

Spinose ear tick, *Otobius megnini* (Dugès, 1884) as the cause of an incident of painful otitis externa in humans

We would like to bring the following incident to the attention of members of the veterinary profession, as they have more than usual contact with the natural hosts of this parasite and would consequently be particularly exposed to infestation. A similar letter has been sent to the *South African Medical Journal* to alert human health professionals.

A 15-year-old girl from Pretoria experienced intermittent left ear-ache for about 7 d before she consulted her general practitioner. On aural inspection, otitis externa with debris was diagnosed. Oral cephalosporin (cefuroxime, Zinnat, Glaxo Wellcome) and a nasal and sinus decongestant (ibuprofen/pseudoephedrine, Advil CS, Whitehall) and antibiotic ear drops (framycetin/gramicidin/dexamethasone, Sofradex, HMR) were prescribed. The condition did not resolve and the ear-ache was intermittently quite severe. The patient slept with her ear on a hot-water bottle and occasionally used mild paracetamol-based analgesics. Seven days later a second visit was made to the practice. At this stage the otitis externa had not cleared up and debris and wax were visible. Polymixin B/neomycin/hydrocortisone ear-drops (Otosporin, Glaxo Wellcome) were prescribed, with instructions to return for irrigating the ear canal. On irrigation 3 days later a live, engorged, soft tick with a body measuring $5.8 \times 4.1 \times 2.6$ mm (Fig. 1) was flushed from the ear canal, resulting in immediate relief. Further symptomatic treatment consisted of continuation of the Otosporin and analgesics orally as required for a few days. The patient made an uneventful recovery.

The parasite (Fig. 1, bottom left) was identified as a well-developed first stage *Otobius megnini* (Dugès, 1884) nymph and it was estimated that at the time of removal, the tick had been in the patient's ear for approximately 4 weeks.

This 1-host tick species usually parasitises cattle, sheep, goats and equines and sometimes dogs and cats. Occasionally humans are infested¹⁻⁵, with 1 incident reported from South Africa³ and 3 from India². It appears, however, that this is only occasionally recorded. The life cycle of this soft tick is briefly the following (see Fig. 1): The non-parasitic adult ticks are found in kraals and stables where they hide in cracks and crevices. They copulate and the female produces up to 1500 eggs in several batches over a period of several weeks or even months. These hatch into

minute, white hexapod larvae 0.5 mm long that reach the host and crawl about until they reach the ear. They attach deep inside the external ear canal and feed for 5–10 days, developing into pear-shaped, bladder-like creatures 4 mm long. These develop and moult into 1st stage octopod nymphs, which are whitish with small, spinous bodies and large legs. They re-attach and feed intermittently and their bodies swell and become fiddle-shaped and blue-grey. Development continues, and a second moult takes place inside the ear canal. Feeding intermittently, it may take several months for the 2nd-stage nymph to reach the near-adult stage, which attains a length of up to 8 mm. The finally engorged nymph crawls from the ear, drops to the ground and develops into the adult, and the life cycle is repeated³⁻⁵.

The patient was, at the time of the incident, a Grade 9 scholar in Pretoria living in the city. She is a keen equestrian and visited a riding school east of Pretoria once a week, where she also groomed her horse. It is probable that she acquired the infestation there. According to Oberholser and Ryke⁵ this condition is so painful in humans that development up to the 2nd-stage nymph is unlikely. It is estimated that the patient in this case became aware of the tick after the larva had

engorged and moulted, and that the 1st-stage nymph started its intermittent feeding during the 3 weeks that she had experienced discomfort. Although the patient was in the process of writing her final Grade 9 examinations at that stage, she managed to do so without missing one paper.

Spinose ear tick infestation should be borne in mind as a differential diagnosis whenever painful otitis externa with wax and debris that is not responsive to conventional treatment is encountered in humans, domestic stock or companion animals. In rural communities and in the veterinary professions, where more intimate contact with livestock occurs, a higher human incidence could be expected. Mechanical removal appears to be the only treatment as, at present, no human aural medication with an efficient acaricide is available on the market⁷. The problem is further complicated in that it is contraindicated to flush an inflamed ear canal. One preparation, Cerumol (PharmAfrica) ear drops, is formulated with 2.4% paradichlorobenzene (the active principle of the domestically well-known 'moth balls') in arachis oil but its efficacy in relation to ear ticks has, to our knowledge, not been proven. Martindale⁶ is rather ambiguous as to its efficacy as an insecticide/acaricide, comparing it only

