Growth rate of secondary hydatid cysts of the brain

Case report

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Bilateral intracerebral hydatid cysts developed in a 14-year-old patient after an infarct of presumed embolic origin in the left frontotemporoparietal region. The average rate of growth of these cysts was about 5 cm per year. This suggests that the growth rate is far from uniform and indeed, particularly in young patients, may be much faster than originally estimated.

KEY WORDS • cerebral hydatid cyst • growth rate • parasitic embolism

Cerebral and spinal hydatid cysts are rare, and comprise only 2% to 3% of all hydatid cysts reported.1-7 Ayres, et al.,3 reported that the brain is affected in approximately 0.5% to 2.5% of patients with known echinococcosis. Primary cysts are the most common type, and are nearly always solitary; secondary intracerebral cysts are usually multiple and often follow embolization from cardiac cysts that rupture into the left ventricle or are caused by spontaneous or iatrogenic rupture of a cerebral cyst.2 There is little agreement as to the growth rate of hydatid cysts in the brain. Some authors have estimated growth at roughly 1 cm per year, and others describe a much faster rate.2,4-10 We report an example of cysts that reached a considerable size in a short period of time in a teenaged patient.

Case Report

This 14-year-old right-handed boy was admitted to the hospital in October, 1981, with the sudden onset of global aphasia and right-sided hemiplegia.

Examination. A computerized tomography (CT) scan showed a recent left frontotemporoparietal infarction (Fig. 1 left), and an angiogram demonstrated total occlusion at the proximal segment of the left middle cerebral artery. Despite an extensive search, the suspected embolic origin of the infarction could not be confirmed. The patient was discharged with slight language and motor improvement.

In December, 1982, the patient was readmitted with signs of increased intracranial pressure, global dysphasia, moderate to severe right-sided spastic hemiparesis, mild left-sided hemiparesis, and urinary incontinence. A CT scan showed two cystic lesions: one, approximately 6 cm in diameter, located in the left frontal lobe within the upper and anterior part of the infarcted zone, and the other, about 5.5 cm in diameter, in the white matter of the right frontal lobe (Fig. 1 center and right). A further cystic lesion was found in the liver. Serological studies for hydatid disease were negative.

Operation. At surgery, large osteoplastic flaps were made bilaterally in the frontal region, and the dura mater was opened. A sizable cyst was immediately visible on the left just behind a thin layer of cerebral tissue. On the right, a cortical incision was made and the cyst began to bulge through it. Both cysts were totally removed according to Dowling's technique.6,8 The diameter of the cysts corresponded closely with estimates made from the CT scans. Pathological examination confirmed that the surgical specimen was a parasitic cyst, and that the fluid contained the scoleces and hooks of the Echinococcus organism.

Postoperative Course. After surgery, the neurological deficit partially resolved. A month and a half later the hydatid cyst was removed from the liver. A CT scan of the head 10 months later showed the previous infarction in the left frontotemporal region and the bifrontal postsurgical lesions.
The size attained by a hydatid cyst depends on several factors related to the parasite, the particular tissue in which it lodges, and the host. Some authors have suggested that the rate of growth of hydatid brain cysts is about 1 cm per year, a figure recently supported in an adult patient who developed multiple cysts after cardiac surgery for echinococcosis. However, Arana-Ifiiguez, has described enormous cysts in 3- or 4-year-old children, and in our patient both cysts appeared to grow at an average rate of about 5 cm per year. Thus, it seems that the rate of growth is far from uniform and, particularly in children, may be much faster than originally estimated. Our patient developed bilateral intracerebral cysts after an infarction in the left frontotemporal region. It was assumed, without confirmation, that the patient had two simultaneous emboli, most likely due to spontaneous rupture of a small hydatid cyst in a left cardiac cavity. The right embolus proved asymptomatic, while the left one was much larger and led to symptomatic occlusion of the middle cerebral artery. The angiographic findings and the multiplicity of the cysts in this case support this unusual type of secondary cerebral involvement. In areas endemic for hydatid cysts, the possibility of parasitic emboli should be considered, particularly in young patients with otherwise unexplained cerebral embolism.

Two points deserve emphasis in relation to hydatid cysts of the brain. First, CT scanning is accurate in the diagnosis of cerebral echinococcosis, and is useful not only for surgical planning but also to follow patients in whom a possible rupture of the cyst during surgery is suspected. Second, excellent results can be achieved with cyst removal by Dowling and Orlando’s technique, following the steps so carefully set forth by Carrea, et al.

References