Primary Hydatid Cyst of the Brain During Pregnancy
—Case Report—

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Abstract

A 26-year-old woman in the 28th week of pregnancy presented with a primary cerebral hydatid cyst manifesting as deteriorating consciousness and weakness in the left arm and leg. Cranial computed tomography revealed an intracranial hydatid cyst. The cyst was surgically removed and albendazole was administered. The patient had a spontaneous vaginal term delivery and no problem was observed in the mother or child. No primary focus was found in the lungs, liver, and other organs. Hydatid cyst is still an important disease. Intracranial hydatid cyst without primary foci in organs such as the liver and lungs is very rare. Primary cerebral hydatid cyst during pregnancy can be successfully treated by surgical and medical intervention.

Key words: hydatid cyst, Echinococcus, brain, pregnancy

Introduction

Echinococcus granulosus is a parasite living in the intestines of animals like dogs, wolves, and coyotes, whereas the larvae cause hydatid cyst disease in humans, cattle, and sheep. Hydatid cyst is mainly encountered in countries where cattle and sheep raising are important, such as Southern Europe, South America, Africa, Turkey, Australia, New Zealand, and India. Infected dogs are frequently responsible for human contamination. The parasite eggs infest the anus and hair of infected dogs and their kennels, so fecal-oral human contamination is easy. The eggs ingested via the gastrointestinal route hatch to form larvae in the small intestine, which penetrate the intestinal wall and blood vessels, and pass to the liver or the lungs, and 10% enter the systemic circulation and reach other organs such as the brain. Hydatid cyst is most frequently located in the liver (55–70%) and lungs (15–35%). Primary intracranial cysts are very rare (1.7%), and 75% of patients with intracranial cysts are children. The disease is most frequently seen in the area perfused by the middle cerebral artery.

Here we report a case of hydatid cyst in a pregnant female.

Case Report

A 26-year-old female patient in the 28th week of pregnancy presented to our emergency department with complaints of nausea, vomiting, severe headache, and weakness in the left arm and leg. The patient’s family made their living by sheep and goat raising. Neurological examination found left hemiparesis, hemihypesthesia, positive Babinski sign on the left, and papilledema on the right. Cranial computed tomography (CT) was performed with the abdomen protected with a lead vest. Cranial CT revealed a right frontoparietal 5 × 6 cm hypointense, cystic, well-demarcated, round lesion causing a 1 cm shift to the left (Fig. 1). The diagnosis was hydatid cyst based on the cranial CT findings, and the patient was hospitalized in our clinic. The patient’s serum was examined with the indirect hemagglutination method and the result was considered positive.

A wide frontoparietal craniotomy was performed and the dura was dissected. The cyst capsule was exposed without causing rupture. A catheter was inserted between the cyst and the cerebral tissue using the Dowling technique, and the cyst was removed without rupture by irrigation with 3% saline solution. Blood tests revealed eosinophilia.
Histological examination revealed the germinative membrane of the hydatid cyst (Fig. 2).

Thorax CT, abdominal ultrasonography, and magnetic resonance imaging detected no primary focus. No neurological or radiological sign of spinal hydatid cyst was encountered. Her postoperative hemiparesis gradually improved. Albendazole administration (2 × 400 mg daily) was begun before surgery and continued for a total of 3 months. The patient was discharged from the hospital on the 7th day following the operation. Cranial CT showed no abnormalities (Fig. 3). The patient was examined monthly in our outpatient clinic and delivered a healthy baby by spontaneous vaginal delivery in the 39th week of gestation.

**Discussion**

Primary intracranial hydatid cysts are generally solitary, whereas secondary cysts are multiple. Secondary hydatid cyst is formed either by spontaneous or surgical regurgitation of a cyst localized in the left ventricle or in large vessels, or traumatic or surgical rupture of the primary hydatid cyst, so tend to be multiple in the brain. In the present case, no hydatid cyst could be identified in organs other than the brain, so the brain was accepted as the primary focus.

Headache and vomiting, due to intracranial pressure increase, are the most frequent symptoms of brain hydatid cyst. Neurological examination may reveal deteriorating consciousness, loss of strength, papilledema, and pathological reflexes. Cranial CT shows hydatid cyst as a cystic, hypointense, spherical lesion without peripheral edema. If the cyst is infected, the contrast medium is retained as a peripheral ring and peripheral edema is present. Hydatid cyst may be confused with cystic astrocytoma and brain abscess on cranial CT, but can be differentiated by the absence of peripheral edema and mural nodule, and failure to retain contrast medium in the latter diseases.

Cerebral hydatid cyst should be treated both
surgically and medically.\textsuperscript{15,17} Surgical intervention using the Dowling technique can remove the cyst without causing rupture. The head is elevated by 30° to hold the cyst oriented towards the ceiling, a sufficiently large craniotomy is performed, considering the possibility that the wall of the cyst may adhere to the dura mater, and the dura is circularly incised at a location away from the dome of the cyst. The thinned cortex is separated from the cyst by irrigation and pads, and a cortical opening made of 3/4 of the cyst diameter. A soft catheter is inserted between the cyst and the brain, and the operating table is lowered by 45°. Irrigation with hypertonic saline through the catheter causes the cyst to float towards the surface.\textsuperscript{3,15,17} The position of the head in the Dowling position must lower the surgical exposure below the hydatid cyst within the brain parenchyma. Therefore, the cyst will descend by gravitational force, with appropriate inclination and liquid irrigation, and can be totally removed. This method is easy to perform and can remove the cyst without rupture and with minimum damage to the brain parenchyma.

Medical therapy requires administration of 15 mg/kg albendazole for 3 months.\textsuperscript{11,18} Albendazole has been used successfully for hydatid cysts in the liver, lung, and recently in the brain. The incidence of hydatid cyst during pregnancy is 1/20000–30000.\textsuperscript{6,20} Small doses of albendazole may be used for the treatment of hydatid cyst during pregnancy.\textsuperscript{1,13} Albendazole should not be used during the first trimester of pregnancy, as the agent has teratogenic effects in animals, although not confirmed in humans.\textsuperscript{7,19} Albendazole is among the category C drugs approved for use in pregnancy. The physician may administer the drug if convinced that the benefit for the patient outweighs the potential harm to the fetus. Albendazole may be more safely administered if the organogenesis of the fetus is completed. The recommended regimen is 15 mg/kg daily for 3 months.

References


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