



Observations in ovine myosias in Greece, with special reference to clinical findings and treatment of genital myosias[☆]

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ARTICLE INFO

Article history:

Available online 4 December 2012

Keywords:

Disease
Ectoparasite
Lucilia sericata
Moxidectin
Myosias
Sheep
Treatment
Wohlfahrtia magnifica

ABSTRACT

The present paper reports the clinical findings in myosias in 33 sheep and in 11 dogs in the flocks of the affected sheep. Moreover, it presents a protocol for treatment of genital myosias. Location of lesions in affected sheep was as follows: in 16 animals (9 rams, 7 ewes) at the genitalia, in 6 animals in one of their ear canals, in 5 animals at the hoofs in one of their legs, in 3 animals on the back, in 3 animals on the neck. In the genitalia of rams, findings were difficult or partial exteriorising of penis, markedly thickened prepuce with fistulae along the tissue and presence of dipteran larvae in the subcutaneous tissue. In the genitalia of ewes, findings included vulvar oedema, hyperaemia and/or petechiae in the vaginal wall, muco-haemorrhagic discharge, 2–3 subcutaneous fistulae around the vulva and presence of dipteran larvae in the vagina or in the subcutaneous fistulae around the vulva. Location of lesions in affected dogs was as follows: in 6 animals on the neck, in 5 animals in one of their legs and in 1 animal in the tail. Larvae were collected and identified by using classical parasitological techniques; in 32 sheep cases and in all (11) dog cases, they were identified as *Wohlfahrtia magnifica* larvae, whilst in one sheep case they were identified as *Lucilia sericata* larvae (this being the first recovery of *Lucilia* sp. from myosias in Greece). In cases of genital myosias, treatment included, initially, mechanical removal of the larvae by using medical forceps whilst massaging the affected area; this was followed by thorough cleansing of the area with 2% chlorhexidine solution (1:40 in water); subsequently, moxidectin 1% inj. sol. (0.3 mg per kg bodyweight) and flunixin meglumine inj. sol. (2.2 mg/kg bodyweight) were administered. The procedure was repeated 8–10 days later. Ewes with genital infestation were also prescribed a 7-day long course of an injectable broad-spectrum antimicrobial agent. In all cases, all larvae were successfully removed with the above treatment. However, in 5 animals (3 rams, 2 ewes), lesions, which had developed before start of treatment, were so extensive that it was considered that they would cause difficulties in subsequent matings or lambings; hence, it was advised to cull these animals.

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1. Introduction

Ovine myosias is the infestation of soft tissues in the body of sheep by larvae of dipteran insects (flies) (Taylor et al., 2007). The disorder is particularly prevalent in temperate climates and causes severe welfare problems in affected flocks. Incidence of the disorder is increased

[☆] This paper is part of the special issue entitled “Lectures of the 1st European Conference on Small Ruminant Health Management”, held in Athens, Greece, October 2011. Guest Edited by G.C. Fthenakis.

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during the summer and autumn months, corresponding with increased flying activity of the insects.

The present paper reports the clinical findings in myiasis in 33 sheep and in 11 dogs living in the flocks of the affected sheep. Moreover, it presents a protocol for treatment of genital myiasis.

2. Case description

2.1. Clinical findings

All animals (33 sheep and 11 dogs from 19 flocks in Central and Northern Greece) were referred for veterinary advice and treatment. A detailed clinical examination was carried out in all animals (Curnin and Poffenbarger, 1990; Lovatt, 2010). In sheep, special attention was paid to the genitalia (Gouletsou and Fthenakis, 2010; Lovatt, 2010).

All affected sheep were in good general health and were maintaining their appetite. All animals (100%) were infested in only one site of their body; 16 animals (48%; 9 rams, 7 ewes) were each infested at the genitalia, 6 animals (18%) were each infested in one of their ear canals, 5 animals (14%) were each infested at the hoofs in one of their legs, 3 animals (10%) were each infested on the back and 3 animals (10%) were each infested on the neck.

