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FIRST OCCURRENCE OF SHEEP DEMODICOSIS IN SERBIA

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Abstract

Demodicosis of sheep are parasitic infection caused by Demodex spp. Infection is not common like other type of parasitic dermatitis and there are not many cases of this infection described. In most cases no clinical symptoms are cusing and has little or no economic impact on sheep flocks. Demodex spend all life under host skin and present a normal skin habitat. Mainly are resent at hair folicules where its complete transformation from eggs to adult is performed. There are two types of diseases, local and general. Local demodicosis were present like small reddish places without hair on skin. Main topic are skin on head, around eyes and mouth, and on the back legs. Most important role to clinical demodicosis presents a immunological status of animals. Hereditary against demodicosis were important role too. During our examination of parasitoses in one flock of sheep in the south of Serbia during the spring of 2018, demodicosis was diagnosed. Established clinical signs are nonpruritic papules and nodules which develop over the face, neck, shoulders, and sides and udder. At a later stage, there was a pustular eruption that gradually merged, while later there was a thickening of the skin and loss of wool. Itch rarely occurred. The nodules contain a thick, waxy, grayish material that can be easily expressed and mites can be found in this exudate. To diagnosis we performed microscopic examination of deep skin scrape which revealed adult parasites, larval forms and lemon-shaped eggs. Lesion were spontaneous loos around few months without therapy. In the area of the Western Balkans, only one case of ovine demodicosis was recorded in Bosnia and Herzegovina, and this is the first case described in Serbia.

Key words*: Demodex spp., sheep, demodicosis.*

INTRODUCTION

Mange represents one of the most costly nuisances for stock-breeders. The heavy losses for which they are responsible occur throught two mechanisms: directly, due to discomfort or reduction in milk and meat production and damage to leather or wool (Chapman, 1975; Pavlović et al., 2011; Jańczak et al., 2017). The latter is due to bacterial and viral diseases with severe lesions due to mange-causing acarid (Pavlović et al., 1997).

Essentially, four types of mange based on the genus of mites may affect sheep, sarcoptes mange, psoroptes mange, chorioptes mange, and demodicosis (Kaufmann, 1996).

Demodectic mites are considered normal inhabitants of hair follicles and sebaceous glands of sheep and represent a normal skin habitant (Kibeb et al., 2016). These parasitoses cause pruritus of varying severity, as well as skin lesions (Priselkova and Zorina, 1955).

In sheep, three demodex mite species have been described: *D. ovis, D. aries* and one more species not completely specified. All three species live in hair follicles (Jańczak et al., 2017).

Demodicosis in sheep is not common as infection with other mites agents. Demodectic mange seems to be of little clinical significance sheep. It causes a follicular dermatitis rather than a scab-forming dermatitis. It does not cause pruritus and is usually manifested by nodules, crusts and small scabs. Because there is not as much inflammation as caused by other mange mites, and since the animals do not itch and therefore do not scratch and rub, the skin and hair are not damaged as much.

In our paper we describe a case report of first occurence of *Demodex* spp. in Serbia.

MATERIALS AND METHODS

During 2018 in one herd of 27 sheep in south Serbia it have been observed some changes in the skin that were followed by relegation wool. In 15 animals the skin had a pinkish-red color and wool fell off in those places. At the same time in those places was found non-pruritic papules and nodules. Each animal were clinically examined for the presences of skin lesions like scales, crust, alopecia and clinical signs of itching. Established clinical signs are develop over the face, neck, shoulders, inner and outer side of the leg and udder (Figures 1 and 2).

Figure 1. Non-pruritic papules on sheep head

Figure 2. Alopecia and clinical signs of itching

At a later stage, there was a pustular eruption that gradually merged, while later there was a thickening of the skin and loss of wool. Itch rarely occurred. The nodules ranging between 3-8 mm in diameter and contain a thick, waxy, grayish material that can be easily expressed and mites can be found in this exudate.

To diagnosis we performed with microscopic examination of deep skin scrape (suspected skin nodules were incised with a scalpel and the contents collected and sent for further checking), and reveals of adult parasites, larval forms and lemon-shaped eggs. Determination of genus of found parasites was based on the morphological characteristics (Pavlović and Rogožarski, 2017).

RESULTS AND DISCUSSIONS

In the examined samples, we determined the presence of adult and developmental stages of *Demodex* spp. (Figure 3).

Figure 3. *Demodex* spp. collected from sheep

Demodex spp. are unique among parasitic mites, because they are elongated with short, stumpy legs. We also noticed these changes during our research. Their distinct morphology is a presumed adaptation to living in hair follicles and sebaceous glands of their hosts forming nodules (Clifford and Desch, 1986; Soulsby, 1977).

Nemeseri and Sezeky (1966) reported the occurrence of this mite in different habitats including meibomian glands, hair follicles and sebaceous glands and epithelial tissue of the sensory hairs of the same host. Some authors claim that skin areas particulary rich in well developed sebaceous glands are most frequently parasitized (Brownlee, 1935; Clifford and Desch, 1986; Yeruham et al., 1986). These mites feed on sebum, protoplasm, and epidermal debris. Transmission of

demodex parasites occurs through close contact of infested and naive hosts, with the transfer of mites from infested dams to neonates being the primary route (Ivanović and Pavlović, 2015).
Infection is not common like other type of ectoparasites infection and there are not many cases of this infection described.
First description of *Demodex* infection of the sheep are given by Griffiths (1915) who describes the disease like slight pustular eruptions which gradually coalesce are usual, while later there is thickening of the skin and loss of wool. Later, Hirst (1919) considers that such mites are probably common parasites of this animal, he records their presence only in the Meibomian glands of one recently slaughtered sheep.
Mainly are resent at hair folicules where at hair folicules where its complete transformation from eggs to adult is realized (Brownlee, 1935). Most important role to clinical demodicosis present a immunological status of animals (Ivanović and Pavlović, 2015). Hereditary against demodicosis were important role too.
During our research we occured localized lesions of infection. Local demodicosis were present like small redish places withouth hair and with the presence of nodules on the skin. Itch rarely occured. Main topic are skin on head, around eyes and mouth, and on the back legs. In our cases, lesion are spontaneously stopped around few months without therapy.

CONCLUSIONS

Demodex ovis infests sheep but demodicosis in sheep is not common. In the area of the Western Balkans, only one case of ovine demodicosis was recorded in Bosnia and Herzegovina (Pavlović et al., 2011) and this is the first case described in Serbia.

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