

Pareses, paralysis and parasites

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CASE REPORT

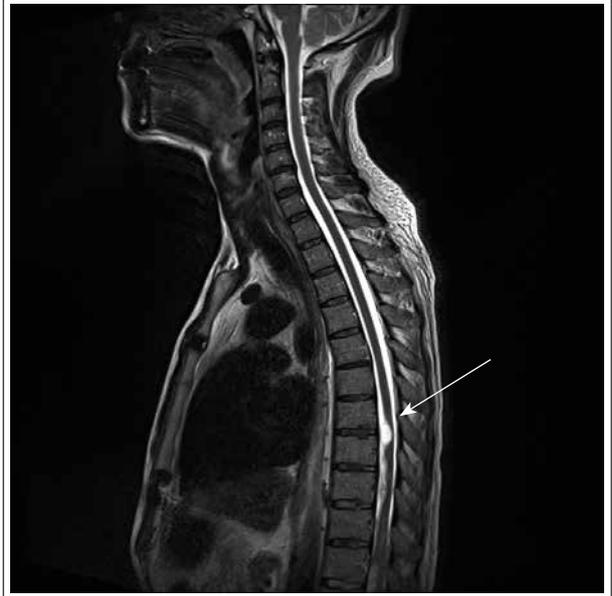
A 44-year-old male of Mediterranean origin presented to our emergency department because of pareses of the lower extremities. Five years ago he underwent multiple pelvic and spinal surgical interventions in another hospital, because of cyst formation in the bone. No other organs were affected by cyst formation. Because of the pareses of the lower extremities an MRI was performed of the spine which revealed intra-spinal cysts compressing the spinal cord (*figure 1*).

The patient gave consent to have his case details and image published.

WHAT IS YOUR DIAGNOSIS?

See page 533 for the answer to this photo quiz.

Figure 1. MRI T2-weighted image of the cervical and thoracic spine in sagittal orientation. Intra-spinal extradural cysts with the maximum compression of the spinal cord at the level of thoracic 7 (arrow)



DIAGNOSIS

The current case describes a patient with *Echinococcus granulosus* infection. In our case intra-spinal cyst formation was caused either by disease progression or more likely by parasite seeding during spinal surgery in the past. *Echinococcus granulosus* infection, also referred to as hydatid cyst, is a zoonosis caused by adult or larval stages of tapeworms.¹ *E. granulosus* and *E. multilocularis* are the most common, causing cystic echinococcosis and alveolar echinococcosis, respectively. The life cycle of *Echinococcus granulosus* consists of a definitive host (dogs and other carnivores) and an intermediate host (sheep, goats, swine and humans). *Echinococcus granulosus* causes an infection in the small intestine of the definitive host and produces eggs that are passed with the host's faeces. Intermediate hosts, coincidentally also humans, ingest the infected dog's faeces. Eggs hatch into oncosphere larvae that travel through the blood and form hydatid cysts in the intermediate host tissue. In a natural environment the infected intermediate host is an easy prey for the definitive host which completes the life cycle of *Echinococcus granulosus*.

Echinococcus granulosus infection has a high prevalence in parts of Eurasia, the Russian Federation, China, Africa, Australia and South America, but is a rare zoonosis in Northern Europe and Northern America.² However, because of increasing movements of people around the world it has become prevalent throughout the world.

The initial phase of *Echinococcus granulosus* infection is always asymptomatic. Although almost any site in the body may be affected, either from primary inoculation or

via secondary spread, the liver is affected in two-thirds of the cases. Infection of the central nervous system is rare, especially as a sole infection site. Hydatid disease of the spine occurs in 1% of all cases of human echinococcosis and is most commonly located in dorsal spine (50%) followed by lumbar (20%), sacral (20%) and cervical spine (10%).³

The treatment of *Echinococcus granulosus* is difficult and based on expert opinion.² Therapy options for bone and spine location include surgery and chemotherapy with albendazole and praziquantel.¹ Combined therapy seems to reduce the length of treatment and it is particularly recommended pre-surgery and in bony or disseminated hydatidosis.

In our case, no surgery was performed due to the disseminated form of spinal echinococcus and the high probability of new seeding of echinococcus during new surgery. During follow-up, local progression of cysts was noted. Despite long-term albendazole and praziquantel treatment there was unfortunately progression to paralysis with no further therapeutic options.

REFERENCES

1. McManus DP, Zhang W, Li J, Bartley PB. Echinococcosis. *Lancet*. 2003;362:1295-304.
2. Brunetti E, Kern P, Vuitton DA. Expert consensus for the diagnosis and treatment of cystic and alveolar echinococcosis in humans. *Acta Trop*. 2010;114:1-16.
3. Rao S, Parikh S, Kerr R. Echinococcal infestation of the spine in North America. *Clin Orthop Relat Res*. 1991;271:164-9.