

Infective Endocarditis developing multiple complications

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Abstract

Infective endocarditis may be acquired in the community or in the context of health care exposure. (1) and it associated with not only cardiac complications but also renal, neurologic, musculoskeletal, and systemic complications related to the infection, such as embolization, metastatic infection, and mycotic aneurysm. *Staphylococcus aureus* is most frequently associated with these complications. We report a case of 41 year old man who presented with fever and developed heart failure due to multiple perforated aortic valves with aortic regurgitation. This was successfully managed by aortic valve replacement, antibiotics and hemodialysis

(Keywords: Infective Endocarditis, multiple complications)

Introduction

Infective endocarditis(IE) refers to infection of the endocardial surface of heart. There are cardiac and non-cardiac risk factors to develop infective endocarditis which include history of prior infective endocarditis, presence of prosthetic valve, history of valvular or congenital heart disease, intravenous drug usage, intravenous catheter, immunosuppression and recent dental or surgical procedures. (1)

Variety of organisms causes infective endocarditis including Streptococcus, Staphylococcus, HACEK and fungus. Among this Staphylococcal infective endocarditis is a common cause of health care associated infective endocarditis. Streptococcal infection is common in community acquired infective endocarditis. (2)

Case presentation:

A 41 year old previously healthy man was admitted with the history of fever for three days duration associated with nonspecific symptoms such as

giddiness and tiredness. There were no other significant abnormalities in the patient.

On examination he looked ill and was febrile. There were no features suggestive of infective endocarditis. His heart rate was 90 beats per min and blood pressure was 140/80mmHg and there was no cardiac murmur. Respiratory, abdomen and neurological examinations were normal.

His initial investigations revealed elevated inflammatory markers (CRP - 108 & ESR - 95) with neutrophil leukocytosis. One blood culture was positive for *Staphylococcus* among 03 consecutive blood cultures and Trans esophageal echocardiogram revealed Grade I Aortic regurgitation without any vegetation.

He was treated with intravenous antibiotics (ceftriaxone and flucloxacillin) according to antibiotic sensitivity pattern. On 20th day of intravenous antibiotic he became dyspnoeic and developed features of heart failure. Repeat Trans esophageal echocardiogram showed severe aortic regurgitation. At the same time his renal function started to deteriorate.

On the same day his heart failure got worse and went into respiratory arrest. He was ventilated and managed in Intensive Care Unit. Antibiotics were changed to Meropenem and Vancomycin and that was continued for 4 weeks.

He underwent aortic valve replacement as guided by multidisciplinary team which consisted of General Physician, Cardiologist, Anesthetist and Cardiothoracic Surgeon. He was started with warfarin and INR maintained within therapeutic range. Post-operative day seven he developed breathlessness and found to have massive pericardial effusion which was managed by pericardial window. His acute renal failure was managed with repeated haemodialysis and his renal functions became normal. He was successfully treated and discharged from hospital after 6 weeks of hospital stay

Discussion:

Endocarditis can be classified as native valve endocarditis, endocarditis in intravenous drug addicts and prosthetic valve endocarditis. The clinical manifestations of IE are highly variable. It may present as an acute, rapidly progressive infection or as a subacute or chronic disease with low-grade fever and nonspecific symptoms. Fever is the most common symptom of IE. It is often associated with chills, anorexia, and weight loss. Other symptoms of IE include malaise, headache, myalgias, arthralgias, night sweats, abdominal pain, dyspnea, cough, and pleuritic pain. (3)

Cardiac murmurs are observed in approximately 85 percent of patients. Supportive signs include cutaneous manifestations such as petechiae, janeway lesion, oslers node or splinter hemorrhages.

The diagnosis is established based on clinical manifestations, blood cultures and echocardiography. The accepted criteria for diagnosis of IE are the modified Duke criteria. (4) Since a persistent low level of bacteremia is found in patient with IE, rate of negative culture is less than 5 percentage. Negative culture is associated with prior antibiotic use, fungal and HACEK organism.

In native valve endocarditis *Staphylococcus aureus* accounts for 30 to 35 % cases. It is an aggressive pathogen and bacteremia with this can affect normal heart valve.

Therapy for infective endocarditis (IE) should be targeted to the organism isolated from blood cultures. The duration of therapy in patients with native valve endocarditis ranges up to six weeks and depends on the pathogen and site of valvular infection. Most patients are treated parentally with regimens given for either four or six weeks

There are some instances we need to go for cardiac surgery in addition to antibiotics such as patients with IE-associated valve dysfunction causing symptoms or signs of heart failure, paravalvular extension of infection with development of annular or aortic abscess, destructive penetrating lesion, infection due to a difficult-to-treat pathogen, persistent bacteremia or fever lasting more than seven days after initiation of appropriate antibiotic therapy, recurrent systemic emboli and persistent or enlarging vegetations despite appropriate

antibiotic therapy and mobile vegetations >10 mm on the mitral or aortic valve. In our patient heart failure and aortic regurgitation worsened despite of appropriate antibiotic therapy lead to valve transplant. (5)

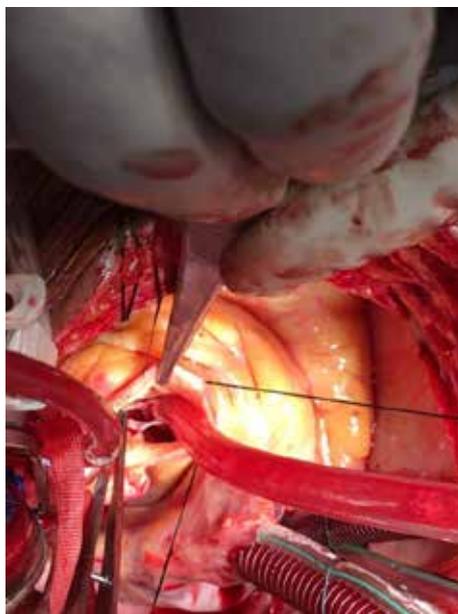


Figure 1

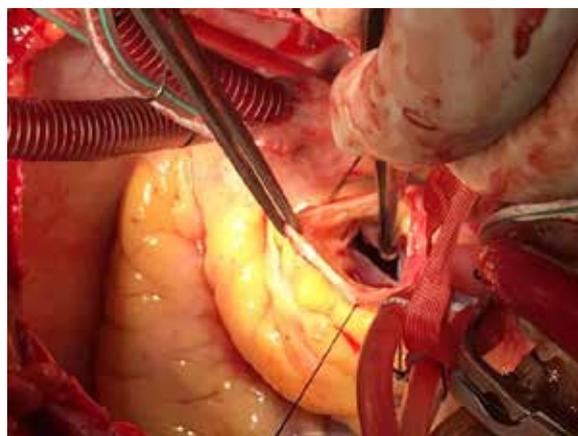


Figure 2

Figure 1, 2 : Severe perforated aortic regurgitation

Conclusion

Complicated infective endocarditis is rare and is associated with cardiac, neurologic, renal, musculoskeletal, and systemic complications related to infection, such as embolization, metastatic infection, and mycotic aneurysm. Infective endocarditis caused by *Staphylococcus aureus* is more frequently associated with complications.

Management of complicated endocarditis is a challenge. Because the mortality rate increases when complications develop, aggressive antibiotic therapy and cardiac surgery, combined with specific treatments for the complications, are necessary. Multidisciplinary approach and vigilant treatment will improve the outcome.

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