

# Knobbly knees and epilepsy: an interesting case linking the two?

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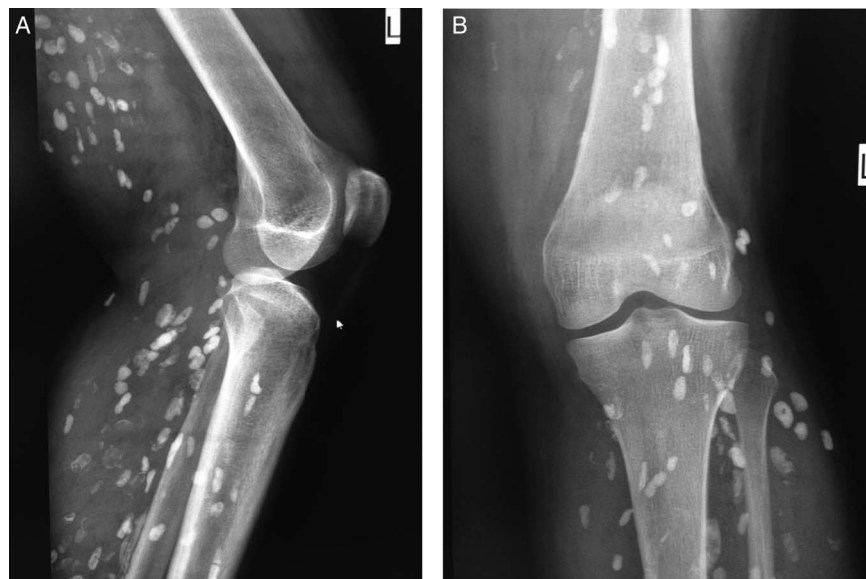
## DESCRIPTION

A 43-year-old woman presented to the emergency department in a rural South African hospital with knee pain following a fall. Her medical history included epilepsy, for which she took phenytoin. Examination of the knee revealed joint swelling and tenderness; the range of motion was from 20° to 90° limited by pain, but there was no neurovascular compromise. Concomitantly, numerous firm subcutaneous nodules were noted. Lateral and anteroposterior radiographs of the knee (figures 1A, B, respectively) revealed multiple, small, calcified nodules longitudinally aligned with the muscle fibres of the posterior compartment of the thigh and calf. Full blood count, urea and electrolytes, calcium and liver function tests were unremarkable; however, cysticercosis serology was positive.

Cysticercosis is due to the tapeworm, *Taenia solium*. It is endemic in areas of poverty, strongly associated with poor food hygiene, being contracted through the faecal-oral route<sup>1 2</sup>: *T. solium* eggs are passed in human faeces, which can be

consumed by pigs or directly by humans.<sup>1 2</sup> Undercooked pork and/or faeces is consumed by humans: digestive enzymes remove the egg's protective capsule, creating oncospheres, which penetrate the gut wall and migrate via the vascular system to the skin, muscle, eyes and nervous system, where the oncospheres hatch to form cysticerci.<sup>1 2</sup> Migration to the nervous system is termed neurocysticercosis, effecting the brain parenchyma and/or extra-parenchymal structures (ventricles, cisterns, sub-arachnoid space, spinal cord or eyes).<sup>1 2</sup>

Full neurological examination revealed no focal deficits, with no evidence of ocular cysticercosis on external examination of the eye and funduscopy. The patient was referred to the regional hospital for a CT of the brain to exclude brain involvement and consideration of antihelminthic treatment; neurocysticercosis can be a (potentially reversible) cause of epilepsy.<sup>1 2</sup> Unfortunately, due to the patient failing to attend outpatient clinics, the results of the CT scan and subsequent treatments are not known.



**Figure 1** A lateral (A) and an anteroposterior (B) radiograph of a knee demonstrating numerous calcified granulomas within the musculature of the posterior thigh and calf. The lesions represent the final, non-viable stage of the cysticerci.



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## Learning points

- ▶ Neurocysticercosis is the most common neural helminthic infection worldwide, potentially causing headaches, hydrocephalus, raised intracranial pressure, focal neurological deficits, and epilepsy and seizures<sup>1 2</sup>—the latter symptom being the most common presentation, in up to 70% of cases.<sup>1</sup>
- ▶ Cysticerci exist in multiple stages: initially, as a viable (vesicular) stage, in which they can remain for years with minimal inflammatory response.<sup>1</sup> Degeneration of the cysticerci, for example, by an immunological response, can induce the colloid stage, often associated with a strong inflammatory response and severe symptoms;<sup>1 2</sup> beyond this stage, the cysticerci become non-viable and forms granules (granular stage) and eventually mineralise (calcified stage).<sup>1 2</sup>
- ▶ On CT of the brain, vesicular lesions are well-defined, non-enhancing, with no surrounding oedema (demonstrating a 'dot in a hole' appearance),<sup>1 2</sup> in contrast to colloidal and granular cysts, which exhibit ring or nodular enhancement, peri-lesional oedema, and poor demarcation.<sup>1 2</sup> Calcified lesion do not demonstrate oedema or contrast enhancement.<sup>1 2</sup>
- ▶ Cysticercosis treatment is with two cysticidal agents: albendazole and praziquantel.<sup>1</sup> These are effective in the viable, colloid and granular stages.<sup>1</sup>

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**Patient consent** None.

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