

RESEARCH NOTE

First report of *Marshallagia dentispicularis* from sheep in Europe

M. Magdalena Garijo, J. M. Ortiz, F. D. Alonso de Vega and Maria R. Ruiz de Ybáñez*

Department of Animal Health, Faculty of Veterinary, University of Murcia, 30100 Espinardo, Murcia, Spain

Abstract

During post mortem examination of 181 sheep, a total of 16 male and 26 female nematodes were identified as *Marshallagia dentispicularis*. This is the first report of the parasite in European sheep. A complete description of the species is given.

Key words

Marshallagia dentispicularis, Trichostrongylidae, sheep, Spain

Marshallagia dentispicularis Assadov, 1954 is an unusual nematode of abomasa of sheep and goats. Its distribution includes restricted areas in the former URSS (Azerbaijan and Kazakhstan) (Boev *et al.* 1963), and recently it has been reported in goats from Mongolia (Sharkhuu 2001), but this species has never been recorded in Europe.

From autumn 1998 to summer 2001 a post mortem examination was carried out by the authors on 181 adult sheep, slaughtered in a Murcia abattoir (Southeast of Spain) in order to contribute to the helminth fauna of sheep in Spain.

The alimentary tracts were separated into two different parts: abomasum and small intestine. The contents were examined separately by scraping, sieving and sedimentation. The sediment was preserved in 10% formalin. This material was diluted with water to make up two litres, and thoroughly mixed. One aliquot, representing 10% of the volume of the ingesta was examined in small portions under a stereomicroscope to collect the nematodes.

When there were sufficient worms for identification purposes (100 individuals), one or two more aliquots (up to a total of 30% of the volume) were analysed.

Nematodes were collected, fixed and cleared for examination with lactophenol. When the worm burden was high, 100 males were identified, and when the burden was low, as many males as could be recovered were examined. The percentage of male worms in the sample was considered in order to calculate the total number of each species. The morphology of

adult male parasites was examined to determine species composition according to Skryabin *et al.* (1961), Boev *et al.* (1963) and Durette-Desset (1989).

Most nematodes found were those frequently described in these hosts, including *Teladorsagia circumcincta*, *Marshallagia marshalli*, *Nematodirus filicollis*, *N. spathiger*, *Trichostrongylus vitrinus* or *T. colubriformis*. However, two animals revealed the presence of unusual species. Fifteen males and 23 females in one sheep and 1 male and 3 females in a second one were identified as *Marshallagia dentispicularis* according to their morphologic and morphometric characteristics, previously described by Boev *et al.* (1963).

The measurements expressed in mm [minimum-maximum (mean)] of the most representative structures were: Male (Fig. 1C): body length 9.180–9.740 (mean 9.440), width before bursa copulatrix 0.218–0.249 (0.234), length of oesophagus 0.560–0.710 (0.615), width at level of end of oesophagus 0.047–0.068 (0.058), distance from the head end to nerve ring 0.660–0.810 (0.741), and to cervical papillae is 0.400–0.450 (0.425), and width at anterior end 0.013–0.017 (0.015). The arrangement of the rays in the lateral lobes of the bursa is 2–1–2, length of spicules 0.249–0.257 (0.255), width of proximal end of spicules 0.022–0.024 (0.023), width of spicules at bifurcation 0.034–0.040 (0.037), lateral branch of spicules 0.068–0.074 (0.071), internal appendix of lateral branch of spicules 0.036–0.060 (0.058), length of dorsal ray 0.210–0.265 (0.230). At 0.167–0.223 (0.172) from the top, the dorsal

