Neurocysticercosis
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Section: Neuroradiology
Imaging Technique: CT
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Case Type: Clinical Cases
Authors: O. Diallo, D. Balériaux
Patient: 28 years, male

Clinical History:
Long-standing epilepsy and chronic headaches.

Imaging Findings:
The patient presented with long-standing epilepsy and chronic headaches. The medical history was unremarkable. Physical examination was normal. Pre- and post-contrast CT scans of the brain were performed (Fig. 1).

Discussion:
Neurocysticercosis is endemic in South America, East Europe, Africa and Asia. In these regions, autopsy incidence is approximately 4%. It is the most common parasitosis of the central nervous system (CNS). The agent responsible is the larval form of Taenia solium (a pork intestinal tapeworm). From the intestinal mucosa (after ingestion of contaminated meat), the germ enters the circulatory system and spreads to the CNS. Epilepsy is the most frequent clinical feature: it is seen in 50-70% of cases. Neurocysticercosis is considered to be the most common cause of epilepsy worldwide. Other symptoms include signs of intracranial hyperpressure, cauda equina syndrome and neurological deficiency.

On CT imaging, four stages are described: Vesicular stage (larvum alive): a cystic lesion with a central hyperdense nodule (scolex). Oedema and enhancement are not present. Colloid vesicular stage (larvum dies): oedema is induced and the lesion appears as a focal hypodense enhancing area. Granular nodular stage (retraction of the larvum): the lesion becomes isodense or mildly hyperdense and the scolex calcifies; enhancement and oedema are present. Nodular calcified stage (final stage): the nodule is completely calcified without oedema and enhancement.

The parasite can be located anywhere within the CNS. The most common site is the brain parenchyma (corticomedullary juction); medulla spinalis is the rarest site. Usually CT identification of different ages of lesion is pathognomonic and sufficient for diagnosis. A history of travel to endemic zones can enhance diagnostic accuracy in atypical cases (Fig. 2). MRI imaging is indicated when spinal cord and/or cauda equina compression signs are present, or to study the activity of some lesions considered to be sequelar (discrete enhancement).

In conclusion, neurocysticercosis is of interest not only because of its epidemiological and CT aspects but also because of some recent findings. Herrera et al. suggest that neurocysticercosis can be a risk factor for haematological neoplasias (resulting from induced chromosomal abberations); Del Brutto et al. propose that astrocytic gliosis surrounding calcified cysticerci is a risk factor for cerebral glioma.
**Differential Diagnosis List:** Neurocysticercosis

**Final Diagnosis:** Neurocysticercosis

**References:**


Description: NECT scan showing multiple cystic lesions in the frontal, temporal and occipital lobes. Two of the lesions located on the right side have a central hyperdense calcification, typical of vs (1). In the right deep frontal lobe, there are two calcified spots corresponding to ncs (2). Finally, the spontaneously hyperdense area in the left temporal region, located behind a cystic lesion is probably a lesion in gns (3). Origin:
Description: NECT scan at an upper level showing lesions at different ages: ncs in the right frontal region; and vs observed in the right thalamus, the left pallidum, and the left frontal and occipital lobes.

Origin:

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Description: NECT scan: two calcified, cortical lesions are seen in the right upper frontal lobe. Origin:
**Description:** CECT scan: non-enhancing cystic lesions. Nodular (1) and focal (2) enhancement corresponding to a gns. **Origin:**
Description: CECT scan showing lesions at different ages especially a nodular enhancing lesion in the left occipital lobe corresponding to a cvs (1). In the left frontal lobe, a cyst wall partially enhances (2).

Origin:
Description: NECT scan. Large frontal hypodense area suggesting oedema. Still, a small calcification is noticeable. Origin:
Description: CECT scan. Nodular enhancement of an isolated lesion in a granular nodular stage. These imaging findings and a history of a stay in an endemic zone were the key to the diagnosis of neurocysticercosis.

Origin: