

Short Communication

INCIDENCE OF DERMATOPHILOSIS (KIRCHI) IN SHEEP FROM LIVESTOCK MARKETS IN JIGAWA STATE

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SUMMARY

A survey was conducted between October 1995 and September 2000 in which a total of 475 sheep with clinical manifestations of dermatitis were examined for the presence of *Dermatophilus congolensis*. Results obtained from samples carried out during the dry season (October to May) showed that only 24(5.25%) were positive for this organism. In samples collected during the wet season (June to September), a total of 49 (10.7%) positive cases were recorded. These figures compared favorably with earlier reports from infections in cattle in which 4-6% infection rate was reported during the dry season and 10-12% in the wet season. It is strongly suggested that sheep are equally susceptible to infection as are cattle and therefore should merit the same attention given to this infection in terms of control in cattle:

KEY WORDS: Sheep, Dermatophilosis, Incidence.

INTRODUCTION

Dermatophilosis is a disease caused by *Dermatophilus congolensis* which affects a wide range of domestic and wild animal species (Van Sacegham, 1915). It is also known as Kirchi, cutaneous streptomycolosis, mycotic dermatitis, senkobo, streptothricosis etc. it has been reported worldwide, especially in Africa, United States of America, Australia and the UK (Blood *et al.*, 1989). Biting insects *Stomoxys* spp are thought to be partly responsible in the transmission of the disease (Philpott and Ezech, 1978). Once contracted, it spreads rapidly from infected to susceptible animals (cattle) in the herd. In addition to cattle and sheep, goats,

deer, horses, donkeys, monkeys and man are susceptible to the infection (Bridges and Romane, 1961; LeRiche, 1968; Roberts, 1967). The economic implication of this disease, especially in large ruminants is enormous. Hides and skins are rendered un-useable (Bida, 1973; Mohammed and Agbede, 1980). The organisms invade and multiply within the epidermis of the skin, dividing and forming multiple rows of coccoid organisms that form extensive purulent exudates beneath the epidermis. A series of cornifications of the epidermis following invasion by the organisms eventually produce the typical circumscribed or confluent thick scabs seen in this infection. The formation of zoospores, which are motile and

infective when released from wet scabs, contaminate the environment (grasses, objects around infected animals) and cause infection directly or indirectly when rubbed by susceptible animal (Roberts, 1967) or when carried by biting flies and ticks such as *Stomoxys* spp, *Amblyomma variegatum* and *Boophilus microplus* (Macadam, 1976; Opong, 1976; Philpott and Ezech, 1978; Mohammed and Agbede, 1980; Zamri-Saad *et al.*, 1988).

In Nigeria, cattle has been the most frequently reported of all other domestic animals as manifesting this disease while sheep, which usually accompany transhumance cattle, have been far less reported (Anon, 1990). This could be due to reasons bordering on the perceived relative economic importance of cattle over sheep, possible greater susceptibility of cattle to the disease or neglect.

Following observation of an isolated case of dermatophilosis in an ewe during a visit to a livestock market in Daura, Jigawa state, Nigeria in October 1995, we decided to undertake a 5-year study of this subject matter in order to establish the incidence of this disease condition in sheep in the area. A number of visits were made to livestock markets in Daura, Dutse and Kazaure during the dry and wet seasons between October 1995 and September 2000, Physical examination of suspected clinical cases of dermatitis were made on each occasion and animals with apparent typical lesions of dermatophilosis were sampled (Bida, 1973). Permission was sought for and granted by the vendors for scab and exudates samples to be taken. These were then analyzed in the

Entomology Laboratory of the Department of Veterinary Parasitology and Entomology, ABU, Zaria in order to confirm our diagnosis.

MATERIALS AND METHODS

Survey

A survey of livestock markets in Daura, Dutse and kazaure towns in Jigawa state of Nigeria were carried out twice each month between October 1995 and September 2000 for the presence of sheep with skin diseases. Careful observations were made to identify (grossly) lesions as originating from aetiological agents causing dermatomycosis (ring worm), mange (mite infestation) or other traumatic forms of dermatitis (Fig. 1). The circumscribed or coalesced, thick scabby/keratinaceous lesions with purulent, raw dermal surfaces on removal were suspected to be caused by *D. congolensis*.



Fig. 1: An infected Yankasa ewe with severe dermatitis and canker formation (mange) involving the face, ear and snout

Laboratory diagnosis

Smears of exudates from typical lesions on sheep were made on glass slides and were later stained with Giemsa stain in the laboratory. These were examined for the presence of the mycelia or coccoid forms of the organisms, which stained positive with Gram's stain.

RESULTS AND DISCUSSION

From a total of 457 sheep examined between 1996 and 2000 that had a form of dermatitis, only 24(5.25%) were positively identified as infected with *Dermatophilus congolensis* during the dry season and 49(10.7%) during the season (Table I). Most of the skin lesions examined were infested by mites (*Sarcoptes scabie var ovis*, *Notoedres* spp. and *Psoroptes communis var ovis*) and ringworm (*Tinea barbae*, suspected to be *T. mentagrophytes*).

In Nigeria, it has been estimated that 10 to 12 percent of cattle are clinically infected with *D. congolensis* during the wet season, while 4 to 6 percent are affected during the dry season (Anon, 1990). This agrees with the result obtained for sheep in Jigawa State in which 2.9 to 8.5 percent are infected during the dry season and 10.4 to 13 percent during the wet (Table I). This tends to suggest that sheep (in Jigawa State) are equally susceptible to infection with *D. congolensis* as cattle in Nigeria. It was estimated that economic losses incurred in terms of ruined hides and skin, weight losses, death and reduction in milk yield in dairy cattle in

Nigeria exceed US \$100 million annually (Anon, 1990).

From history gathered during sample collection, most of the sheep brought to the market were as a result of the skin lesions since, according to the sources, the disease had a tendency to spread through most of the apparently healthy animals in the herd/flock. This is true of dermatophilosis and mange, which are especially contagious during the wet season. Most of such animals examined in this study came from cattle herds, and the Fulani herdsmen believed that sheep served as reservoirs of the infection thus, it was better to cull them in order to prevent the spread of the infection. The lower incidence of the disease during the dry season is because lesions regress during the dry, cooler weather, ensuring spontaneous recovery and milder disease (Bida, 1973; Sa'idu *et al.*, 1987) in contrast to the wet season when heavy rainfall causes the scabs to soften and ooze out infective exudates (Mohammed and Agbede, 1980). Death may occur if animals remain untreated. Treatment with Terramycin L.A – Pfizer (200mg/ml oxytetracycline) at a dose rate of 200mg/10kg in a single deep intramuscular injection is effective. Lamorde *et al* (1991), Awowolo and Awe (1995) reported that Lamstreptocide® is very effective in the therapeutic treatment of dermatophilosis in naturally infected Zebu cattle in Northern Nigeria. The formulation has antibiotic properties, thus reducing secondary bacterial invasion of the skin by bacteria (Awe and Arowolo, 1999).

TABLE I: Mean incidence rates of *Dermatophilosis congolensis* in mixed breed sheep in Jigawa State

No. of sheep with dermatitis Examined (1995-2000)	No. (%) of positive cases of <i>D. congolensis</i>	
	Dry Season (Oct-May)	Wet Season (Jun-Sep)
1996	6(6.9)	10(11.5)
1997	9(8.5)	11(10.4)
1998	3(4.7)	7(10.9)
1999	4(3.9)	12(11.8)
2000	2(2.9)	9(13.0)
Total (Mean) 457 (91.4)	24(5.25)	49(10.7)

CONCLUSION

This report has shown that sheep are equally susceptible to infection with *D. congolensis* and should therefore be treated in the same manner as cattle. It has been observed that because of the relatively lower economic values of sheep, notwithstanding the fact that they form an important requirement in social and religious festivals, not much attention has been paid to their welfare and production even by authoritative bodies whose responsibility it is to cater for the livestock health and industry in Nigeria. It is therefore recommended that more research work (nationwide) needs to be carried out in order to properly ascertain the magnitude of this disease condition in smaller ruminants like sheep.

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