

Vertebral cysticercosis

A case report

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Summary

Cysticercosis is a well-known condition in man, affecting the brain and neuromuscular tissue. Bony involvement is very rare. Our patient presented with destruction of the 11th thoracic vertebra and paraplegia. The diagnosis was confirmed on histological examination and enzyme-linked immunosorbent assay.

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Cysticercosis is caused by the larval stage of *Taenia solium* with man and the pig as hosts, but vertebral cysticercosis is very rare, cysticerci most commonly being found in skeletal muscle, subcutaneous tissue, brain, meninges, eyes and heart muscle.

Cysticercosis can cause bone destruction and produce distinctive histological and serological features, as is evident in the following case report.

Case report

A 45-year old man presented with a 1-year history of progressive weakness of both lower limbs. He was pain-free and had good control of the bladder and rectal sphincters. Before referral, he had been treated with antituberculosis drugs for suspected vertebral tuberculosis. He had worked as a labourer on a mixed stock farm in the western Cape for the last 15 years, slaughtering pigs twice a month for rations.

The patient was bedridden, but physical examination showed him to be in good general condition. The cranial nerves were intact and the upper limbs neurologically normal. There was spastic paralysis of the lower limbs with brisk knee and ankle reflexes. Sensation was intact. Rectal sphincter tone was normal. No other abnormalities were found and there were no palpable subcutaneous nodules. Haematological and biochemical values were normal.

Radiological examination of the thoracic spine showed destruction and compression of the 11th thoracic vertebra. The intervertebral discs and posterior elements were not affected. There was a soft-tissue mass surrounding T11 (Fig. 1). On closer inspection, round translucent areas could be identified in the body of T11, which proved to be multiple cysts (Fig. 2, top). Myelography demonstrated a complete obstruction at the lower end of T11 (Fig. 2, bottom). A radio-isotope bone scan showed moderately increased uptake at the lower thoracic spine, suggesting active disease.



Fig. 1. Vertebral collapse and soft-tissue mass.

Histological examination of a previous needle biopsy specimen of T11 showed necrosis, fibrosis and nonspecific inflammatory cells among fragments of bone.

For diagnostic and therapeutic purposes an open biopsy with anterior decompression and stabilisation of the spine was performed. At operation a hard, paravertebral soft-tissue swelling was found, consisting of multiple grape-like cysts. After removal of the cysts, the hard, collapsed vertebral body of T11 was exposed. It contained multiple intramural cysts, and it became clear that these had destroyed the vertebra. Extradural cysts were also found, but the spinal cord appeared to be unaffected. The whole of T11 as well as the cysts around the spinal cord were removed with insertion of a rib graft to support the vertebral column.

Histological examination proved the diagnosis to be cysticercosis of the 11th thoracic vertebra due to *Cysticercus racemosus*, a larval form of *T. solium*.

After this surprising diagnosis, radiographs of the skull, thighs and shoulders as well as computed tomography (CT) of the brain were requested and proved to be normal. Enzyme-linked immunosorbent assay (ELISA) of the serum for cysticercosis was positive, confirming the diagnosis.

Further treatment included chemotherapy with praziquantel (Biltricide; Bayer-Miles) 50 mg/kg/d in 3 divided doses as well as dexamethasone 2 mg 3 times a day for 14 days. No side-effects were noted.

Postoperatively muscle power in the patient's legs gradually improved, enabling him to walk with assistance after a period of 3 months.

Discussion

Cysticercosis is an infection by the larval stage of the pork tapeworm *T. solium*¹ with man as the host, the pig being the

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natural intermediate host. Cysticerci can lodge anywhere in the body, but are most commonly found in the skeletal muscle, subcutaneous tissues, brain, meninges, spinal cord, eye and heart muscle. Cysticercosis of bone is very rare and a search of published reports in English has revealed only 1 case of vertebral cysticercosis.²

Spinal cysticercosis is uncommon and is divided into vertebral and intraspinal (which includes epidural, subarachnoid and intramedullary) forms.³ This inevitably means that the clinical features vary.⁴ Our patient happened to present with a spinal compression syndrome because of mechanical compression of the collapsed vertebra, the soft-tissue mass and the inflammatory response evoked by the dying cysticercus and subsequent granulomatous reaction.

The immunological test of choice in detecting cysticercosis is ELISA of the serum and cerebrospinal fluid, which is positive in up to 87% of cases of neurocysticercosis.^{5,6}

Chemotherapy with praziquantel has been a major advance.⁷ Great care should be taken, however, since death of the cysts may result in exacerbation of symptoms due to inflammatory responses. For this reason, a corticosteroid such as dexamethasone should be added. The recommended dose of praziquantel is 50 mg/kg/day in 3 divided doses for 10 - 14 days.⁸

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REFERENCES

1. Sparks AK, Neafie RC, Connon DH. Cysticercosis. In: Binford CH, Connor DH, eds. *Pathology of Tropical and Extraordinary Diseases: An Atlas*, vol. 2. Washington, DC: Armed Forces Institute of Pathology, 1976: 539-543.
2. Kurrein F, Vickers AA. Cysticercosis of the spine. *Ann Trop Med Parasitol* 1977; **71**: 213-217.
3. Zenteno-Alanis, GH. A classification of human cysticercosis. In: Flisser A, Willms K, Lacllette JP, Larralde C, eds. *Cysticercosis: Present State of Knowledge and Perspectives*. London: Academic Press, 1982: 107-126.
4. Queiroz L de S, Filho AP, Callegaro D, De Faria LL. Intramedullary cysticercosis. *J Neurol Sci* 1975; **26**: 61-70.
5. Espinoza B, Flisser A, Plancarte A, Larralde C. Immunodiagnosis of human cysticercosis: ELISA and immunoelectrophoresis. In: Flisser A, Willms K, Lacllette JP, Larralde C, eds. *Cysticercosis: Present State of Knowledge and Perspectives*. London: Academic Press, 1982: 163-170.
6. Pammenter MD, Rossouw EJ, Epstein SR. Diagnosis of neurocysticercosis by enzyme-linked immunosorbent assay. *S Afr Med J* 1987; **71**: 512-514.
7. Botero D, Castano S. Treatment of cysticercosis with praziquantel in Colombia. *Am J Trop Med Hyg* 1982; **31**: 811-821.
8. Groll EW. Chemotherapy of human cysticercosis with praziquantel. In: Flisser A, Willms K, Lacllette JP, Larralde C, eds. *Cysticercosis: Present State of Knowledge and Perspectives*. London: Academic Press, 1982: 207-218.

Fig. 2. Top: Translucent areas in the collapsed vertebra; bottom: complete block on myelography.