 25, the patient was implanted with a transcatheter Melody valve in the pulmonic position due to increased gradient through the porcine valve.

Episode #1

- Two years after Melody valve implantation, in 2015, the patient presented with a 2-week history of fevers, chills, and night sweats, and was found to have Abiotropha and Granulicatella spp. on blood cultures and septic emboli to his lung consistent with infective endocarditis of the Melody valve.
- Due to the patient's complicated surgical history, the decision was made to proceed with aggressive medical management and the patient was discharged with 6 weeks of IV gentamycin/ampicillin and PO rifampin. Subsequently the patient was started on prophylactic penicillin, which he self-discontinued after several months.

Case Description (cont.)

Episode #2

- In 2017, the patient presented with nausea, fevers, and chills and was found to have Streptococcus Mutans bacteremia with presumed recurrent IE of his Melody valve.
- He was started on a 6-week course of Ceftriaxone, after which he was again restarted on prophylactic penicillin, which the patient was subsequently compliant with.

Episode #3

- In 2021, the patient again presented with fevers, chills, and fatigue, and was found to have Streptococcus Viridans bacteremia consistent with a third episode of IE.
- The patient was started on IV Ceftriaxone and is now scheduled to undergo valve explantation and revision surgery after completion of his antibiotic course.

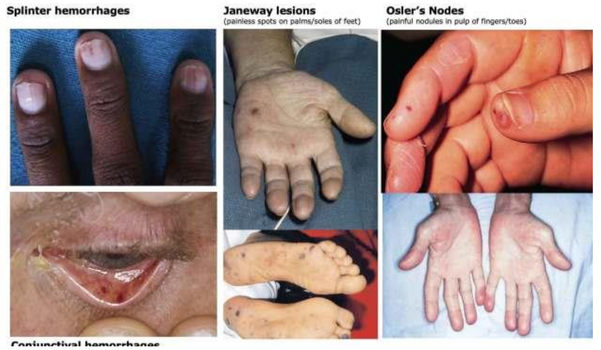
- Throughout the time period of these events, the patient had a relatively healthy lifestyle with regular cardiology visits and did not use any alcohol, tobacco, or illicit substances, injected or otherwise. However, he had a longstanding nail-biting habit that was likely comorbid with an anxiety disorder, and he did not receive regular 6-month dental checkups and cleanings after transcatheter valve implantation as recommended.

Duke Criteria for IE

For definitive diagnosis the patient must have
- 2 major and 1 minor criteria or
- 1 major and 3 minor criteria or
- 5 minor criteria

Major Criteria
- Positive Blood cultures
- Evidence of endocardial involvement

Minor Criteria
- Predisposing factor such as valvular or cardiac abnormality, IV drug use
- Fever
- Positive blood cultures that do not meet major criteria
- Vascular or embolic phenomena (septic emboli to brain or lungs, Janeway lesions, subconjunctival hemorrhage)
- Immunologic phenomena (glomerulonephritis, Osler nodes, Roth spots, positive rheumatoid factor).



Discussion

- There has been increasing concern over the last several years that Melody valves are associated with an unacceptably high risk of IE in the congenital heart disease population.
- In a recent study published by our institution, approximately 11.6% (25 out of 215) of patients with an implanted Melody valve developed endocarditis of this valve at 10-year follow up.
- At our institution, patients who are immunosuppressed as a result of congenital immune deficiencies or acquired conditions have a higher risk of developing IE of their Melody valve.
- This patient's risk factors (nail biting, poor dental care, initial prophylactic antibiotic noncompliance) likely contributed to his multiple episodes of IE, especially given that the pathogens isolated in his blood cultures (Abiotrophia spp., Granulicatella spp., and Streptococcus spp.) are common components of oral bacterial flora. Interestingly, this patient was not immunosuppressed in any way during any of his episodes of IE.
- Physicians must be especially vigilant for signs of possible endocarditis in patients with known risk factors for this condition. Prompt diagnostics in the form of an echocardiogram and blood culture collection and rapid initiation of antibiotic treatment is critical to preventing morbidity and mortality.