*Corresponding author: rocio@um.es

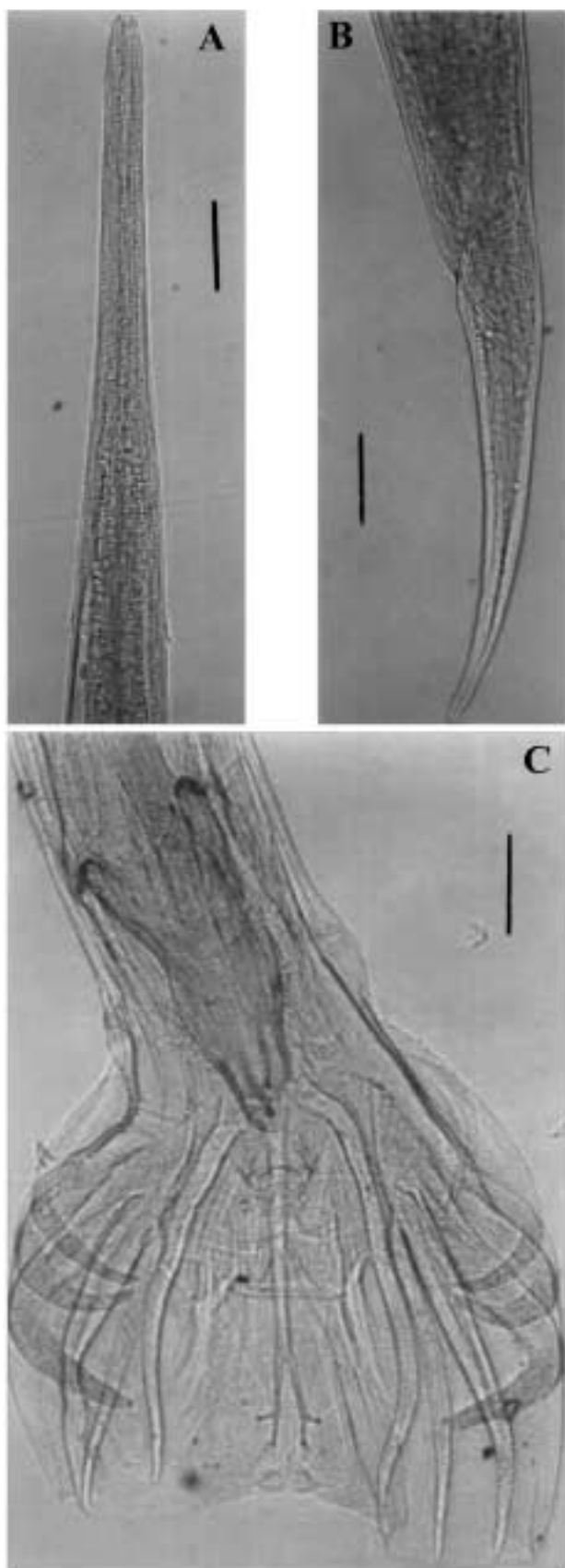


Fig. 1A-C. Female of *Marshallagia dentispicularis*: **A** – anterior end of female, **B** – posterior end of female, **C** – posterior end of male. Scale bars = 300 μ m

ray is bifurcated into two branches of 0.038–0.074 (0.045), each one divided in a lateral appendix 0.002–0.005 (0.004) and a medial part 0.004–0.008 (0.006). It should be pointed up the presence of the genital cone, with a transversal stripped pattern in its ventral sheet. Measures of dorsal and ventral rays are 0.026–0.030 (0.028) and 0.060–0.080 (0.068), respectively.

Female (Fig. 1A and B): total length 22.320–28.030 (25.211), maximum width at the vulval region 0.230–0.280 (0.253), length of oesophagus 0.640–0.720 (0.771), width at level of end of oesophagus 0.060–0.070 (0.063), distance from the head end to nerve ring 0.740–0.850 (0.817), and to cervical papillae is 0.410–0.430 (0.413), width at anterior end 0.018–0.020 (0.027), total length of ovijector (including infundibulum, sphincter and vestibule) 0.680–0.800 (0.785), distance of vulva from posterior end 3.463–5.461 (5.008), distance of anus from posterior end 0.280–0.350 (0.318), number of eggs in uteri 4–53 (26.14), and size of eggs in uteri 0.163–0.178 (0.170) by 0.070–0.078 (0.075).

The morphometric characteristics of both males and females of *M. dentispicularis* described in this study could be distinguished from those reported for *M. marshalli* (resumed in Skryabin *et al.* 1961). Particularly, median roots of its spicules are almost of equal length, while they are clearly of different length in *M. dentispicularis*. Also, the stripped pattern of the genital cone of this parasite, besides total body length, size of oesophagus or maximal width at base of bursa, could help in the identification of these two *Marshallagia* species.

This is the first report of *Marshallagia dentispicularis* in domestic sheep in Spain and in Europe. Garijo 2002 described a prevalence of 58.2% for the genus *Marshallagia* in sheep in Murcia. This value widely exceeds the ones recorded in Spain: 1.06% (García *et al.* 1993), and 19.4% (Cordero 1967); furthermore, other authors (Reina *et al.* 1987, García and Juste 1987) did not find this nematode in their studies. This high prevalence of *Marshallagia* spp. in our region could favour the finding of uncommon species of the genus, as *M. dentispicularis*.

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