

Research Note

Camelostrongylus mentulatus in domestic goats from the Iberian Peninsula

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Abstract

Two male worms of *Camelostrongylus mentulatus* were found in one of 84 murciano-granadina goats in Murcia, south-eastern Spain. This is the first report of *C. mentulatus* in goats in the Iberian peninsula and the possible origin and transmission of this nematode in Spain are discussed.

Camelostrongylus mentulatus (Railliet & Henry, 1909) Orloff 1993 is a common gastric parasite of camels (Skrjabin *et al.*, 1961; Abdul-Salam & Farah, 1988). The nematode has also been found in other domestic and wild ruminants such as sheep (Beveridge *et al.*, 1974), Thomson's gazelles (Kock, 1986), blackbuck (Flach & Sewell, 1987), oryx (Jensen & Craig, 1995) and giraffe (Fukomoto *et al.*, 1996). Its original natural distribution involves Camelidae in North Africa, the Middle East and South America (Rossi & Ferroglio, 2001; Wisser *et al.*, 2001). Under experimental conditions, transmission of *C. mentulatus* to small ruminants appears high (Thornton *et al.*, 1973; Beveridge *et al.*, 1974; Gevrey, 1989), which explains the frequent occurrence of this nematode species in sheep and goats in areas with large populations of Camelidae (Pandey *et al.*, 1980; Beveridge & Ford, 1982; Alani & Yahay, 1993; El-Azazy, 1995). In contrast, in other countries, such as Mauritania, Senegal and Australia, with camelid populations, *C. mentulatus* has not been reported.

From 1999 to 2001, the prevalence and intensity of infection with *C. mentulatus* in semi-extensively reared murciano-granadina goats was investigated. These goats are a specially considered race in Murcia (south-eastern Spain) since they are native to this region. The study was conducted on 84 goats. After slaughter, the alimentary tract was removed from each carcass after ligatures had

been tied. The abomasa, small and large intestine were examined separately as previously described by Ortiz *et al.* (2001). The abomasa were washed with tap water, and any nematodes attached to the mucosae were removed and examined under a stereoscopic microscope. Isolated males were cleared in lactophenol and identified according to Skrjabin *et al.* (1961) and Durette-Desset (1989).

Two males, found in the same host, were classified as *C. mentulatus* according to their main characteristics (mean values): total length 9.9 mm, a 2-1-2 type arrangement of rays in the lateral lobe of the bursa, ray 4 as long as ray 5, rays 5 and 6 longer than 2 and 3, dorsal ray bifid at the distal end, with its branches in turn ramifying, accessory bursa well developed, and supported by two separated ribs. Spicules are long (671–679 μm) and decorated with the characteristic transversal line pattern. The distal end of each spicule was bifurcated in two pincer-like ends. The synlophe structure was similar to that described by Beveridge & Durette-Desset (1994).

There are few records of *C. mentulatus* in Europe, and most refer to wild animals maintained in captivity in zoos and exotic game farms (Thornton *et al.*, 1973; Kock, 1986; Flach & Sewell, 1987; Jensen & Craig 1995; Kaufmann, 1996; Wisser *et al.*, 2001). *Camelostrongylus mentulatus* was reported once in sheep from France (Marotel, 1910). The nematode has also been recently recovered from a free roe deer from the Italian Alps (Rossi & Ferroglio, 2001).

A rather striking observation was the presence of *C. mentulatus* in goats from the island of Grand Canary

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(Spain), but not in any other islands of the Canarian Archipelago (Gómez-Calcerrada, 1996; Molina *et al.*, 1997). The geographical proximity of the Canary islands to Africa could explain the presence of the nematode.

The behaviour of *C. mentulatus* is similar to that of *Ostertagia* spp. (Hilton *et al.*, 1978), as some of the larvae may persist at the early fourth stage as hypobiotic larvae, resuming their development some months later. This could explain the presence of *C. mentulatus* in ruminants kept in zoos but which originated from endemic areas. In the present case, two hypotheses might be considered. Firstly, the presence of *C. mentulatus* in captive gazelles maintained in Almería (Estación Experimental de Zonas Áridas, Spain) was likely to be due to their African origin (Ortiz *et al.*, 2001). Currently, this reserve in Almería is completely isolated, although many years ago herds of sheep and goats were reared near by. As no studies were carried out on the nematodes present in those domestic ruminants, parasite transmission amongst neighbouring herds cannot be excluded. A second explanation could involve the presence of *C. mentulatus* in the population of Barbary sheep (*Ammotragus lervia*) living free in Sierra Espuña (Murcia, Spain). This population was stabilized after a group of 16 sheep had been introduced in 1970 from Casablanca (Morocco). The area occupied is near that in present study, so interactions between these animals and native goat herds would be possible. Studies should be undertaken to evaluate the presence of *C. mentulatus* both in Barbary sheep from Murcia and in sheep and goats from Almería to clarify the origin of *C. mentulatus* described in the present paper.

