

# Cutaneous Streptothricosis in a Shorthorn Calf

by Geraldine Schumann\*

## HISTORY

On January 23, 1967, a 400 lb. Shorthorn heifer was admitted to the Iowa State University Veterinary Clinic with a history of a chronic skin condition. She had been treated previously with many skin medicants and had shown no improvement to any of the forms of therapy.

## CLINICAL SIGNS

On physical examination she was found to be alert and in good condition except for the skin lesions. These lesions were dry and horny, and if removed left a skin lesion with little exudate present. The most extensive lesions were over the back and in the region of the brisket. There was no evidence of scratching or irritation due to these skin lesions. A skin scraping was taken to the Iowa State clinical pathological laboratory where it was found negative for fungi and mites.

## ETIOLOGICAL DIAGNOSIS

On January 25, a dry skin scraping and a hair sample were sent to the National Animal Disease Laboratory in Ames, Iowa, where Dr. Piere made a positive diagnosis of Streptothricosis.

Streptothricosis is a dermatophytosis caused by *Dermatophilus congolense*. It is a fungus-like bacterial condition that is seen more commonly in sheep and is referred to as Lumpy Wool disease, but can infect most species of animals and man. A similar disease in cattle in Africa is called Senkobo disease. It is more of a problem in long-wooled breeds of sheep such as the Merino and is more prevalent in seasons when the weather is damp.

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This condition doesn't seem to be too prevalent in cattle in the United States, though a few cases have been diagnosed.

## TREATMENT

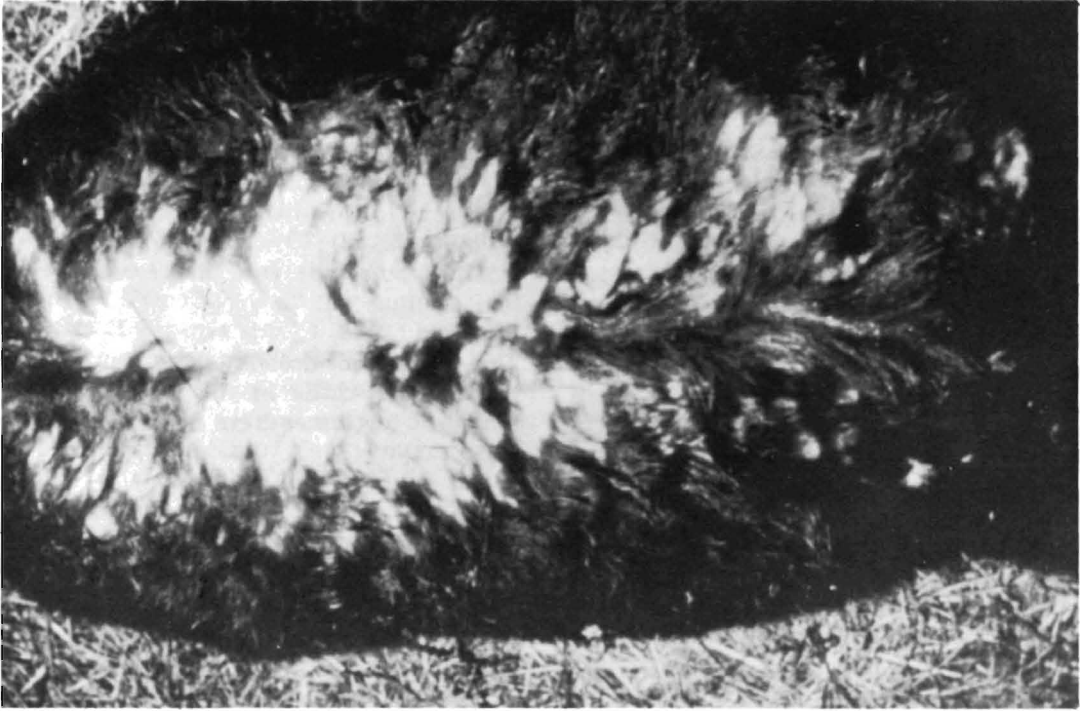
Many types of treatment have been tried with varying results. Topical application of copper sulfate, quaternary ammonium compounds and iodine ointments, systemic administration of sodium iodide, tetracycline, and penicillin-streptomycin, and changes of environment have all been tried. There also appears to be a tendency for spontaneous recovery if the weather turns dry which makes it somewhat difficult to assess the value of the treatment.

Griseofolvin therapy was started on January 27, with administration of one Fulvicin bolus (2.5 gms.).

