

Letter in response to Del Brutto, axonal swelling and spheroids in *Taenia solium* neurocysticercosis

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We appreciate Dr. Del Brutto's comments concerning our article entitled "Axonal swellings and spheroids: a new insight into the pathology of neurocysticercosis (NCC)" (5). Axonal swellings have only recently been described in NCC. While we agree with Dr. Del Brutto's view that axonal swellings can be the result of neuronal damage due to inflammatory change surrounding parenchymal brain cysts, any injury to the axon as occurs with trauma, toxins, shearing or hypoxia will also produce this response. Thus, we cannot yet conclude the precise cause of axonal spheroid formation in NCC (3). What is interesting is that, in NCC, although these changes occur most commonly in the gliotic reaction adjacent to the cyst, they also occur at a distance from the cyst in otherwise normal tissue. Previous studies have demonstrated that lectins and antigens produced by the cyst may diffuse from the cyst into the brain tissue distant from the cyst (1). It is possible that these products can produce damage to the neuron as demonstrated by axon swelling, distant to the cyst.

The cause of hippocampal sclerosis in NCC is still open to debate (2, 4). Dr. Del Brutto highlighted the potential use of the rat model for NCC to investigate the pathogenic mechanisms related to hippocampal sclerosis present in cases where the cyst is located at a distance from the hippocampus. We also agree with his suggestion that axonal swellings could contribute to explaining this pathology due to the extension of axonal swellings into areas distant from the cyst. The rat NCC model may prove useful in exploring the development of hippocampal sclerosis and any link to

axonal swelling due to the ability of tracking axonal swelling formation in the entire brain and the availability of immunomarkers for a wide variety of rat brain proteins (6).

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