HYDATID CYSTS OF THE BRAIN

ROMÁN ARANA-ÍÑIGUEZ, M.D., AND JORGE SAN JUILLÁN, M.D.

Instituto de Neurología, Facultad de Medicina, Montevideo, Uruguay

(Received for publication December 11, 1954)

E ver since the beginning of this century hydatid (Echinococcus) cerebro- bral cysts have drawn the attention of River Plate authors. In 1901 Morquio published the first case report in Uruguay. Since then, a large number of publications have dealt with the subject. Argentine literature has also often been concerned with brain hydatids from 1893 onwards.

Case reports in Uruguay number over 100. On the other hand, Phillips, in Australia, reported 29 cases spread over the last 60 years.

General Notions on Echinococcosis with Special Reference to Cerebral Localization. According to Mackie hydatid disease is most widespread in Algeria, Egypt, Cape Colony, Palestine and Syria, South Australia, Tasmania, New Zealand, Central Europe, Argentina, Uruguay and Paraguay. It is also frequently met with in Spain and Italy. These are all countries noted for the raising of cattle and sheep.

It is interesting to note the distribution of cysticercosis in Latin America. It is very common in Mexico, Peru and Chile, where hydatid disease is a rare occurrence. On the other hand, cysticercosis is hardly ever encountered in Uruguay or Argentina.

Two per cent of all hydatid cysts are found in the brain. The cyst is nearly always solitary in the brain (primary localization); but multiple cysts may develop within the brain if a cyst that is attached to the wall of the left lateral ventricle of the heart ruptures.

According to Dew they are seven times more common in children than in adults. Schroeder and Medoe found 9 adults in 42 cases.

The hydatid cyst grows readily in the brain, a soft, easily displaced tissue; hence, it may attain a large size, keeping its normal hyaline cyst capsule with no daughter vesicles. Nearly every complicated case is the result of rupturing a single cyst. Among our 13 cases we found one suppurating cyst, with daughter vesicles, a very rare occurrence.

Infestation with the disease occurs through the ingestion of dogs’ feces containing Taenia echinococcus rings. Children may suffer contamination directly from such feces, as do cattle, pigs, and sheep. Contamination of water and foods, principally salads, by such canine feces is probably a more important source of contagion. Contamination by way of the air is still controversial. It could account for pulmonary infection.

The rings deliver eggs, which upon reaching the digestive tract detach from their membrane, freeing a hexacanth embryo 0.025 mm. in diameter. This embryo then passes through the intestinal wall into the blood stream.
After this, the hexacanth embryo has to go through two capillary filters, i.e., the liver and the lung, before it can reach other parts of the body. Hence its high occurrence in liver and lung and rareness in the brain.

In a previous report with Asenjo, the senior author already called attention to the fact that although the hexacanth embryos of the Taenia solium and the Taenia saginata (the latter having the same size as the Taenia echinococcus), penetrate the organism in the same way and have to pass through the same capillary networks, they present very different localizations (nervous system, skin, muscular tissue, eye, but very rarely the liver and lung). It seems logical to conclude that a special histotropism accounts for these differences.

It is impossible to be certain how long it will require for cysts to attain the enormous sizes met with—628 gm. in one of our cases (Fig. 9). Experimentally it has been shown that a cyst takes from 3 to 16 months to grow to 1 cm. in diameter. We suspect, therefore, that cerebral hydatids are at least 3 to 4 years old when they come to the attention of the surgeon.

Hydatid cysts are found most commonly in the parieto-temporo-occipital region. In our 13 cases, 3 involved the frontal lobes, 1 was parietal, and the remainder were temporo-occipito-parietal. In 27 of the 42 cases reported by Schroeder and Medoc, the cysts were found in the temporo-occipito-parietal region. Reggiardo reported an intraventricular cyst but at the Neurological Institute in Montevideo neither Schroeder nor we have had a similar experience. Carrau described a cyst in the sella turcica which he believed to be meningeal. Devé, who examined this specimen later, believed it to be of osseous origin. We shall not deal in this paper with hydatidosis of the cranial bones, which is of rare occurrence.

Microscopically, the hydatid cyst consists of the parasite, a hyaline membrane limited by an adventitia and the germinative membrane, and the reaction of the tissue surrounding the cyst. It should be borne in mind that calcified hydatids have also been observed. The brain is displaced by the cyst, and shows a striking tolerance to it. According to Schroeder and Medoc an area of demyelinization is formed around the cyst, the axis-cylinders remaining intact for a long time. Macrophages and compound granular corpuscles appear then. The vessels and cells assume an arrangement parallel to the surface of the cyst. A moderate fibrillary and cellular hypertrophy of the micro-, oligodendro- and macroglia takes place about the cyst, both close to the cyst wall and at some distance from it. An adventitia surrounds the cyst wall. It can be perfectly isolated during the removal of the cyst. It is made up of a highly vascular connective tissue.

Schroeder and Medoc believe that the changes occurring in the nervous tissue about the cyst are entirely mechanical in origin.

CLINICAL STUDY

The clinical symptomatology attending cerebral hydatid cysts depends on whether we are dealing with a single cyst or multiple ones. We are particu-