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Computerized Axial Tomography for the Diagnosis of Cerebral Cysticercosis

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With 4 Figures

Summary

Computerized Axial Tomography (CAT) has proved extremely useful for the diagnosis of cerebral cysticercosis. The calcified small, multiple, and scattered cysts provide a typical image on CAT.

The collection of non-calcified cysts in the subarachnoid spaces (racemose form) or in the ventricles may produce areas of low density similar to that of the cerebrospinal fluid. The dilatation of the ventricular system, extreme degrees of hydrocephalus, areas of cerebral atrophy, and other related changes induced by the cysts in the subarachnoid spaces are also clearly shown in the CAT. Four personal cases are reported.

Key words: Computerized Axial Tomography (CAT); cerebral cysticercosis; epilepsy; hydrocephalus.

Computerized Axial Tomography (CAT) or Computerized Tomography (CT) of the skull has already been established as a most important and accurate diagnostic method since its application to clinical examination in 1973 by Hounsfield and Ambrose. The recognition of different neurological conditions by this technique is already most impressive and the literature on CT is also very extensive. Furthermore, the studies of other organs, besides the brain, with scanning techniques may be most useful for some pathological lesions with multiple localizations.

Cerebral cysticercosis is nowadays a rare neurological disease but is still frequent in some American countries, like Mexico, Peru, Chile, etc. One of the authors has reviewed the subject in previous publications. Large European series have been recently published from Rumania and Poland.
Since December 1975 an apparatus for CAT has been available in Madrid, and we have been able to study four cases of cerebral cysticercosis from the clinical material submitted to CAT from our two Services. We have not found any publications on this subject, although in some countries where cerebral cysticercosis is still fairly common and where CAT is available (Mexico) no doubt other cases have been observed.*

Case Reports

Case 1. A 55-years-old female was admitted to the hospital (Ciudad Sanitaria Primero de Octubre) complaining of right sided focal and generalized seizures for 30 years at irregular intervals and with long periods without fits. During the last year and a half the attacks had increased in frequency and a progressive impairment of memory for recent events was noticed.

No obvious intellectual deterioration was found in the routine clinical examination. The optic discs were normal. Very slight right motor weakness without increase of tendon reflexes was noted. No sensory disturbances were present.

Routine blood counts were normal. Cerebro-spinal fluid: Protein content 46 ml% with 41% of gammaglobulin; 46 ml% of glucose; 50 cells per ml with 98% lymphocytes.

In the plain X-ray films of the skull a small calcification appeared in the posterior fossa, and also diffuse and small rounded calcifications were found in the muscles of the legs.

Pneumotomography showed several small calcifications in the inferior margin of the fourth ventricle and at the vallecular area. A distortion of the supratentorial cisterns and cerebral ventricles was evident. Left carotid angiogram revealed an avascular lesion in the left temporal region.

CAT showed a slight displacement to the right of the ventricular system, dilatation of the left temporal horn with an area of low density in the left Sylvian region, and a small calcification at the level of the fourth ventricle (Fig. 1).

Left temporal craniotomy disclosed a thick arachnoid cyst enclosing a collection of multiple vesicles filling the anterior part of the temporal horn and with the appearance of cysticerci. Microscopic examination of the vesicles confirmed the diagnosis of cysticercosis.

Case 2. A male patient, 36 years old, was admitted to the hospital (Ciudad Sanitaria “La Paz”) suffering from epileptiform attacks which started 13 years previously with a generalized fit. These attacks were repeated during the following eight years in an irregular manner. Three months before admission he noticed some loss of motor power on the right side, sometimes before an epileptiform attack. He also complained of headaches and general weakness.

Clinical examination disclosed only a left lower facial weakness and a doubtful diminution of sensation in the right arm.

Routine blood counts were normal. Cerebro-spinal fluid examination: Protein content 20 ml%; 53 ml% of glucose; 21 cells per ml. Fixation complement reaction with specific cysticercus antigen positive in the cerebro-spinal fluid at 1/16.

* After this paper was written we know that F. Escobedo and A. Gomez, from Mexico, have reported some cases in the XVII Congreso Latino-Americano de Neurocirugia (Santiago de Chile, June 1977).