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SKIN DISEASE IN SHEEP FARMERS

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Abstract

Background—An unusual inflammation of the pinna has been reported to occur in some sheep farmers at the time of lambing.

Aims—To explore the prevalence of this disorder and its possible causal associations.

Methods—While on attachment to sheep farms during lambing, veterinary students used a standardised questionnaire to interview a sample of farmers about their work, and about symptoms of skin inflammation in their hands, face and ears.

Results—Interviews were completed by 76 (67%) of the farmers approached. Among 74 farmers who had carried out lambing, three (4%, 95% CI 1% to 11%) had experienced temporally related ear symptoms, all on multiple occasions. No farmers with ear symptoms had ever been involved in calving or farrowing, and no ear symptoms were reported in relation to shearing or dipping sheep. There was also an excess of hand symptoms related to lambing outdoors (24% of those who had done such work) and indoors (also 24%), compared with other farming activities.

Conclusions—Our findings suggest that temporally related ear inflammation occurs in at least 1% of farmers who carry out lambing, but not in association with the other farming activities investigated. Lambing appears to be associated also with hand inflammation, but the pathology may differ from that in the pinna.

Keywords

Farming; sheep; lambing; ear; hand; skin; inflammation

Introduction

A previously unrecognised skin disease was recently reported in sheep farmers. It was characterised by hotness, itching and pain of the pinnae, beginning soon after the start of lambing, and followed by blistering and crusting [1]. The disorder was associated with distinctive pathology, persisted through the lambing season (1-3 months), but settled quickly thereafter.

To understand and manage the disorder better, it is important to establish how commonly it occurs, whether it is always confined to the pinnae, and whether it is associated only with

lambing or with other tasks in farming. As a first step to addressing these questions, we undertook a questionnaire-based survey of a sample of sheep farmers in England and Wales.

Methods

Veterinary students undertaking practical training attachments on farms in England and Wales during the lambing season in 2009, were briefed about the study (although not specifically about the link between lambing and inflammation of the ear), and given packs of information sheets, consent forms and questionnaires. They were asked to approach as many workers on the farm as possible for consent to answer a questionnaire at interview. Completed questionnaires were returned to the study team, with forms recording the numbers of farmers approached and the numbers interviewed.

The questionnaire (see Appendix in electronic version of journal) covered age, sex, lifetime history of participation in 11 specified farming activities, and lifetime experience of skin symptoms. Subjects were asked whether they had ever suffered from a problem in which their “skin became unusually red, hot, itchy, dry, cracked or blistered for longer than 24 hours”. This was asked separately in relation to the hands, face, and ears. Where a problem was reported, the subject was asked how often it had occurred, and whether it had started during or soon after any of the previously listed 11 farming activities.

Data from the questionnaires were analysed using SPSS version 15.0 and Stata version 7. Associations between categorical variables were assessed by Fisher’s exact test.

Ethical approval for the study was provided by the Ethics Committee of the School of Medicine at the University of Southampton.

Results

Questionnaire packs were returned by 63 (48%) of 131 veterinary students, who had completed satisfactory interviews with 76 (67%) of 113 farmers approached. The participants comprised 57 men and 19 women, ranging from 16 to 82 years old (mean 47 years). Thirty-two (42%) indicated that they had at some time suffered from symptoms of skin inflammation on their hands, five (7%) on their face, and five (7%) on their ears.

The table shows the lifetime prevalence of different farming activities reported by participants, and of skin symptoms with onset at the time of, or soon after, these activities. All of the farmers who had carried out lambing outdoors had also done lambing indoors. Compared with other activities, more of the farmers who had carried out lambing reported temporally related skin symptoms in the hands. The prevalence rates for lambing outdoors (24%) and indoors (24%) were statistically significantly different ($p < 0.05$) from those for shearing (8%) and dipping sheep (2%).

Of the five farmers with ear symptoms, three reported a temporal relationship to lambing outdoors, including two with symptoms also related to lambing indoors. All three had experienced symptoms on multiple occasions. Two had also experienced hand symptoms that were temporally related to lambing, and the third, facial symptoms. Among the 74 farmers who had carried out any lambing, the prevalence of associated ear symptoms was 4% (95% CI 1% to 11%). No ear symptoms were reported in relation to shearing or dipping sheep, or to calving or farrowing (piglets).

Discussion

Our findings suggest that between 1% and 11% of farmers who engage in lambing may suffer from temporally related inflammatory symptoms in the skin of their ears. If such problems occur with sheep-shearing or dipping, or with calving or farrowing, they appear to be rarer. Dermal inflammation of the hands may also occur excessively in relation to lambing.

Limitations of our study include the small sample size, the incomplete participation of veterinary students and of farmers approached for interview, possible inaccurate recall of past symptoms and their timing, and uncertainties about the reliability of reported symptoms as markers for inflammation. However, even if none of the non-participating farmers had ear symptoms related to lambing, the estimated prevalence would still be almost 3%. Moreover, errors of recall are more likely to have produced under- than overestimation of symptom prevalence. And inaccuracy of symptoms as a marker for inflammation, provided it did not differ according to the farming activities undertaken, would tend to obscure disease associations.

Skin inflammation might arise from lambing through an allergic or irritant response to amniotic fluid, placental tissues, or chemicals. Proteins in animal products of conception can cause allergic dermatitis of the hands [2,3]; and irritant contact dermatitis of the hands may be provoked by iodine solution used to dress navels, and by repeated hand-washing, which can be more intense during lambing than in calving or farrowing. However, histopathological examination of skin biopsies from affected ears in sheep farmers has shown an unusual lympho-histiocytic infiltrate with an appearance that is distinct from that of a typical dermatitis, and closer to that seen in juvenile spring eruption, a photosensitive dermatosis [1]. Another possibility is that the ear lesions are caused by a microbial agent encountered particularly during lambing.

Further epidemiological research to clarify the pathogenesis and causes of ear inflammation associated with lambing will require identification of a sample of several hundred farmers who suffer from the disorder. Our study suggests that this should be feasible.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Key points

- Evidence has emerged of a previously unrecognised occupational disease in sheep farmers that is temporally related to lambing and characterised by a transient inflammation of the pinnae, with distinctive histopathology.
- The disorder occurs in an estimated 1-11% of farmers who carry out lambing, but is not linked with other farming activities.
- The pathogenesis of the disorder is unclear, but might entail an allergic or irritant response to disinfectants, cleansing agents or animal tissues, or a response to a microbial agent.

Table

Frequency with which skin symptoms were reported by the 76 participants as temporally related to farming activities

Activity	Number reporting activity	Number (%) with skin symptoms temporally related to activity by anatomical site					
		Hands		Face		Ears	
		n	(%)	n	(%)	n	(%)
Calving outdoors	46	5	(11)	0	(0)	0	(0)
Calving indoors	54	4	(7)	0	(0)	0	(0)
Milking	43	3	(7)	0	(0)	0	(0)
Lambing outdoors	55	13	(24)	1	(2)	3	(5)
Lambing indoors	74	18	(24)	1	(1)	2	(3)
Shearing	49	4	(8)	0	(0)	0	(0)
Dipping sheep	64	1	(2)	1	(2)	0	(0)
Farrowing outdoors	5	0	(0)	0	(0)	0	(0)
Farrowing indoors	15	0	(0)	0	(0)	0	(0)
Tractor-mounted pesticide spraying	29	0	(0)	0	(0)	0	(0)
Knapsack pesticide spraying	45	1	(2)	1	(2)	1	(2)