Fever in a Young Man with Mechanical Valves

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Clinical History
A 27-year-old man presented with fevers and new-onset chest pain. His history was notable for intravenous drug abuse, with prior mechanical aortic and mitral valve replacement secondary to endocarditis. A transesophageal cardiac ultrasound (TEE) was consistent with prosthetic valve endocarditis of his mechanical aortic valve, with a paravalvular abscess. A cardiac CT was requested to further delineate the extent and anatomical relationship of the abscess with the coronary arteries prior to a consideration of repeat cardiac surgery.

Findings
TEE imaging (Figure 1A and 1B) was consistent with a paravalvular abscess involving the inter-valvular fibrosa and extending almost circumferentially around the mechanical prosthetic aortic valve, with turbulent flow during systole. Cardiac CT (Figure 2A and 2B) confirmed the presence of a large and complex paravalvular abscess that communicated with the left ventricular outflow tract. The largest collection was between the aortic valve and right ventricular outflow tract, with additional collections situated between the right atrial appendage and aorta, and between the origin of the left main coronary artery and myocardium.

Discussion
Paravalvular abscesses, valve dehiscence, and paravalvular leaks are consequences of prosthetic valve endocarditis, most commonly affecting the aortic valve. Coagulase-negative staphylococci and S. aureus account for the majority of cases. Peri-annular extension of infectious endocarditis confers high mortality, particularly in prosthetic valve disease, and urgent surgical treatment is usually indicated. TEE is the current gold standard in evaluating such cases. Initial results have demonstrated that cardiac CT compares favorably to TEE and has added value in pre-operative planning and exclusion of coronary artery disease prior to surgery. Our patient had CT evidence of abscess extension surrounding the origin of his left main coronary artery, and his surgical risk was deemed prohibitive in light of recurrent IV drug use. His cultures were positive for Candida parapsilosis. He was treated with a six-week course of antifungals followed by life-long suppressive therapy and continues to do well three years after this episode.

REFERENCES