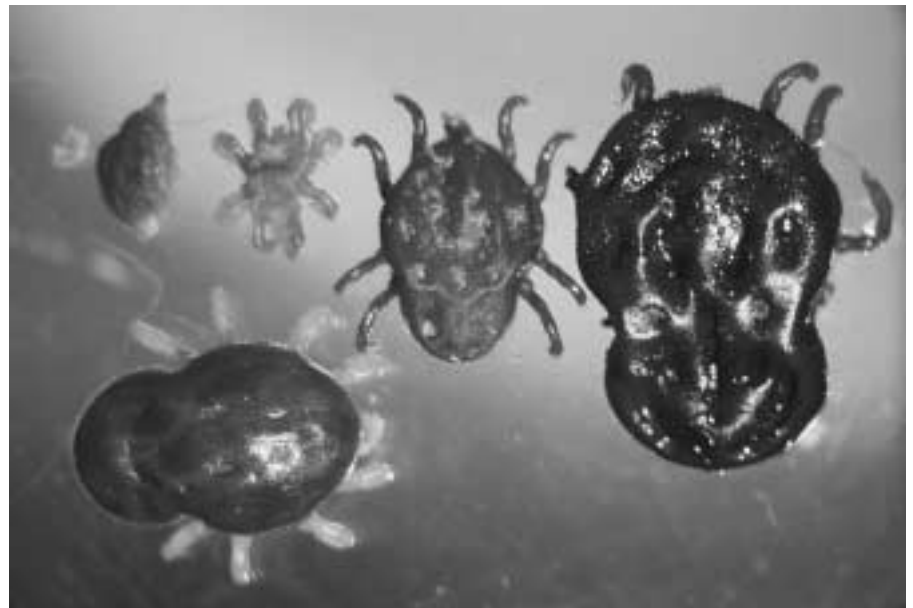


Fig. 1. *Otobius megnini* (magnification $\times 6$): the parasite removed from the patient's ear (bottom left) and various stages of its life cycle (from left to right above): the almost microscopic, transparent larva next to its pear-shaped fully engorged stage; the unfed and engorged 1st stage nymphs; and (far right), the adult tick. (Ms D T Durand, Department of Veterinary Tropical Diseases, Faculty of Veterinary Science, Onderstepoort, is thanked for assistance with the photograph.)

with the pesticide orthodichlorobenzene. The need for a safe human aural preparation with one of the modern, safe, highly effective acaricides (e.g. a pyrethroid) is clearly indicated. Fortunately this soft tick species feeds intermittently and does not attach firmly and it is, therefore, usually possible to flush it from the ear canal.

Among veterinary medicines, the only acaricidal aural preparations listed are Surfacticide and Oridermyl (Centaur (Bayer AH)), both formulated with lindane⁸. There is no specific preparation registered for spinose ear tick, although most of the organophosphor, pyrethroid

and other acaricides as well as the new systemic endectocides should be effective. The need to advise riding schools and all organisations where there is close contact between people, horses and other domestic stock, to control this scourge in animals, is obvious.

References

1. Agnew L R C, Domingo M A, Brody J I, Burrows W, Butler R F, Combs C M, Gamble C M, Glasser O, Hine M K, Shelley W B, Daly L W (eds) 1965 *Dorland's illustrated medical dictionary* (24th edn). W B Saunders, Philadelphia: 1073
2. Chellappa D J 1973 Note on spinose ear tick infestation in man and domestic animals in India and

its control. *Madras Agricultural Journal* 60: 656–658 (Cited from *Review of Applied Entomology Series B* 1975 63(10): 725, Abstract 2902)

3. Howell C J, Walker J B, Neville E M 1983 Ticks, mites and insects infesting domestic animals in South Africa. Part 1. Description and biology. *Science Bulletin* no. 393. Government Printer, Pretoria: 33–34
4. Kettle D S 1995 (ed.) *Medical and veterinary entomology* (2nd edn). CAB International, Wallingford: 442–444
5. Oberholser G, Ryke P A J 1993 *Medies belangrike parasiete draers en gifdiere van Suid-Afrika*. HAUM, Pretoria: 108–109
6. Reynolds J E F (ed.) 1993 *Martindale: the extra pharmacopoeia* (13th edn). Pharmaceutical Press, London: 1192
7. Snyman J R (ed.) 2000 MIMS 40(11): 203
8. Swan G E (ed.) 2001 *IVS speciality index* 39(1): 22

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