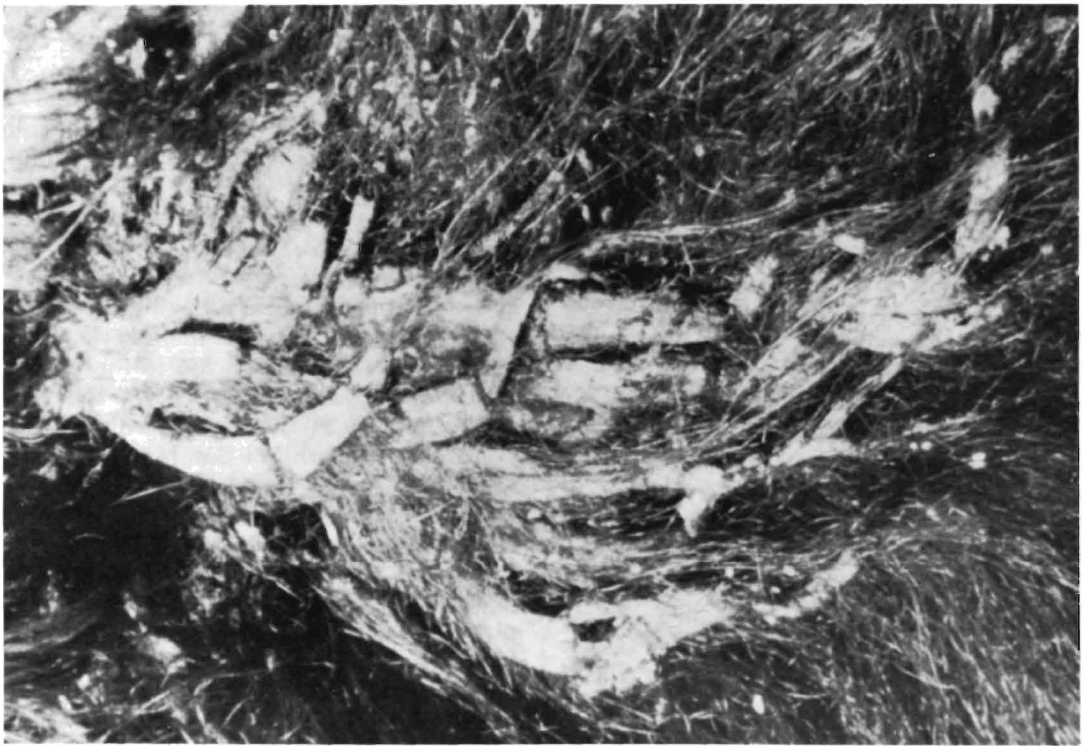
Investigation of the literature revealed research done by Drs. D. S. Roberts and N. P. H. Graham in which their preliminary field trial results indicated that a high level of penicillin-streptomycin would cause recovery in sheep. In sheep the processing of the wool removes these horny lesions without damaging the wool. Therefore an economical method of treatment was needed which led to the use of penicillin-streptomycin.

On January 28, the regiment of therapy was changed with the administration of 15 cc of penicillin-streptomycin. According to Drs. Roberts and Graham the best dosage in sheep was found to be one injection of 70 mg. streptomycin/kgm. but the dosage of penicillin was not given. On January 31, a skin biopsy was taken from a region over the back and sent to the Iowa State University histopathological

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**DORSAL VIEW OF ANIMAL SHOWING EXTENSIVE BACK LESIONS**



**CLOSE UP OF DRY, HORNY LESIONS ON THE SKIN**

and digits. This innervation allows us to recognize the remnant of the previously present *M. brachioradialis* which is fused with the *M. brachialis*.

The axillary nerve furnished the flexors of the shoulder joint and the *Pars clavicularis*<sup>12</sup> or *Pars cleidobrachialis*<sup>8</sup> of the *M. brachiocephalicus*. The latter was originally a part of the *M. deltoideus*, which is a flexor of the shoulder.

The cutaneous branch of the axillary nerve, the *N. cutaneus antebrachii cranialis*, frequently emerged between the two parts of the *M. deltoideus* and furnished the fascia and skin around the dorsolateral aspect of the elbow joint.

