BRAIN ABSCESS IN CYANOTIC CONGENITAL HEART DISEASE

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During the last century the so-called paradoxical brain abscess appearing as a complication of congenital heart disease has received special attention in the medical literature. As early as 1880 Ballet, taking into account the coincidence of these two conditions, stated: "Aussi bien pensons-nous qu'on ne saurait expliquer par une pure coincidence le fait de 6 cas de malformations du coeur s'accompagnant d'abcès du cerveau; que ce chiffre a son importance qui mérite de fixer l'attention, et qu'il est logique d'admettre une relation étiologique entre les lésions précédentes."

Reviewing the frequency of brain abscesses in congenital heart disease by clinical and postmortem studies, it soon became clear that brain abscess as a complication of congenital heart disease is not altogether a rarity. The patients who underwent operation, however, are rare and even more so are those who were operated upon successfully.

Smolik et al. in 1946 reported the first case of successful surgical treatment. This was followed by the cases of Cohen et al., Beller, Ingraham and Matson, Laton et al., Ley et al., Weber, Campbell, and Gund.

During the last 2 years we have observed 4 patients with congenital heart disease complicated by brain abscess, 3 of whom underwent successful surgery.

CASE REPORTS

Case 1. A 15-year-old girl was admitted to the neurosurgical ward with the chief complaints of fever, headaches, diplopia and visual disturbances. She was known to suffer from congenital heart disease, diagnosed as pulmonic stenosis with interauricular septal defect.

Two weeks prior to admission, she awoke from sleep with headache and diplopia. These manifestations appeared and ceased a number of times during the following days and she was admitted to another hospital for investigation. There was papillary hyperemia of the optic fundi. The blood contained 16,000 white blood cells/c.mm. with a normal differential count; erythrocyte sedimentation rate was 37/80 mm. The cerebrospinal fluid contained 320/3 cells, mostly lymphocytes, and protein was 300 mg. per cent.

On the 5th day of hospitalization she complained of severe headache, blurred vision, nausea and vomiting, weakness in the right arm and leg, and she was seized with an attack of Jacksonian epilepsy involving the right hand and the right side of
the face. The cerebrospinal fluid then showed an increase to 500/3 cells, mostly lymphocytes, and protein was 750 mg. per cent. The fundi showed blurred papillary contour and venous engorgement. A tentative diagnosis of cerebral abscess was made and she was sent to us for further examination.

Examination. The patient was in poor condition, slightly cyanotic and somewhat lethargic. Positive neurological findings were slight stiffness of the neck, paresis of the right abducens nerve, hemiparesis of the right side, positive Babinski’s sign, and bilateral papilledema (2 diopters) with right moderate homonymous hemianopsia. Electroencephalogram revealed gross disturbance of the left hemisphere, particularly in the mid and posterior zones.

Pneumoencephalography showed a space-occupying process in the left parieto-occipital region (Fig. 1).

![Fig. 1. Case 1. Pneumoencephalogram demonstrating dorsal part of left sella media and ventricular triangle pushed down.](image)

Operation. Under general anesthesia a left parieto-occipital osteoplastic flap was carried out. On exploring the occipital region with a ventricular needle, a cavity was encountered which yielded 50 cc. of yellowish-green pus. Penicillin was instilled into the operative cavity and the wound was closed without drainage and without fixation of the bone.

Bacteriological Report. The recovered exudate contained coliform bacilli especially sensitive to Sigmamycin.

Course. Treatment with Sigmamycin was continued and after 2 weeks her general condition improved considerably. The headaches and all other neurological signs disappeared; the electroencephalogram became normal. The patient’s condition is satisfactory up to the present, 18 months after operation.

Case 2. A 16-year-old boy, known to suffer from tetralogy of Fallot proved by cardiac catheterization, was admitted to the medical ward because of violent headache. Shortly after admission he was seized with an attack of Jacksonian epilepsy involving the left half of the face. These attacks recurred four times the same day.

Besides the cardiological findings which were typical for tetralogy of Fallot, there were stiffness of the neck and slight left-sided hemiparesis. His temperature