Neuroimage

A rare case of adult tapeworm in brain

Neurocysticercosis is a common problem in neurological practice in developing countries. However, the presence of adult *Taenia solium* worm in brain is not reported. This is the first report of an adult tapeworm in the brain.

A 30-year-old male presented with a history of medically refractory simple partial seizures of 2 year duration. He was diagnosed as having neurocysticercosis based on imaging and was treated with antihelminthic, antiepileptic, and later antituberculous regimen with no improvement [Figure 1a and b]. Repeat scans showed the lesion to be increasing in size with perilesional edema. A right parietal craniotomy followed by exploration of the granular lesion found an adult worm.

The gross appearance was a long, thread-like structure, white in color with a glistening appearance [Figure 2a and b]. Microscopic examination confirmed it to be an adult *T. solium* with scolex showing radially arranged suckers and two rows of spiny chitinous hooks and the body showing proglottids. The proglottids shows a tegument layer with hair-like microtriches. The adjacent tissue showed fibrous connective tissue cyst wall lined by mixed inflammatory infiltrate with lymphocytes, dense polymorphs, and occasional histiocytes [Figure 3a-c].

Postoperatively antiepileptic regimen was continued, and he is symptom-free for the past 2 years. Cysticercal infestation occurs either due to ingestion of infected pork or from human to human transmission through infection from fecal matter to food.[1,2] The adult worm usually grows in the intestine by attaching to the wall with the scolex and releases gravid proglottids. The cysticerci may penetrate the intestinal wall and through the portal circulation may finally reach muscles, eyes, or brain. Five forms of neurocysticercosis have been recognized depending on the location, namely parenchymal, arachnoidal, ventricular, spinal, and mixed. The various stages of cysticerci in the brain are colloidal, granular nodular, and nodular calcified stage.

Our first differential diagnosis had been spargoniasis as it has been reported earlier.[3] Sparganosis is a parasitic infection caused by the plerocercoid larvae of diphyllobothroid tapeworms belonging to the genus *Spirometra*.[3] Even

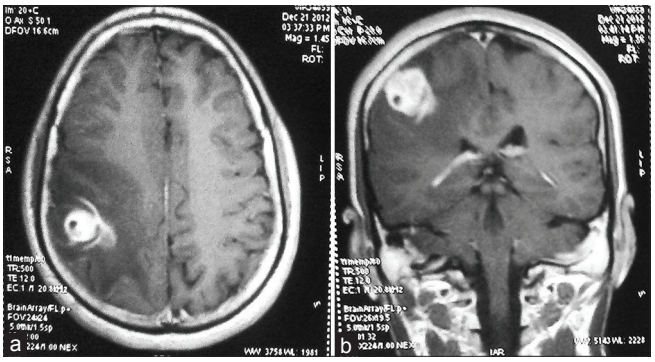

Figure 1: (a) T1 axial contrast image showing a lesion in the right parietal region with perilesional edema. (b) T1 coronal axial image showing the lesion in the right parietal region which was contrast enhancing

Figure 2: (a) Specimen of worm after removal during surgery. (b) Worm placed in a sterile container and sent for histopathological examination

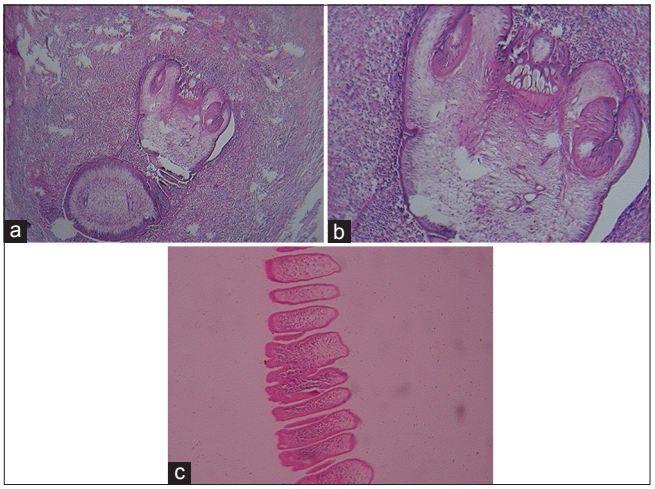

Figure 3: (a) Microscopic image of the scolex of *Taenia solium* worm in granulation tissue surrounded by neuroglial tissue of the brain (H and E, ×50). (b) The scolex of the worm showing two rows of chitinous hooks and suckers characteristic of *Taenia solium* worm (×100). (c) Microscopic image of mature proglottids of the *Taenia solium* worm (H and E, ×40)

intraparenchymal migration has been described. The diagnosis of *T. solium* had been substantiated by the microscopic pictures of the scolex, which are different for both the species.

It is difficult to say how a cysticercus could develop into a worm in brain. Our effort is to make the neurological community aware of the possibility of tapeworm growing in the brain; and, its absence of response due to the administration of mainline antihelminthic drugs. The need for surgery is usually to confirm the diagnosis and management in cases that are not responding to medical treatment.

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Conflicts of interest

There are no conflicts of interest.

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