III. CLINICAL FINDINGS AND TREATMENT

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Cysticercosis attacks mainly people of low social levels living in poor hygienic conditions and lacking the most essential standards. Usually it strikes males and females equally between the ages of 20 and 40 years. Small children have the disease most severely because of continuous autoinfection when their fingers with contaminated dirt are introduced into the mouth repeatedly. Elderly people are affected least.

Services and Units of large institutional medical centers like the Hospital General de la Ciudad de México, Hospital Central Militar, Hospital de la Raza of the Mexican Institute of Social Security and others, handle the vast majority of cases, considering the social echelons of the locale from which their patients come.

It may be said that out of 4 or 5 patients with raised intracranial pressure or who are suspected of having brain tumor, in 1 the cause of the disorder will turn out to be cysticercosis, averaging the statistics of the institutions already mentioned; this figure lies between 20 and 25 per cent, giving you an idea of the numerical importance of this disease.

These patients usually are referred to the Out-Patient Departments of our institutions mainly because of severe headaches, nausea and vomiting, for months to years in duration. Others exhibit mental changes that actually may be outstanding. In this respect it might well be worth mentioning that inmates of mental institutions on careful re-evaluation sometimes have been found to be suffering from long-standing cysticercosis that has gone unrecognized because of faulty neurological examinations on admission. Another large group complains of a rapidly progressive decrease in vision with or without headaches. Others show all the symptomatology of expanding lesions of the posterior cranial fossa. An interesting group is made up of patients with a rather recent onset of focal epilepsy with no history of trauma. Lastly, some have neurological symptoms and signs that, because of their bizarre and multiple nature, do not fit into any classical localizing syndrome; these make us always very suspicious of a possible diagnosis of cysticercosis.

Experience has led us to consider the following clinical forms which correlate closely with the histopathology: parenchymatous, ventriculosubarachnoid, and mixed.

These clinical forms are dependent on the intensity of the infection, number of parasites, their particular location, survival or death of the parasite within the host, reaction of neighboring tissue, as well as other toxic-immuno-biologic reactions still poorly known and understood.

Parenchymatous forms may be acute or chronic. The former behaves like an encephalitis, with raised intracranial pressure if diffuse, or without it if localized. In a small number of cases the patient gets over this episode spontaneously without associated rise in intracranial pressure. Some autopsies have shown calcified nodules of Cysticerci in patients who were asymptomatic throughout life, representing parenchymatous forms that dried out spontaneously.

Ventriculosubarachnoid varieties occur as purely ventricular, purely subarachnoid or ventriculosubarachnoid. In the ventricular variety, the lesion may be located within the lateral, 3rd or 4th ventricles as a solitary Cysticercus vesicle or there may be multiple Cysticerci. The clinical course is typified by hypertensive crisis followed by spontaneous remissions caused by transitory and intermittent episodes of cerebrospinal-fluid blocking. These patients are, as a matter of fact,
the best candidates for successful immediate surgical treatment.

In the purely subarachnoid variety the lesions are localized mostly at the base of the brain in the form of a milky, dense, plastic arachnoiditis giving the symptomatology of hypertensive brain disease with hydrocephalus, with or without involvement of the cranial nerves, mostly the 8th, 6th, 5th and, when the inflammatory process reaches the optochiasmatic cisterns, the 2nd, giving decreased visual acuity that may go down to blindness.

Mixed forms are scarce, showing a proteiform neurological picture which hardly can be systematized.

If exception is made of the severely acute encephalitic syndromes with early fatal outcome, cysticercosis has a tendency to become chronic and proceed by bursts of raised intracranial pressure of more or less duration until an irreversible stage is reached ending the picture. In a few cases 

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become calcified and patients are no longer symptomatic.

As neurological findings in these patients usually can not be systematized, they are submitted to the whole battery of routine neurological diagnostic complementary examinations.

Eosinophilia of the blood is found sometimes though no diagnostic value is given to it. At present, Biaggy at the Hospital General is working on a hemoagglutination reaction in blood serum that looks very promising; there is no information available as yet. Repeated examinations of feces for 

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should be carried out, especially in children.

Neuro-ophthalmological examination usually reveals varying degrees of papilledema, and secondary and also primary optic atrophy. In cysticercotic optochiasmatic arachnoiditis, it is not a rarity to find concentric narrowing of the visual fields; bitemporal hemianopsias are found with dilated 3rd ventricles.

Neuro-otological examinations usually reveal basal arachnoiditis with cranial-nerve involvement.

Electroencephalographic studies are reported as diffuse and abnormal without pathognomonic features of their own.

Lumbar punctures are performed only in patients without raised intracranial pressure. The cerebrospinal fluid shows pleocytosis and eosinophilia; there is marked increase of all protein fractions; glucose is decreased to very low levels; there are no changes in chlorides. The Lange test is positive to the left like a paretic curve. By means of an alcoholic extract of 

Cysticerci,

the complement-fixation and precipitation test is performed in cerebrospinal fluid routinely; we believe that this reaction is positive in 80 per cent, not conclusive in about 5 per cent and may give false positives when the Wassermann reaction in cerebrospinal fluid is also positive; in a small percentage (3 per cent) its negativity does not exclude the diagnosis.

All these findings in cerebrospinal fluid are more constant in spinal than ventricular fluids, also in the ventriculosubarachnoid varieties, and less in the parenchymatous ones.

Generally speaking, there is as yet no specific medical or surgical treatment. Cysticercosis still constitutes one of the major neurological problems we are faced with in this and other Latin-American and Mediterranean countries.

Once the diagnosis has been confirmed, Gamboa and Arroyo at the Neurological Service of the Neurosurgical Unit of the Hospital General, based on their anti-inflammatory and anti-allergic properties, are using corticoids of the Prednisolone type in daily dosages of 30 mg. orally or 25 mg. parenterally for long periods of time; some of their patients have shown a favorable reaction but this therapy is still in the clinical experimental stage; if no improvement ensues, and the picture progresses downhill, surgery is then mandatory in most of the cases.

Air studies, whether fractional pneumoencephalography or ventriculography, are carried out in the majority while others are subjected first to angiography, especially those showing focal epilepsy.