

Case Study

A Typical Presentation of Infective Endocarditis

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ABSTRACT

We describe a patient who had fever and bilateral cortical blindness and was later found to have leaking intracerebral mycotic aneurysm secondary to *Staphylococcus aureus* endocarditis. He had a vegetation at the tricuspid valve with evidence of systemic embolisation, however, chest radiograph did not reveal any evidence of pulmonary emboli.

Keywords: Endocarditis, cortical blindness, mycotic aneurysm, *Staphylococcus*

INTRODUCTION

Infective endocarditis can present with a wide spectrum of signs and symptoms. Neurological manifestations are seen in about 20% of patients with infective endocarditis. It is more common in left sided than right sided endocarditis. Ten percent are due to cerebral emboli, 5% to leaking mycotic aneurysm and another 5% to meningitis or cerebral abscesses.

THE CASE

Mr T.B a 27-year-old Malay man was admitted with fever and acute bilateral blindness. He was not known to have any prior medical illness. He was single and had a history of intravenous drug abuse.

He presented with a three day history of high grade fever, associated with sweating. He denied having chills or rigors. He complained of mild neck discomfort. He had generalised weakness and was unable to walk. On the day of admission, he had sudden onset of bilateral visual loss.

On examination, he was alert but was not orientated to time and place. His pulse rate was 112 beats per minute, blood pressure was 105/56 and he had a temperature of 38°C. His pupils were dilated (4 mm) bilaterally but reactive to light. He had complete loss of vision with no light perception in both eyes. Fundoscopy did not reveal any abnormalities.

His cardiovascular and respiratory examinations were unremarkable. Abdomen was soft and there were no hepatosplenomegaly.

Two days later, he was noted to have vesicles on his forehead and left side of the abdomen. He also had a gangrenous area on his right index finger. He had increased muscle tone generally and muscle power was 3/5 in the upper and lower limbs bilaterally.

Initial investigations showed leukocytosis with a white cell count of $18.2 \times 10^9/L$ with 94% neutrophils and the platelet count was of $286 \times 10^9/L$. Other results included serum sodium 130mmol/l, serum potassium 4.2mmol/l, urea 13.2mmol/l, creatinine 116 mcmmol/l. His chest X-ray was normal. A brain CT scan done urgently revealed multiple

intraparenchymal bleeds involving both occipital lobes and the right parietal lobe (Fig. 1). Echocardiography showed a vegetation on the tricuspid valve measuring 4.2 cm². Gram stain of blood initially showed Gram positive cocci in clusters and subsequent blood culture grew *Staphylococcus aureus* which was sensitive to the antibiotics started. His HbsAg was negative, anti HCV was detected.

He was commenced on intravenous cloxacillin and gentamicin. A neurosurgical opinion was obtained but conservative management was elected.

Subsequently, he developed respiratory distress in the ward and required mechanical ventilation. His condition was further complicated by acute renal failure. He finally succumbed to his illness 2 weeks later.

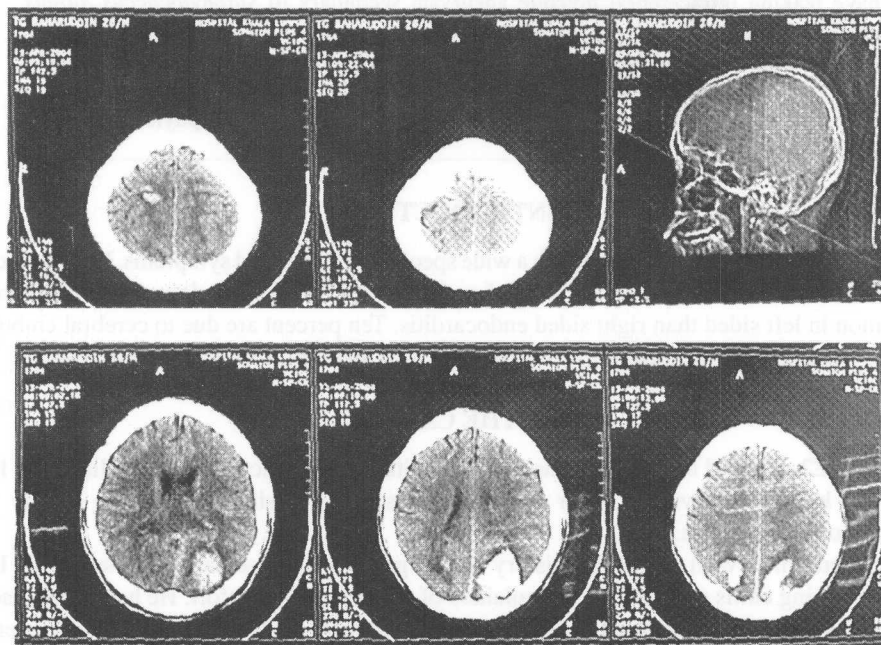


Figure 1. CT scan of the brain

DISCUSSION

Mr. T.B had *Staphylococcus aureus* endocarditis complicated by leaking mycotic aneurysm which led to intracerebral haemorrhage involving both occipital and right parietal lobes. This patient presented with bilateral cortical blindness.

Staphylococcus aureus is more likely than other organisms to cause mycotic aneurysm. These aneurysms can involve vessels of the cerebral and systemic circulation, but usually at areas of bifurcation. It is due to embolisation to the vasa vasorum of the vessel leading to necrosis of the muscular layer, dilatation of the involved area and aneurysmal formation. Aneurysm can be solitary or multiple.

Mycotic aneurysms usually occur at the distal portion of the vessel and the middle cerebral artery is most commonly involved. The secondary and tertiary branches are usually affected.

The most important sequelae of mycotic aneurysm are rupture and bleeding. However, the size may decrease or even disappear with treatment of the infective endocarditis.^[1]

However, systemic embolisation is rare in a patient with isolated right sided endocarditis. Moreover, in this patient, the chest X-ray was normal. There were no signs of pulmonary infiltrates. In right sided endocarditis, chest radiograph will show infiltrates due to pulmonary emboli in 55-56%. These pulmonary infiltrates are attributed to pulmonary infarction, pulmonary abscesses, empyema, pneumothoraces and pleural effusions.

The systemic embolisation in patients with right sided endocarditis can occur as a result of co-existent left-sided infective endocarditis or a presence of right to left shunt, for example a patent foramen ovale or a pulmonary arteriovenous malformation.

CONCLUSION

However, as there was no evidence of pulmonary embolisation in this patient, the source of the embolisation was most likely to have originated from the left heart. About 14% of intravenous drug users with right sided endocarditis also have concurrent left sided involvement.^[2] The tricuspid valve is most frequently involved followed by mitral and aortic valve. In this patient, a transoesophageal echocardiography might have demonstrated the vegetation in the left heart which was missed by the transthoracic echocardiography. Unfortunately, the patient deteriorated rapidly before a trans-oesophageal echocardiography could be done. The vegetation at the tricuspid valve is likely to have been treated as there was no evidence of pulmonary emboli seen in the chest radiograph.

REFERENCES

- [1] Shaikholeslami R, Tomlinson CW, Teoh KH. Mycotic aneurysm complicating *Staphylococcus endocarditis*. Can J Cardiol 1999;15: 217
- [2] Moss R, Munt B. Injection drug use and right sided endocarditis. Heart 2003;89 : 577-581.