In the genitalia of rams, difficult or partial exteriorising of penis and markedly thickened prepuce with fistulae along the tissue were consistent findings, recorded in all 9 animals (100%). In all cases, the fistulae contained numerous dipteran larvae in the subcutaneous tissue. In the genitalia of ewes, vulvar oedema and hyperaemia and/or petechiae in the vaginal wall were consistent findings, recorded in all 7 animals (100%); moreover, mucohaemorrhagic discharge and 2–3 subcutaneous fistulae around the vulva were each recorded in 5 ewes (71%). In all animals, dipteran larvae were present in the vagina or in the subcutaneous fistulae around the vulva.

Animals with ear canal infestation showed occasional head-shaking; clinical findings included pain on palpation of the auricular cartilage, swelling, scanty otic discharge and thickened wall of the ear canal; the ear canal was full of dipteran larvae. All animals presented with hoof infestation, had a history of foot disorder (e.g., foot-rot) and showed lameness on the affected leg; dipteran larvae were present in the sole or the interdigital area. Animals infested on the back or on the neck had cutaneous lesions, with fistulation in the affected area, which was foul-smelling, oedematous, painful and with many dipteran larvae.

Of the 11 dogs, 6 were depressed and anorectic, with mild fever (39.6–40.2 °C). One of the dogs (9%) was affected concurrently in two sites on its body, whilst the other 10 animals (91%) were infested in only one site of their body; 6 animals (55%) were each infested on the neck, 5 animals (45%) were each infested in one of their legs and 1 animal (9%) was infested in the tail. Animals infested on the neck had cutaneous lesions, with fistulation in the affected area, which was foul-smelling and with many dipteran larvae. Lameness was observed in two animals of those infested in a leg.

2.2. Parasitological findings

On completion of the clinical examination, larvae were collected from each animal. They were washed with normal saline and preserved in 70 °C alcohol before identification. Standard parasitological examinations, according to keys provided by Zumpt (1965), were employed.

Larvae recovered from 32 sheep (97%) and from all 11 dogs (100%) were identified as *Wohlfahrtia magnifica*. Larvae recovered from one sheep (3%) were identified as *Lucilia sericata*.

2.3. Treatment of genital myiasis

For treatment of genital myiasis, initially, mechanical removal of the larvae from the affected site was carried using sterile medical forceps, whilst, at the same time, lightly massaging the affected area, which promoted exit of larvae to the outside. This was followed by thorough cleansing of the area with 2% chlorhexidine solution, diluted 1:40 in water. The whole procedure was carried out thrice to ensure removal of as large number of larvae as possible. Pharmaceutical treatment consisted of subcutaneous administration of moxidectin 1% inj. sol. (CYDECTIN®; Pfizer, New York, USA; dose rate: 0.3 mg/kg bodyweight) and intramuscular administration of flunixin meglumine inj. sol. (FINIXIN®; MSD Animal Health, Boxmeer, The Netherlands; dose rate: 2.2 mg/kg bodyweight). The whole procedure was repeated 8–10 days later. Ewes with genital infestation were also prescribed a 7-day long course of injectable broad-spectrum antimicrobial agent.

Treatment was 100% effective in removing all larvae in all animals. However, in 5 animals (31%; 3 rams, 2 ewes), lesions, which had developed before start of treatment, were so extensive (Fig. 1a and b) that it was considered that they would cause difficulties in subsequent matings (rams) or lambings (ewes). Hence, it was advised to cull those animals.

3. Discussion

In cases of myiasis, various locations in the body can be affected, although the ears, the base of horns, the neck, the back, the withers, the hoofs and the genitalia are sites where lesions are more often localised (Wall, 2012). Cases of genital myiasis occur frequently, perhaps, as the result of humidity by residual urine making the preputial orifice and the vulva suitable sites for ovi- or larvi-position, although the possibility of tiny injuries left on skin of the area by ticks after dropping-off, cannot be ruled out. Once initiated, an infestation by feeding larvae creates a powerful olfactory attractant for other gravid female flies and multiple ovi- or larvi-position can then occur rapidly, sometimes involving secondary blowfly species (Wall, 2012).

All previous reports of myiasis in Greece have described that the disease in ruminants, horses, dogs and humans was caused by larvae of *W. magnifica* (Fthenakis et al., 2001; Diakakis et al., 2006; Papadopoulos et al., 2010; Orfanou et al., 2011). Cases caused by larvae of *Lucilia* spp. had not been reported thus far in Greece.

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