Case Report

Surgery for infective endocarditis

Azhar Ali Malik, Gohar Jamil, Rizwan Suhail, Anwar Qureshi

Departments of Medicine, cardiology, Infectious Diseases, Tawam Hospital Al ain UAE and Mayo Clinic, Minnesota, USA

ABSTRACT

We present two cases of endocarditis where surgical intervention was deemed necessary to correct worsening heart failure and valvular incompetence. These cases highlight the role of echocardiography in the diagnosis and optimal management of endocarditis. Early diagnosis and prompt surgical intervention are critical for better outcome of endocarditis cases complicated by heart failure and valvular incompetence.(Rawal Med J 2013;38: 446-448).

Keywords: Surgery, infective endocarditis, aortic valve.

INTRODUCTION

Infective endocarditis (IE) was universally fatal before the antibiotic era. However, prognosis significantly improved with availability of bactericidal antibiotic therapy. However, more recently surgery has emerged as an important intervention in complicated cases. We present two cases of endocarditis where surgical intervention was deemed necessary to correct worsening heart failure and valvular incompetence.

CASE 1

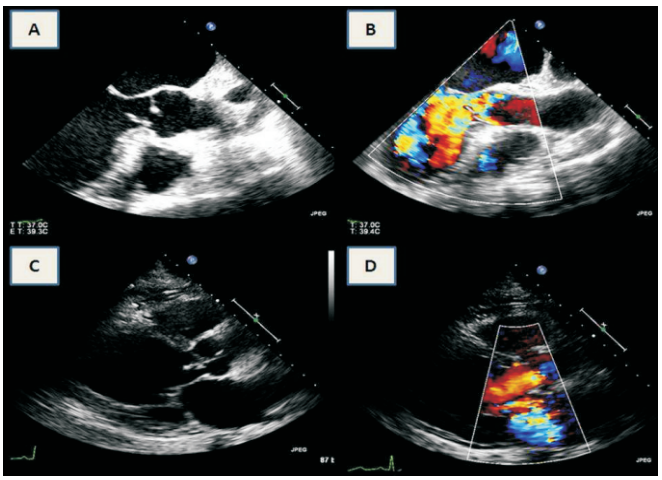
A 65 years old female was admitted to hospital with low-grade fever accompanied by chills, poor appetite and over 6 kg weight loss in over a month. She had history of diabetes mellitus, hypertension, and ischemic heart disease. Patient had undergone percutaneous intervention with coronary artery stenting two months prior to this admission. On examinations, she was febrile 37.5°C, BP 93/57 mmHg lying and sitting 78/41 mmHg, and pulse rate ranging from 95 to 128 beats per minute. She had tachycardia, a systolic murmur in mitral area, grade 2/5 and no peripheral stigmata of endocarditis. Hemoglobin dropped from 11 to 9.6g/l, HbA1c 7.4 and ESR of 106/minute. White blood cell count and urinalysis were normal.

Blood cultures from day of admission grew Enterococcus fecalis. Transthoracic echocardiogram (TTE) showed large mobile vegetation on aortic valve, consistent with native aortic valve infective endocarditis. There was also moderate mitral and aortic valve incompetence. She was started on intravenous ampicillin and gentamicin, which she received for 45 days. A TEE revealed vegetations and EF of 30-35%. Colonoscopy was normal. During the course of hospital stay, she developed worsening congestive cardiac failure refractory to medical therapy. She underwent aortic valve replacement with bioprosthesis and mitral annuloplasty. At one year follow-up, she is doing fine.

CASE 2

A 59 years old Indian male was admitted with history of chest pain. Admission ECG showed ST depression in anterior leads and high troponin. Patient underwent percutaneous intervention without any stent placement. Ten days later, he developed high-grade fever, productive cough with yellow sputum and was admitted for presumed community/hospital acquired pneumonia and empirically treated with ceftriaxone and levofloxacin, which was later changed to meropenem with partial improvement. Subsequently, he was transferred to our institution as a case of non resolving pneumonia.

