**Introduction:**

- Aortic valve (AV) infective endocarditis can be complicated by the spread of the infection to its adjacent structures.
- A rare but serious complication of AV endocarditis is the development of aorta-cavitory fistula (ACF).
- These abnormal tracts form intracardiac shunts posing a unique challenge.
- Even with prompt recognition and management, ACF has a high mortality rate of around 40%.

**Hospital Course:**

- A 43-year-old male presented with fever and dyspnea and was found to be in cardiogenic shock.
- Electrocardiogram showed a complete heart block (Figure 1).
- Transthoracic echocardiogram (TTE) revealed an ejection fraction of 60-65%, bicuspid Aortic Valve (AV) with vegetation and severe aortic insufficiency (AI), small ventral septal defect and was suspicious for a fistula from the aorta to the right atrium (Figure 2, 3).
- He was emergently taken to the Operating room for a mechanical AV replacement, reconstruction of the aortic root with obliteration of the abscess cavity, using a bovine pericardial patch, and patch repair of fistula to the RA.
- Sutures had to be placed through friable tissue. Post-operatively, he was managed in the ICU requiring significant hemodynamic support. Blood cultures grew Streptococcus Agalactiae, treated with ceftriaxone. A dual chamber pacemaker was subsequently placed. Patient was followed with serial TTEs on discharge.
- Two weeks later he was readmitted with worsening dyspnea.
- However, he developed worsening right sided heart failure and hepatic congestion with markedly elevated LFTs and INR to 8.9.
- Patient had emergency surgery which included takedown of previous AV replacement and dehiscence patch repair of VSD, patch repair and closure of large VSD, aortic root replacement with a porcine xenograft, and single aorto-coronary bypass of the right coronary artery with reverse saphenous vein graft.
- Patient required intra-aortic balloon pump and ECMO for hemodynamic support.
- He was transitioned off ECMO and hemodynamic values improved and was successfully discharged home.

**Discussion:**

- Infective endocarditis complicated by ACF accrue a high mortality not only due to the challenging nature of surgical intervention but also because a significant number of these patients develop intracardiac shunts which compounds the difficulty in management (Figure 5-6).
- Thus, clinicians should be attuned to diagnosing IE and seek urgent surgical consultation to try and prevent an abscess from spreading to surrounding tissue structures.
- In patients with ACF, clinicians should be vigilant in monitoring signs of worsening L to R shunting which can lead to life threatening right sided heart failure and hepatic congestion.

**References:**

2. Diastolic Aorto–Right-Atrial Fistulation in Aortic and Tricuspid Valve Endocarditis. Lukas Frey, Christoph Starck, Volkmar Falk, Simon Sündermann

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