References

- Abdul-Salam, J.M. & Farah, M.A. (1988) Seasonal fluctuations of gastrointestinal helminths of camels in Kuwait. *Veterinary Parasitology* **28**, 93–102.
- Alani, A.J. & Yahay, H.Q. (1993) Observations on the epidemiology of intestinal helminths in sheep in Ninerah Province (Iraq). *International Journal of Animal Science* **8**, 51–55.
- Beveridge, I., Barker, I.K. & Rickard, M.D. (1974) Experimental infection of sheep with *Camelostrongylus mentulatus* and associated gastritis. *Australian Veterinary Journal* **50**, 36.
- Beveridge, I. & Durette-Desset, M.C. (1994) Comparative ultrastructure of the cuticle of trichostrongyle nematodes. *International Journal for Parasitology* **24**, 887–898.
- Beveridge, I. & Ford, G.E. (1982) The trichostrongyloid parasites of sheep in South Australia and their regional distribution. *Australian Veterinary Journal* **59**, 177–179.
- Durette-Desset, M.C. (1989) Nomenclature proposée pour les espèces décrites dans la sous-famille des Ostertagiinae Lopez-Neyra, 1947. *Annales de Parasitologie Humaine et Comparée* **64**, 356–373.
- El-Azazy, O.M.E. (1995) Seasonal changes and inhibited development of the abomasal nematodes of sheep and goats in Saudi Arabia. *Veterinary Parasitology* **58**, 91–98.
- Flach, E.J. & Sewell, M.M.H. (1987) Gastrointestinal nematodiasis in blackbuck (*Antilope cervicapra*) at Edinburgh Zoo. *Journal of Zoo Animal Medicine* **18**, 56–61.
- Fukomoto, S., Uchida, T., Ohbayashi, M., Ikebe, Y. & Sasano, S. (1996) A new host record of *Camelostrongylus mentulatus* (Nematoda: Trichostrongyloidea) from abomasum of a giraffe at zoo in Japan. *Journal of Veterinary Medicine Science* **58**, 1223–1225.
- Gevrey, J. (1989) Lamas et moutons: observation d'intertransmissibilité helminthique. *Bulletin de la Société Française de Parasitologie* **7**, 245–249.
- Gómez-Calcerrada, V. (1996) Mapa parasitológico del ganado caprino en el archipiélago canario. *O Médico Veterinario* **47**, 29–36.
- Hilton, R.J., Barker, I.K. & Rickard, M.D. (1978) Distribution and pathogenicity during development of *Camelostrongylus mentulatus* in the abomasa of sheep. *Veterinary Parasitology* **4**, 231–242.
- Jensen, M.J. & Craig, T.M. (1995) Disease and parasite surveillance of a herd of scimitar-horned oryx using domestic sheep as sentinel animals. *Proceedings of the American Association for Zoo Veterinarians*, pp. 129–131.
- Kaufmann, J. (1996) *Parasitic infections of domestic animals*. Basel, Boston, Berlin, Birkhauser.
- Kock, R.A. (1986) Enteric nematode infestation in Thomson's gazelles, *Gazella thomsoni*, at Whipsnade Park, the Zoological Society of London. *Journal of Zoo Animal Medicine* **17**, 61–64.
- Marotel, M. (1910) Deux nouveaux strongles du mouton. *Bulletin de la Société Scientifique Veterinaire Lyon* **13**, 326–368.
- Molina, J.M., Gutiérrez, A.C., Rodríguez-Ponce, E., Viera, J.A. & Hernández, S. (1997) Abomasal nematodes in goats from the subtropical island of Grand Canary (Spain). *Veterinary Research* **28**, 259–270.
- Ortiz, J., Ruiz de Ybáñez, M.R., Garijo, M.M., Goyena, M., Espeso, G., Abaigar, T. & Cano, M. (2001) Abomasal and small intestinal nematodes from captive gazelles in Spain. *Journal of Helminthology* **75**, 363–365.
- Pandey, V.S., Cabaret, J., Ouhelli, H. & Dakkak, A. (1980) Etude des nematodes parasites du tube digestif des ovins adultes dans deux regions du Maroc. *Bulletin de l'Office Internationale des Epizooties* **92**, 1345–1349.
- Rossi, L. & Ferroglio, E. (2001) *Camelostrongylus mentulatus* in a roe deer from the Italian Western Alps. *Veterinary Record* **149**, 335.
- Skrjabin, K.I., Shikhobalova, N.P., Schultz, R.S., Popova, T.I., Boev, S.N. & Delyamure, S.L. (1961) *Key to parasitic nematodes. Vol. III. Strongylata*. 890 pp. The Academy of Sciences of the USSR Ed. Israel Program for Scientific Translation, Jerusalem.
- Thornton, J.E., Galvin, T.J., Bell, R.R. & Ramsey, C.V. (1973) Transmissibility of gastrointestinal nematodes from blackbuck antelope to cattle, sheep and goats. *Journal of the American Veterinary Medical Association* **163**, 554–555.
- Wisser, J., Tscherner, W. & Jantzchke, B. (2001) Infestation with *Camelostrongylus mentulatus* in dorcas gazelles (*Gazella dorcas neglecta*) caused lethal abomasitis. *Verhandlungen Berliner Zootiere* **40**, 81–86.

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