



Infective Endocarditis: More Than a Heart

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Abstract

Infective endocarditis is a severe disease associated with high mortality rates. Symptomatic neurological complications occur in 20% to 50% of patients with IE. We reported a 42 year-old man with IE who was presented with neurological manifestations, and treated with surgery successfully.

Keywords: Infective endocarditis; Mycotic aneurysm; Bicuspid aortic valve; Vegetation

Introduction

Infective Endocarditis (IE) is a severe disease associated with high mortality rates. Symptomatic neurological complications occur in 20% to 50% of patients with IE [1]. Neurological manifestations occur before or at IE diagnosis in a majority of cases. We reported a 42 year-old man with IE who was presented with neurological manifestations, and treated with surgery successfully.

Case Presentation

A 42-year-old man presented to the emergency department complaining of slurred speech for the past two days. At the time of presentation, he also complained of headaches, nausea, vomiting and weakness in the extremities. His medical history was not significant but, in the last three months the patient was admitted to the outpatient clinics several times with complaints of fever, and antibiotic treatment was given to the patient without any advanced examination. His vital signs were as follows: blood pressure: 104/50 mmHg; pulse: regular and 118 beats per minute; temperature: 37.3°C; and respiratory rate: 16 breaths per minute. On physical examination, he had a loud parasternal diastolic murmur indicative of aortic valve regurgitation and an apical mid-diastolic and presystolic rumble (Austin Flint murmur). The neurological examination was significant for subtle slurring of speech. Laboratory findings on admission were as follows: white blood cell count: $13 \times 10^3/L$; C-reactive protein: 23, 1 mg/dl; and other laboratory findings were between normal ranges. A CT-Scan of the head was interpreted as a right-sided occipital intracerebral haematoma, diameter 35 mm and a left-

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Figure 1A: Transeosophageal echocardiography image of bicuspid aortic valve.

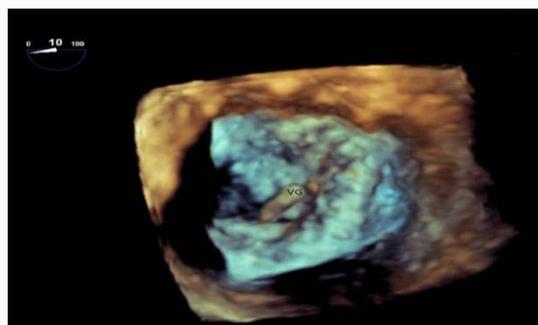


Figure 1B: 3D imaging of mitral valve from ventricular side and the Vegetation (VG) over the anterior mitral leaflet.

sided parietotemporal intracerebral haematoma, diameter 50 mm. Cerebral angiography detected micro-haemorrhages compatible with mycotic aneurysms. Electrocardiography (ECG) showed sinus tachycardia without any significant ST-T wave changes. Trans Thoracic Echocardiogram (TTE) showed bicuspid aortic valve with severe aortic regurgitation, mildly dilated left ventricle and a mobile mass on the ventricular side of anterior mitral leaflet. Transesophageal Echocardiogram (TEE) visualized bicuspid aortic valve (Figure 1A) with severe aortic regurgitation and one mobile vegetation (11 mm x 10 mm) over the ventricular side of anterior mitral leaflet near the left ventricular outflow tract where the eccentric aortic insufficiency jet strikes the mitral valve, with mild mitral regurgitation (Figure 1B). We commenced empiric, intravenous meropenem and vancomycin. Two sets of blood culture were positive for *Staphylococcus Aureus*. According to the modified Duke criteria, we diagnosed definite IE. On control Transthoracic and transesophageal echocardiogram, after 4 weeks of parenteral antibiotic treatment, there was not a significant reduction of the visible vegetation. After multidisciplinary consultation with cardiology, cardiovascular surgery and neurology, the decision was made for the management and mitral and aortic valve replacement with biological valve prosthesis implantation was performed successfully.

Discussion

Infective endocarditis is not a single disease and may present with very different aspects depending on the first organ involved. In our case the first complaint of the patient was a neurological symptom. Cerebrovascular complications of IE include ischemic or hemorrhagic stroke, transient ischemic attack, silent cerebral embolism, symptomatic or asymptomatic mycotic aneurysm, cerebral abscess, meningitis, toxic encephalopathy and seizure. Heart failure, uncontrolled infection and high embolic risk are indications for surgery in IE [1]. Following a neurological event, the indication for cardiac surgery often remains or is strengthened, but must be balanced with preoperative risk and postoperative prognosis. The risk of post-operative neurological deterioration is

low after a silent cerebral emboli or transient ischemic attack, and surgery is recommended without delay if an indication remains [2]. Evidence regarding the optimal time interval between stroke and cardiac surgery is conflicting, but recent data favor early surgery [3]. Conversely, in cases with intracranial haemorrhage, neurological prognosis is worse and surgery should generally be postponed for at least 1 month [1]. One recent study has reported a relatively low risk of neurological deterioration in IE patients undergoing surgery within 2 weeks after an intracranial haemorrhage [1,4]. If urgent cardiac surgery is needed, close cooperation with the neurosurgical team and the Endocarditis Team which is consisted of cardiac surgeons, cardiologists, anesthesiologists, infectious disease specialists and neurologists is mandatory [1].

Conclusion

A collaborative approach in patients with this complex illness is mandatory for timing of valve surgery for both prevention of complications and improvement of outcomes.

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