Fig. 1. Transesophageal echo in patient 1, showing aortic valve endocarditis with flail right coronary cusp (panel A). Severe aortic regurgitation is seen in this patient (panel B). In patient 2, vegetation on the aortic valve is noted in the parasternal long axis projection (panel C). Significant mitral regurgitation (panel D) and aortic regurgitation is present.



On admission, he had tachycardia and tachypnea. He was afebrile and had oxygen saturation of 90% on 10 liter oxygen. Bilateral crackles up to middle of chest were found. There was no audible murmur. There was leukocytosis with left shift, anemia and high CRP with normal cardiac enzymes. An urgent TTE revealed LV size and EF was 70%. A 1.0x 0.5 cm, mobile echogenic mass attached to the non-coronary cusp of the aortic valve consistent with vegetation was seen. There was mild mitral and tricuspid valve regurgitation as well as moderate pulmonary hypertension. He received vancomycin and piperacillin-tazobactam. Hospital course was complicated by acute renal failure. The antibiotic was changed to ampicillin-sublactam. Multiple blood cultures and work up for vasculitis was negative. A TEE confirmed IE. He had undergone dental work before illness. He had replacement of aortic valve with bio prosthesis and was doing well at six-months follow-up visit.

DISCUSSION

In the last two decades, there has been an increase in IE cases due to frequent use invasive procedures and indwelling medical devices. Consequently, the most frequent organisms are now Staphylococci, Enterococcus and fungi.[1] Early recognition and prompt institution of empiric antibiotic therapy is critical for optimal management of IE as delay can lead to complications like sepsis, heart failure, stroke, and multiorgan dysfunction leading to death. Multiple positive blood cultures are hallmark of IE. However, blood cultures could be negative in 2.5-31% patients. This is usually due to previous use of antibiotics and infection with obligate intracellular bacteria, fungi and fastidious pathogens. Diagnosis in these cases may be helped by serologic testing and Polymerase chain reaction (PCR).

Echocardiography remains the most accurate method of detecting endocardial vegetations. Presence of a mobile, oscillating, intracardiac mass involving valvular structure is the hallmark of IE and is one of the major diagnostic criterions in modified Dukes Criteria.[2] While TTE may be adequate in cases of advanced native valve endocarditis, TEE is definitely superior in detecting vegetations that are smaller in size (<5mm) or involve prosthetic heart valves, pulmonic valve, presence of myocardial abscesses or endocarditis involving pacemaker or defibrillator leads.

Antimicrobial therapy alone remained insufficient in patients with major structural damage to heart valves leading to early valvular replacement. In a systemic review of 15 population-based investigations from seven countries, the proportion of cases undergoing valve surgery increased 7% per decade between 1969 and 2000.[3] However, no randomized controlled trials have been published to ascertain the optimal timing of surgical intervention, which based on expert opinion and observational data. Nonetheless, clinicians should be familiar with indications for surgical intervention such as refractory heart failure, myocardial abscess, valve perforation or dehiscence of prosthetic valve, and multiple embolic events.[4]

Admitting physician's needs to recognize that a negative TTE does not exclude diagnosis of IE and a TEE should be obtained in such cases. Cardiac surgery should be promptly consulted in patients who have echocardiographic evidence of large or enlarging vegetation, paravalvular extension of infection, signs of increased left ventricular filling pressure, pulmonary hypertension and low left ventricular ejection fraction. Combination antibiotic therapy should be based on the published

IE guidelines.[5] In conclusion, we believe a multidisciplinary team of a medical specialist, microbiologist, cardiologist infectious disease specialist and cardiac surgeon should be involved in the care of these complicated cases for optimal management.

Author Contributions:
Conception and design: Azhar Ali Malik
Collection and assembly of data: Azhar Ali Malik, Anwar Qureshi
Analysis and interpretation of the data: Azhar Ali Malik
Drafting of the article: Azhar Ali Malik
Critical revision of the article for important intellectual content: Gohar Jamil, Rizwan Suhail
Final approval and guarantor of the article: Azhar Ali Malik
Corresponding author email: aamalik06@gmail.com
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