Occasional resolution of multiple parenchymal brain calcifications in patients with neurocysticercosis

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Neurocysticercosis is the infection of the CNS by cysts (larvae) of *Taenia solium*, a worldwide tropical disease. Cysticercosis lesions frequently locate in the gray-white matter border of the cerebral hemispheres but also occur in other neuroanatomical locations, e.g., spine, ventricles, subarachnoid space, etc.^{1,2} Parenchymal brain cysts usually undergo a degeneration process that ends in a calcified scar. Calcified cysticercosis cysts are easily demonstrated by CT scan³ and are assumed to persist unchanged throughout the years.^{4,5} We describe 2 patients in whom well-demonstrated calcified lesions were no longer seen on CT, one after 8 years and the other after 9 years. Although unusual, these cases provide proof that calcified brain cysticercosis lesions may occasionally resolve.

PATIENTS

Patient 1

A 42-year-old Peruvian man presented with monthly generalized tonic-clonic seizures since 1982. Symptoms continued for 4 years until 1986 and reappeared in December 1991, when he developed a generalized tonic-clonic seizure. He was medicated with phenytoin 300 mg PO without known prescription date. Neurologic examination was normal. An initial brain CT scan in April 1992 showed 14 viable and 1 calcified neurocysticercosis lesions, and he was then treated with antiparasitic drugs and steroids. On the 8th day with antiparasitic drugs, he again had a generalized tonic-clonic seizure with no further crisis. A CT scan in November 1994

Practical Implications

Although most brain calcifications will persist in patients with neurocysticercosis, consider the possibility that a cerebral calcification may resolve eventually after some years.

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Funding information and disclosures are provided at the end of the article. Full disclosure form information provided by the authors is available with the **full text of this article at Neurology.org/cp**.

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Figure Brain imaging

Patient 1: Brain CT without contrast (November 1994) showing 5 calcified lesions (A, red arrowheads). These lesions are not seen in follow-up images in June 2002 and November 2003 (B, C). Patient 2: Brain CT without contrast (February 2004) showing 2 residual calcifications (D, red arrowheads). These lesions are not seen in a regular brain CT scan performed in November 2013 (E) or in a repeat brain CT scan with 1 mm-slice performed in December 2013 (F).

showed no viable cysts, but there were 5 calcified lesions present (figure, A). Serum cysticercosis enzyme-linked immunoelectrotransfer blot (EITB) performed at our unit was positive in March 1997. In June 2002 a follow-up CT scan was reported as normal, that is, without any viable cysts or calcifications (figure, B), findings that were confirmed in a new CT scan taken in December 2003 (figure, C). The patient evolved well clinically and by his last follow-up visit in July 2011 the only remaining symptom was mild postural vertigo.

Patient 2

A 37-year-old Peruvian woman presented in February 1993 with a single generalized tonic-clonic seizure 3 months postpartum. In May 1993 she had a CT scan reported as normal and was started on phenytoin 100 mg TID. She returned in May 1994 because of severe headache. Serum EITB for cysticercosis was positive at this time. Brain MRI scan showed multiple viable neurocysticercosis cysts in both hemispheres, and she was treated with antiparasitic agents and steroids. Seven days after the last antiparasitic dose, she developed 2 tonic-clonic seizures with no further seizure episode. A follow-up CT in February 2004 showed only 2 residual calcifications (figure, D). She took phenytoin until 2004. Between February 2008 and November 2013, she developed a right hand tremor that evolved to become bilateral as well as postural limb tremor, headache, and myokymia; no specific diagnosis was reached to explain these new symptoms. A brain CT scan performed in November 2013 (figure, E) did not show the previous calcified lesions, and a repeat brain CT scan performed in December 2013 (figure, F) confirmed the absence of calcifications.

Supplemental Data

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DISCUSSION

Calcified brain lesions are common radiographic findings. They are associated with many CNS disorders as well as part of physiologic processes.⁶ Calcifications have also been described as the typical final stage of parenchymal brain cysticercosis lesions. CNS calcifications are the most frequent cerebral finding in patients with neurocysticercosis, and their number usually correlates with the original number of viable cysts.⁶ It is assumed that these lesions persist unchanged for the life of the patient.⁷ The presence of residual calcifications has been associated with focal neurologic symptoms and with a higher likelihood of seizure relapses.⁴ We demonstrate that these lesions may resolve in occasional cases. The follow-up scans were taken 8 and 9 years after the diagnostic CT scans. We cannot know when the calcifications disappeared. It is possible that this phenomenon occurs more frequently but is not detected because many patients do not have follow-up brain CTs after several years. Patients whose brain calcifications resolve could theoretically have a better clinical evolution.

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ACKNOWLEDGMENT

L.J.P. Meneses Quiroz is supported by the Fogarty International Center/NIH training grant D43 TW001140. H.H. Garcia is supported by a Wellcome Trust Senior International Research Fellowship in Public Health and Tropical Medicine.

STUDY FUNDING

No targeted funding reported.

DISCLOSURES

L.J.P. Meneses Quiroz receives research support from the Fogarty International Center/NIH (training grant D43 TW001140). I. Gonzales, E.J. Pretell, and H. Saavedra report no disclosures. H.H. Garcia serves as an associate editor of *PLoS Neglected Tropical Diseases*, as an editorial consultant for *The Lancet*, and on the editorial boards of *American Journal of Tropical Medicine and Hygiene*, *Experimental Parasitology*, *World Journal of Gastroenterology*, and *Annals of Neurosciences* (India) and receives research support from NIH/NINDS (R01 NS054805), FIC-NIH (TW001140), a Wellcome Trust Senior International Research Fellowship in Public Health and Tropical Medicine, and the Gates Foundation Grant 23981. Full disclosure form information provided by the authors is available with the **full text of this article at Neurology.org/cp**.