A STUDY OF FOOT ABSCESS

IN SHEEP

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ABSTRACT

A study was made of various aspects of 53 naturally occurring cases of foot abscess in sheep. Radiographic techniques were used to follow the progress of the lesion and from this, and a study of the anatomy of the digits, it was concluded that foot abscess of sheep could be defined as an infection of the distal interphalangeal joint. For this reason the term 'foot abscess' was considered to be preferable to the term 'infective bulbar necrosis' (Roberts *et al.*, 1968).

Support was given to the contention of Roberts *et al.*(1968) that *Fusobacterium necrophorum* and *Corynebacterium pyogenes* are the causative organisms of foot abscess. Both organisms were frequently isolated from naturally occurring cases, and an identical condition was reproduced in seven sheep by inoculating a mixture of *F. necrophorum* and *C. pyogenes* organisms into the distal interphalangeal joint. It appeared likely that relatively greater numbers of either organism in pure culture were required to reproduce foot abscess by this means, than by using a mixture of the two organisms.

To help evaluate the significance of foot abscess to New Zealand sheep farmers, a postal survey of New Zealand Romney sheep breeders was conducted. Foot abscess was reported to occur in 270 (77 percent) of the 351 respondents' flocks, but the incidence of foot abscess within a flock was low. Foot abscess was considered an important disease by sheep farmers because of the unexpected nature of outbreaks at critical times in the farming calendar, and the unsatisfactory nature of treatment and prevention. The *F. necrophorum* vaccine was used by a third of the farmers that reported having cases of foot abscess in their flocks and many farmers were either dissatisfied with, or unsure of its effectiveness.

The attack rate of foot abscess was reported to be higher for rams than for ewes. A possible explanation for this was advanced following the investigation of an outbreak of ovine interdigital dermatitis and foot abscess affecting 100 individuals out of 300 young rams on a Perendale stud property.

From a study of the anatomy of the digits it was concluded that the distal interphalangeal joint of sheep was vulnerable to infection or trauma on the interdigital aspect where the joint capsule protruded above the coronary border of the hoof as the dorsal and volar pouches. Foot abscess was reproduced in 39 digits of 20 sheep, following interdigital tissue damage by the application of liquid nitrogen to the interdigital skin, combined with the exposure of the feet to wet, faeces-contaminated conditions. It was suggested that this simulated what happens in natural outbreaks of ovine interdigital dermatitis and foot abscess.

Ovine interdigital dermatitis responded readily to the combined therapeutic measures of dry surroundings, formalin foot bathing and selected antibiotic therapy. In contrast, once infection became established in the distal interphalangeal joint (foot abscess), the above treatment was no longer effective. Permanent joint damage with deformity was inevitable, but the effects of this was reduced if the axial collateral ligaments remained intact. The foot healed sufficiently to allow for adequate locomotion after a period of about two months. It was possible, using radiographic techniques to assess if the distal interphalangeal joint was infected, the approximate duration of the joint infection, and the likely degree of permanent damage and deformity.

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