Classical complication of infective endocarditis: ruptured, large mycotic cerebral aneurysm

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DESCRIPTION

A 16-year-old female patient who had a history of asymptomatic valvular heart disease came to the emergency department with sudden onset of severe headache. She had noticed a low-grade fever for 2 months. On examination, she was fully conscious but in distress. Pansystolic murmur grade III/VI was noted at the apex. Neurological examination showed positive meningeal irritation signs without focal neurological deficit. Axial non-contrast cerebral CT revealed early extravasation of blood into the subarachnoid space at the basal cistern (figure 1A, arrow head). Ruptured, large, 1.8 cm aneurysm at the tip of the basilar artery was identified from cerebral angiography (figure 1B,C, arrows). Transthoracic echocardiography discovered a large, 3 cm, highly mobile vegetation attaching the mitral valve (figure 2A–C, arrows) with moderate mitral regurgitation. *Streptococcus viridians*

bacteraemia was confirmed by the consecutive blood cultures. She was finally diagnosed as having subacute infective endocarditis (IE) complicated by a ruptured mycotic aneurysm, an abnormal focal dilation of the infected arterial wall due to bacteraemia or septic embolisation. Antimicrobial treatment followed by endovascular coil embolisation of the aneurysm was successfully carried out. The patient underwent mitral valve replacement soon with an uneventful post-operative period.

Neurological complication is a common manifestation of left-sided native valve IE. It can develop in 25% of cases and lead to a higher mortality rate, especially in vegetation size ≥ 3 cm, *Staphylococcus aureus* infection, mitral valve involvement and history of anticoagulant use.¹ Septic embolisation may cause ischaemic stroke, mycotic aneurysm, intracranial haemorrhage,

Figure 1 Axial non-contrast cerebral CT revealed early extravasation of blood into the subarachnoid space at the basal cistern (A, arrow head). Ruptured, large, 1.8 cm aneurysm at the tip of the basilar artery was identified from cerebral angiography (B and C, arrows).

Figure 2 Transthoracic echocardiography discovered a large, 3 cm, highly mobile vegetation attaching to the mitral valve (arrows). Multiphasic imaging throughout the cardiac cycle is shown: during systole (A), early diastole (B) and late diastole (C). LV, left ventricle; RV, right ventricle; LA, left atrium.

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meningitis and brain abscess.^{1 2} Early antimicrobial treatment can reduce the risk of this catastrophic neurological complication.¹ Unruptured mycotic aneurysm may improve solely with antimicrobial treatment; however, patients with a ruptured aneurysm should undergo urgent interventions such as embolisation or surgery.³

Learning points

- ▶ Neurological complication is a common manifestation of left-sided native valve infective endocarditis.
- ▶ Septic embolisation may cause ischaemic stroke, mycotic aneurysm, intracranial haemorrhage, meningitis and brain abscess.
- ▶ Early antimicrobial treatment can reduce the risk of these catastrophic neurological complications.

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