
A Case of Demodectic Mange in the Goat.

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NEUMANN AND MACQUEEN (1) state that this condition was first observed in the goat by Van Niederhousern, at the Veterinary School of Berne, Switzerland. He found nodules varying in size from a pea to a nut, about the middle of the trunk. In the semi-solid yellowish grey matter, which was only extruded from the nodules by strong pressure, numerous parasites could be demonstrated.

In 1885, Nocard and Raillet found the parasite in a 2-year-old goat; the lesions were especially on the sides and the flanks.

Hutyra and Marek (2) quote Rissling, who describes frequent enzootics in goats in Silesia due to demodectic mange. In these cases no symptoms are ascribed to the parasites, and lesions are only recognized on the inner surface of the skin, after killing the animals. The lesions depreciate the value of the hide.

E. Hieronymi (3) describes two forms of follicular mange—(a) the squamous form and (b) the pustular form.

In the squamous form there are saccular dilatations of the hair follicles, containing the parasites, their eggs, debris of the hair, and broken down cells, etc. The parasites may be in the sebaceous glands, and there may be a leucocytic infiltration of the corium.

In the pustular form occurring in dogs, cattle, and swine there are abscesses, and these contain, in addition to the parasites, neutrophils, staphylococci, etc.

Hieronymi (3) states that the disease occurs in the goat, but it is not clear from his description if both the squamous and the pustular forms are met with in this animal.

Kitt (4) describes follicular mange in the goat. The lesions are especially in the subcutaneous tissues.

In South Africa, demodectic mange is not infrequently met with in pigs, but the disease in the goat has not yet been reported in the literature.

The goat in which follicular mange was diagnosed was bred at the Municipal Abattoirs, Pretoria, and was 8 years old. A week before the animal was killed it was noticed to be stiff and nodules up to 2 cm. in diameter were observed in the skin of the upper portions of the legs; in some of the nodules a small puncture is seen in the centre (see Fig. 1). On section the nodules are seen to contain a yellowish grey substance in which exceedingly numerous parasites are present.

Embedded sections of the nodules when examined microscopically show a cystlike cavity, lined by epithelium, in places still of a stratified nature and containing exceedingly numerous parasites and debris (Figs. 2 and 3).

No evidence of an inflammatory reaction is anywhere seen and the presence of the stratified epithelium in the walls of the cavity

would identify it with the hair-follicle; indeed, it is merely a saccular dilatation of the hair-follicle, as described by Hieronymi in the squamous form of follicular mange. The nodules are situated mostly in the subcutaneous tissues, but at one end they approach the surface epithelium of the skin. As the hair-follicle becomes distended and increases in size it causes atrophy of adjacent structures, but elicits no inflammatory response.

Infection.—This goat was used as a leader at the abattoirs, and during its life it came into contact with thousands of goats and sheep from all over the country. It came into contact with cattle daily and very often with pigs.

It is a well-known clinical observation, which has also repeatedly been demonstrated experimentally, that many dogs do not readily become infected, even under the most favourable conditions of contact with mangy dogs. One can expect therefore even greater difficulty in transmitting the disease from one species to another.

Zurn (quoted by Neumann and Macqueen) reports several cases of individuals (a veterinarian, a coachman, and a woman) who attended on dogs suffering from follicular mange and developed the disease themselves subsequently.

The measurement of the parasite of the human and dog differ very markedly:—

Human (female)—380 m. × 45 m.

Dog (female)—250–300 m. × 45 m.

Human (male)—300 m. × 40 m.

Dog (male)—220–250 m. × 45 m.

Follicular mange has on several occasions been recognized in South African pigs, and it seems possible that this goat was infected from contact with pigs suffering from follicular mange.

Neumann-Macqueen (1) state that “in general the difference in habitat of the parasite coincides with differences in its dimensions, and these at least authorize the distinction of varieties.”

According to most authors all these varieties belong to one species.

Sluiter (5) is of opinion that the demodectic parasites are different species, as they occur in the different mammals. He can see no justification for the differentiation into varieties.*

It is remarkable that the measurements of the parasites of the pig and goat are practically the same.

The following are quoted from Neumann and Macqueen:—

Goat (female)—230–250 m. × 60–65 m.

Pig (female)—240–260 m. × 60–66 m.

Goat (male)—220–230 m. × 50–55 m.

Pig (male)—200 m. × 50–57 m.

Fiebiger (6) gives the same measurements of the parasites for these various animals, except in the pig the length of the male parasite is 252 m.

* In this connection Sluiter mentions Stanley Hirsts “Studies on Acari”, No. II. The genus *Demodex* Owen, British Museum, Natural History, 1919. Unfortunately I could not obtain this paper.

If a differentiation is made because of size alone, then judging from the above measurements of the parasites in goats and pigs such differentiation would not appear to be justified.

In my own measurements of the parasites obtained from the lesions, they vary in length from 218 m. (probably male) to 350 m. in the female by 53-70 m. wide at the thorax.