### BIBLIOGRAPHY

1. Agduhr, E. Anatomische, statistische und experimentelle Untersuchungen über *N. medianus* und *N. ulnaris*, besonders deren motorisches Innervationsgebiet im Vorderarm von Equidae, Cervidae, Bovidae, Ovidae, Suidae, Canidae und Felidae, speziell von Haustieren, nebst einigen Bemerkungen über die Muskulatur desselben Gebietes und über *N. musculocutaneus*, Anatomische Heft, 52:497-648, 1915.
2. Bruni, A. C. and U. Zimmerl. *Anatomia degli Animali Domestici*, Volume 2, Second edition, Milano, Italy, Casa Editrice Dottor Francesco Vallardi, 1951.
3. Chauveau, A. and S. Arloing. *The comparative anatomy of domesticated animals*, Second edition (English), New York, New York, D. Appleton, 1902.
4. Dobberstein, J. and Hoffmann. *Lehrbuch der vergleichenden Anatomie der Haustiere*, Band 3, Leipzig, Germany, S. Hirzel Verlag, 1964.
5. Ellenberger, W. and H. Baum. *Handbuch der vergleichenden Anatomie der Haustiere*, 18th edition, Berlin, Germany, Springer Verlag, 1943.
6. Ghoshal, N. G. A comparative morphological study of the somatic innervation of the antebrachium and manus; crus and pes of the domestic animals (Bovidae, Ovidae, Capridae, Suidae, Equidae), Unpublished Ph.D. thesis, Ames, Iowa, Iowa State University of Science and Technology Library, 1966.
7. Ghoshal, N. G. and R. Getty. Comparative study of the nomenclature of the nerves of the forearm and forefoot of the domestic animals, *I.S.U. Vet.*, 29:30-44, 1967.
8. Koch, T. *Lehrbuch der Veterinär-Anatomie*, Band III, Die grossen Versorgungs- und Steuerungssysteme, Jena, Germany, Veb Gustav Fischer Verlag, 1965.
9. Martin, P. *Lehrbuch der Anatomie der Haustiere*, 2. Auflage, Band 4, Stuttgart, Germany, Schickhardt und Ebner, 1923.
10. Montané, L. and E. Bourdelle. *Anatomie Regionale des Animaux Domestiques*, Fascicule 3, Paris, France, Balliere et Fils, 1920.
11. Reimers, H. Innervation von *M. brachialis* der Haustiere, *Anatomischer Anzeiger*, 59:289-301, 1925a.
12. Reimers, H. Der Plexus brachialis der Haussäugetiere-Eine vergleichend-anatomische Studie, *Zeitschrift für die gesamte Anatomie und Entwicklungsgeschichte*, 76:653-753, 1925b.
13. Schneider, J. and I. Zintzsch. Die Leitungsanästhesie an den Extremitäten des Schweines, *Zentralblatt für Veterinärmedizin*, 9:59-74, 1962.
14. Sisson, S. and J. D. Grossman. *Anatomy of the domestic animals*, Fourth edition, Philadelphia, Pennsylvania, W. B. Saunders Co., 1953.
15. Sussdorf, von M. Die Verteilung der Arterien und Nerven an Hand und Fuss der Haussäugetiere, *Festschrift zum 25 jährigen Reg. Jubiläum des Königs Karl von Württemberg*, 1-39, Stuttgart, Germany, Verlag Kohlhammer, 1889.
16. Zimmerl, U. *Trattato di Anatomia Veterinaria*, Volume Secondo, Milan, Italy, Casa Editrice Dottor Francesco Vallardi, 1930.

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### (STREPTOTHROCOSIS CONT.)

laboratory. The result of the biopsy was the finding of a Gram + mycelia in the hyperkeratotic scab covering. The epithelium was intact but had dermal lymphoid accumulations. The histopathological diagnosis was Cutaneous Streptothricosis.

Five days after the treatment with penicillin-streptomycin the horny lesions began to loosen and many were easily removed by brushing. This improvement continued for about four days after which the skin condition appeared to remain the same. At this time it was decided to resume therapy with penicillin-streptomycin. From February 10 to February 12, 25 cc of Pen-strep. were administered daily to the calf. The day following the last treatment with penicillin-streptomycin quite a bit of the horny material began to loosen and fall off. By February 17, most of the skin lesions were off and the skin underneath was healing quite normally

with no secondary complications. The calf was sent home on March 1, 1967.

### DISCUSSION

The typical lesions seen with this condition are highly suggestive but positive diagnosis can only be made from skin scrapings or histopathological sections. Response to different forms of therapy is variable and difficult to assess because of the possibility of spontaneous recovery.

Although Streptothricosis is not a problem in this area it may be more prevalent than formally believed and may be going undiagnosed.

### BIBLIOGRAPHY

1. Bentinck-Smith, J. et al., *Cornell Vet.*, 51:334J 1961.
2. Blood, D. C. and Henderson, J. A., *Veterinary Medicine*, 2nd Ed., Williams and Williams Company, Baltimore, 1963.
3. Roberts, D. S. and Graham, N. P. H., *Aust. Vet. J.*, 42:74-78, March, 1966.
4. Siegmund, O. H., Editor, *The Merck Veterinary Manual*, 2nd Ed., Merck and Co., Inc., Rathway, N.J., 1961.
5. Technical committee of New Zealand Veterinary Association, Inc., *Diseases of Domestic Animals in New Zealand*, 1st Ed., A. K. Wilson LTD, Lower Hutt, New Zealand, 1958.