II. PATHOLOGIC AND RADIOLOGIC FINDINGS

JUAN CÁRDENAS Y CÁRDENAS, M.D.

Mexico City, Mexico

A. PATHOLOGIC FINDINGS

Cysticercosis of the brain and its envelopes manifests itself clinically as a kaleidoscopic disease with such a variety of symptoms and signs comparable only to the clinical manifestations of multiple sclerosis. This extreme variability is understandable when one becomes familiar with the biology and pathology of this parasitic disorder of the nervous system.

In 2767 cases of unselected autopsy material reviewed from January 1954 up to December 1959 at the Unit of Pathology, Hospital General of Mexico City, U.N.A.M., 97 cases of cysticercosis were found. This is an incidence of 3.5 per cent in the material reviewed.

Macroscopic Findings. The type of lesions encountered in cerebral cysticercosis depends on several factors: the time elapsed following the infection; the number of parasites that reach the nervous system and the possibility of immune allergic reaction.

Escobar and Nieto described four essential forms: a) meningeal, b) ventricular, c) parenchymatous, and d) mixed forms.

The meningeal and ventricular forms are predominant, a fact in accordance with our own studies and those of others (Guccione, Sato, Stepień, Choróbski, Henneberg, and others). López Albo, in his excellent monograph, stated that “since the blood stream is the path through which the nervous system is invaded, and the oncospheres are conveyed by the circulation of the cerebrospinal fluid, it is easy to explain the frequency of this location.” Though the vesicles lodge in any part of the anterior, middle or posterior fossa, inside or outside the brain, they also can be present in the spinal canal, but this rarely happens. In a brain with recent invasion, the parasites are small and solid but soon develop into the vesicular form. If a large number reach the parenchyma, the brain may appear swollen with signs of interstitial edema (flattened convolutions), and small or normal ventricles. The dura mater is not invaded and is intact. The pia arachnoid may or may not be thickened as a local reaction to neighboring vesicles; this meningeal thickening quite often is seen at the base, subsequent to the racemose forms of cysticercosis, the so-called “basal Cysticercus meningitis.” This adhesive arachnoiditis (Fig. 1) commonly blocks the circulation of the spinal fluid in the subarachnoid space, leading to a communicating hydrocephalus or, if the foramina of Luschka and Magendie are obstructed, it produces an obstructive hydrocephalus. The degree of ventricular enlargement therefore will depend on the time of establishment of this blockade; sometimes these ventricular dilatations reach tremendous degrees.

When a brain is examined one may find the Cysticerci in the convexity or in the base. Those in the convexity usually burrow the cortex of the brain (Fig. 2), being partially hidden, but sometimes they are free (Fig. 3). A single parasite or as many as several hundred may be found. The parenchymatous
I have the impression from our own experience that when the parasites invade the parenchyma solely, and there are only a few, say less than twenty, the disease may cure spontaneously. Many times shadows of intracranial calcifications, compatible with Cysticerci, are seen in patients suffering seizures which may or may not be controlled with appropriate medication. Those patients suffered and withstood the acute stage of the disease. Rarely a mass of Cysticerci is seen deep in the cortex; usually it is unique but there may be scattered masses. Costero has described the "miliary" form, as if a shotgun had hit the brain. This form is seen mostly in children, and the parasites are small and have not reached their final or adult size.

The parasites in the ventricles may be single or multiple, small or fully developed, free in the cerebrospinal fluid or attached to the walls of the cavities. In these instances they may act as a ball-valve, or encroach...