The eggs (ten measured) varied from 70-84 m. \times 33-44 m. with an average of 78 m. \times 38 m.

It is not intended that these measurements should be looked upon as the true average of a large number of parasites measured. They are merely measurements of some fifteen parasites having eight legs, selected at random, to convey some idea of their size in this goat.

If the human can become infected from the dog (marked difference in size of parasite), then it does not seem impossible that the goat can become infected from the pig (difference in size of parasites insignificant).

I have no experimental evidence for suggesting this possibility in the case under discussion, but the circumstantial evidence favours this view. It is hoped that other workers, more suitably placed with regard to material, etc., may be able to establish this experimentally.

SUMMARY.

A case of follicular mange is described in a South African goat.

The possibility is suggested that infection occurred from infected pigs.

A few measurements are given to convey some idea of the size of the parasites in the goat.

LITERATURE.

- (1) Neumann-Macqueen: "Parasites and Parasitic Diseases of the Domesticated Animals."
- (2) Hutyra and Marek: "Special Pathology and Therapeutics of the Diseases of the Domesticated Animals," Volume II.
- (3) Ernst Joest: "Spezielle Pathologische Anatomie der Haustiere." III Band 2 Hälfte.
- (4) Kitt, I. H.: "Pathologische Anatomie der Haustiere." Vierte Auflage. I Band.
- (5) C. Ph. Sluiter: "Die Dierlike Parasieten van den Mensch en van onze Huisdieren."
- (6) Fiebiger: "Die Tierischen Parasieten der Haus- und Nutztiere." 1912.



FIG. 1.—Showing nodules in skin of goat due to *Demodex folliculorum*.

Demodectic Mange.

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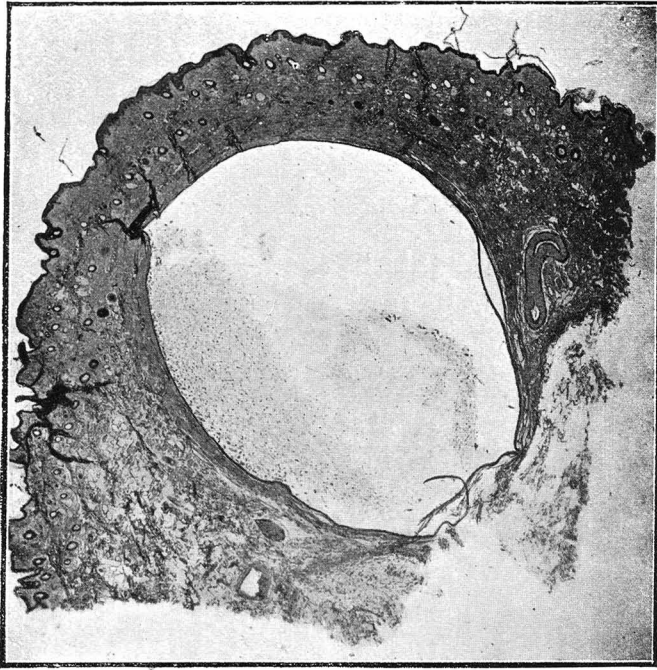


FIG. 2.—Magnified $7\times$ — distended hair follicle with parasites, etc.

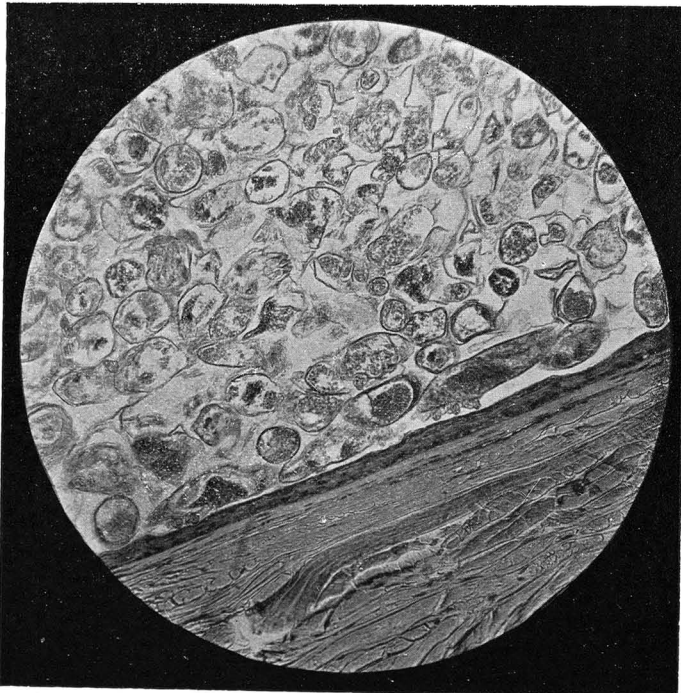


FIG. 3.—As above, magnified $\pm 115\times$. Parasites, eggs, etc., and wall of cavity.

Demodetic Mange.]

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