Bacterial Endocarditis: A Case Of Aortic Root Abscess

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Introduction: Infective endocarditis is a serious clinical entity and can be fatal. The 6 month mortality rate has been quoted as high as 35%. This is likely a result of the disastrous complications of infective endocarditis, including vegetations, embolization, destruction of valvular or intracardiac structures, abscess, and hemodynamic compromise. We present a case of aortic root abscess with subsequent perforation into both the right atrium and right ventricle with associated severe aortic regurgitation.

Case Presentation: A 25 year old male with no past medical or surgical history presented to the ED with a two day history of fever and abdominal pain. He was given acetaminophen and anti-emetics and discharged home. He returned to the ED two days later with fever (Tmax 105 degF), abdominal pain, right foot pain, and multiple petechiae on his upper and lower extremities. He was admitted for further evaluation. Initial blood cultures were positive for MSSA. CT of the abdomen demonstrated possible splenic infarct, as well as two heterogenic areas in the liver. Antibiotics were administered and a TEE obtained showed a bicuspid aortic valve with mobile vegetation, moderate AI, and mild TR. Concern for cerebral emboli prompted CT Brain which was normal. Repeat TEE one week later demonstrated aortic root abscess, moderate to severe AI, and moderate TR. He was transferred to a tertiary care facility for urgent CT surgery evaluation. Initial intraoperative TEE examination was significant for detection of an aortic root abscess that had perforated through the aortic root and expanded into both the right atrium and right ventricle. Operation completed was median sternotomy, open-heart, debridement of aortic root abscess, closure of VSD with autologous pericardial patch, ascending aorta replacement and aortic root replacement with a #26 homograft, and tricuspid valve repair/commissuroplasty. Postoperative course was significant for complete heart block upon separation from CPB requiring temporary pacing wires and eventual PPM placement on POD #4.

Discussion: Infective endocarditis requires prompt diagnosis, antibiotic therapy, and surgical intervention if indicated. Key management issues in this patient involved not placing a pulmonary artery catheter given the possible pulmonary embolization of a TV vegetation. The hemodynamic management of a patient with severe AI along with a VSD was also important for appropriate patient management. Given the extensive debridement and the patient’s age/clinical status, the surgeon did decide to place an aortic valve homograft. In bacterial endocarditis, the mini-root technique enables eradication of the infection completely by radical excision and replacement of all the infected tissues of the aortic annulus and aortic root. With such an extensive surgical debridement, one should definitely be concerned for post operative conduction abnormalities, which this patient did develop requiring placement of a PPM. Key echocardiographic points include evaluation of RVSP in the setting of a VSD and obtaining a shunt fraction (Qq/Qs).

References:
1) Infective Endocarditis: The Echo Manual; 2007; 243-250
2) Homografts: A Review; Expert Rev. Cardiovascular Therapy; 2003: 1(4)