INFEKTIVE ENDOCARDITIS WITH BICUSPID AORTIC VALVE

A 58 yr old male patient presented with persistent fever and chest pain. Examination revealed heart murmurs. 2D echo showed Bicuspid Aortic valve, severe AS with mild AR. Blood culture was positive. TOE showed vegetations. Patient was diagnosed with Infective Endocarditis. He underwent Aortic Valve Replacement (AVR).

KEYWORDS: Infective Endocarditis, Bicuspid Aortic valve, Aortic Valve Replacement.

INTRODUCTION

Infective Endocarditis (IE) still carries poor prognosis and high mortality rate despite medical and surgical advancement.[1] The incidence of IE is 8/100,000 persons per year in developed countries.[2] The rise is due to increasing antimicrobial resistance, prosthetic valve implantation, increasing heart surgeries, and use of intravenous drugs. IE is more common in men than women.[4] IE commonly involves mitral valve only (approximately 40% of the patients), followed by the aortic valve (36% of the patients).

CASE REPORT

A 58 yr old male patient presented to hospital with episodes of persistent fever episodes (>38°C) and chest pain over the past 2 weeks. He was a known case of hypertension and hypothyroidism since 10 years. He was advised 2D ECHO in view of heart murmurs on auscultation. 2D echo revealed severe aortic stenosis (AS) and mild aortic regurgitation (AR),
thickened calcified aortic valve leaflet, LVEF – 56%. Blood culture sensitivity done on same
day revealed Staph Epidermidis (Coagulase negative) sensitive to gentamycin, linezolid,
nitrofurantoin, vancomycin. Patient was managed medically.

Transesophageal Echocardiography (TOE) done after few days revealed Bicuspid calcific
aortic valve with moderate AS, Mobile Vegetations (size 9mm) attached to aortic leaflet.
According to Dukes Criteria (as shown in table below) one major criteria and three minor
criteria are present. Hence, Patient was diagnosed of Infective Endocarditis. Patient was
admitted and was advised antibiotics for 8 weeks and was planned for aortic valve
replacement (AVR) after 8 weeks. CT angiogram revealed no significant stenosis in
coronaries. Aortic valve replacement with ascending Aortoplasty was done. Aortic valve
specimen taken during operation showed fibromyxoid thickening and heavy deposition of
calcification and ossification.

**DISCUSSION**

Infective endocarditis is a disease which is rare and which, if left untreated, leads to serious
morbidity and mortality. IE involves microbial invasion of the endocardial surface of heart.[4]
IE often represents with specific and non-specific manifestations. The major clinical features
of IE include Jane way’s lesion, Roth spot and clubbing of nails, Osler’s nodes. Other
features could be fever, murmurs, splenomegaly, Petechiae, arthralgia and neurological
manifestations.

As per Modified Duke’s criteria, as shown in the table below, our patient has one major
(vegetations on 2D Echo) and three minor (Bicuspid aortic valve, fever >38*C, positive
blood culture).

<table>
<thead>
<tr>
<th>Major criteria</th>
<th>Minor criteria</th>
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<tr>
<td>1. Positive blood culture (typical organisms in two separate cultures or persistently positive blood culture)</td>
<td>1. Predisposition (Cardiac lesion, IV drug abuse)</td>
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<td>2. Involvement of endocardium (Echo based evidence – vegetations, abcess, perivalvular dehiscence or new valvular regurgitation)</td>
<td>2. Fever &gt;38*C</td>
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<td>3. Vascular or immunological signs</td>
<td>4. Positive blood culture that does not meet major criteria</td>
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<td>5. Positive echo – that does not meet major criteria</td>
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**Diagnosis:** Diagnosis confirmed by 2 major/1 major + 3 minor/all minor criteria
IE is known to present with many different ways. Neurological manifestations are seen in 30–40% patient with IE; it is usually because of embolic stroke, transient ischemic attack (TIA), aseptic meningitis, headache, seizures or encephalopathy. There are three obvious CNS manifestations seen in patients with IE: (a) infectious diseases such as bacterial meningitis (b) non-specific manifestations such as encephalopathy and headache (c) cerebrovascular diseases such as cerebro-vascular accidents.

Usually patients present with Cerebro-vascular complications of IE and ischemic stroke which is the most common neurological feature. Non-specific symptoms of IE are more common than specific clinical features. The pathogenesis of IE initiates with vegetation formation which is a multi-step process. The valvular surface on line of closures is the most common site of injury. The endothelial injury stimulates the sterile thrombus formation which occurs due to deposition of fibrins and platelets. Once a sterile thrombus is formed, transient bacteraemia can seed the thrombus. Bacteria have different adhesive capacities based on bacterial surface characteristics and virulence factors, called adhesions.

CONCLUSION
Bicuspid aortic valves are not common and in most cases it is detected secondary to any infection or calcification. Aortic stenosis and regurgitation and infective endocarditis are the most common complications. Echocardiography should be done in all young adults in whom murmurs are detected and if possible also in the first- and second-degree relatives of patients with known bicuspid aortic valves. Antibiotic prophylaxis for infective endocarditis is also recommended in such patients.

REFERENCES