Brain Abscess in a Patient with Atrial Septal Defect

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Abstract

Brain abscess rarely occurs in adults with congenital heart disease. A 59-year-old man who presented with headache, fever and stiffness of the neck was reported. The patient had a rial septal defect with pulmonary hypertension and atrial fibrillation. CT scan of the brain demonstrated an abscess at the right parieto-occipital lobe. The patient was successfully treated with appropriate antibiotics.

Key word : Brain Abscess, Atrial Septal Defect

One of the serious neurological complications of congenital heart disease (CHD) is brain abscess. It usually occurs in children and adolescents with high incidence at ages of 4 through 7 years[1]. Tetralogy of Fallot and transposition of the great vessels are the most common cardiac malformations in this clinical setting[1,2]. The association of brain abscess and CHD rarely occurs in adults[3]. We herein report the association of brain abscess and atrial septal defect (ASD) in a 59-year-old man.

CASE REPORT

A 59-year-old man was admitted to Srinagarind Hospital in September 1997 with fever, progressive headache and vomitting for 3 weeks. About 4 years earlier, he experienced mild dyspnea on exertion. Physical examination and echocardiography demonstrated ASD with pulmonary hypertension, atrial fibrillation and a questionable clot in the left atrial appendage. He had regularly received digoxin, diuretic and warfarin.

Physical examination showed an alert man with a body temperature of 38.8°C and stiffness of the neck. Cardiovascular system revealed atrial fibrillation, cardiomegaly with a widely fixed split of the second heart sound and systolic murmur of grade 2 at the left upper sternal border.

Laboratory findings included: hematocrit of 49 per cent; white blood cell count 8,900 cells/mm^3 with 78 per cent polymorphonuclear cells. Chest X-ray showed a cardiac enlargement with prominent pulmonary vasculature and pulmonary trunks. Echocardiography revealed ASD with a

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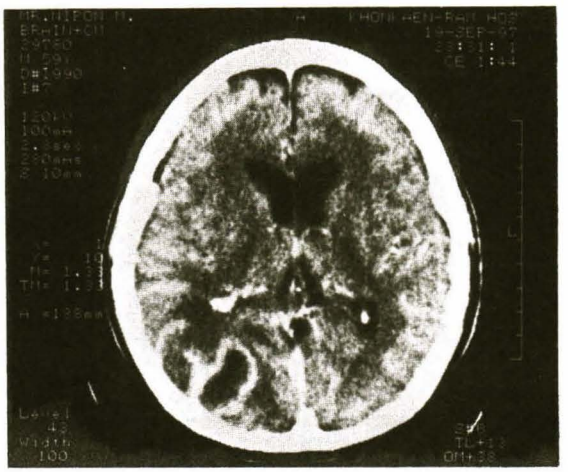

Fig. 1. CT scan of the brain with contrast enhancement showing an abscess at the right parieto-occipital region.

right-to-left shunt. CT scan of the brain showed an abscess of 3 cm in diameter, surrounded by edema at the right parieto-occipital lobe (Fig. 1).

The patient was treated with intravascular penicillin G (24 million units/d) and chloramphenicol (4 g/d). Five days later, aspiration of the brain abscess was performed and revealed an odourless pus. Gram stain showed Gram-positive cocci organisms. Cultures of the pus for aerobic and anaerobic bacteria were negative. The patient was treated for 6 weeks. His condition markedly improved. On follow-up after 4 months, he was healthy.

DISCUSSION

Cyanotic CHD such as tetralogy of Fallot is a predisposing factor for brain abscess in children. However, any condition resulting in a significant right-to-left shunt appears to increase such a risk[3]. Different hypothesis that have been proposed to explain the occurrence of brain abscess are 1) decreased arterial oxygenation and saturation with increased blood viscosity and paradoxical embolism may cause focal areas of brain ischemia, a factor contributing to the development of brain abscess; 2) bacteria escapes the filter of pulmonary circulation by a right-to-left shunt.

Our patient was an adult man who presented with a brain abscess and ASD with a right-to-left shunt and atrial fibrillation. He had fever and a stiffneck which suggested meningitis. Lumbar puncture should be done for definite diagnosis of meningitis which could have induced brain herniation in this patient. However, because of his underlying disease, we requested a CT scan of the brain for definite diagnosis. From our case, although being an adult patient, brain abscess should be considered in this clinical setting.

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ฝีในสมองในผู้ป่วยที่เป็นโรคผนังกั้นห้องหัวใจบนรั่วแต่กำเนิด

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การเกิดฝีในสมองในผู้ป่วยที่เป็นโรคหัวใจพิการแต่กำเนิดในผู้ใหญ่พบได้น้อยมาก รายงานผู้ป่วยชายไทย 1 ราย อายุ 59 ปี มีอาการไข้ ปวดศีรษะนาน 3 สัปดาห์ โดยที่ผู้ป่วยมีโรคผนังกั้นห้องหัวใจบนรั่วแต่กำเนิด ตรวจร่างกายพบมีต้นคอแข็งตึง ผลการตรวจคอมพิวเตอร์สแกนของสมองพบฝีในสมอง 1 ก้อน บริเวณ parieto-occipital ข้างขวา ผู้ป่วยตอบสนองดีต่อการรักษา

คำสำคัญ : ฝีในสมอง, โรคผนังกั้นห้องหัวใจบนรั่วแต่กำเนิด

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