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An Occurrence of a Cyst-Like Structure in the Sheep Ruminal Mucosa

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Summary

The occurrence of a peculiar cyst-like structure on the luminal surface of two sheep ruminal mucosae was reported.

In the course of a scanning electron microscopic study of sheep ruminal mucosa, we found a peculiar, cyst-like structure on the luminal surface of the ruminal epithelium. The following is a short description of this structure, which has not been reported in the preceding studies on the surface ultrastructure of the ruminal mucosa (1-4).

Materials and Methods

Rumen papillae were collected from two sheep by biopsy via rumen fistula. The tissues were fixed with 3% glutaraldehyde and postfixed with 1% osmium tetroxide in 0.1 N phosphate buffer. After hydration through a graded series of an ethanol and iso-amyl acetate bath, the tissues were dried in liquid CO₂ by the critical point drying method. They were then coated with gold and observed by a FE-type scanning electron microscope (Hitachi S-700).

Results and Discussion

A rose-shaped, cyst-like structure was found on the luminal surface of the anterior ruminal pillar (Fig. 1) and on a papilla at the dorsalmost area of the dorsal sac (Fig. 2). The cysts consisted of several lamellae of scales or the horny cells of stratum corneum. Fine projections were seen on both sides of the scales (Fig. 1). This cyst-like structure is comparable to the one reported by Wilborn et al. (5) in human "Seborrheic keratoses". The rumen epithelia with cysts appeared normal and not hyperkeratotic.

Wilborn et al. (5) reported that yeasts were present in the cornified recesses of

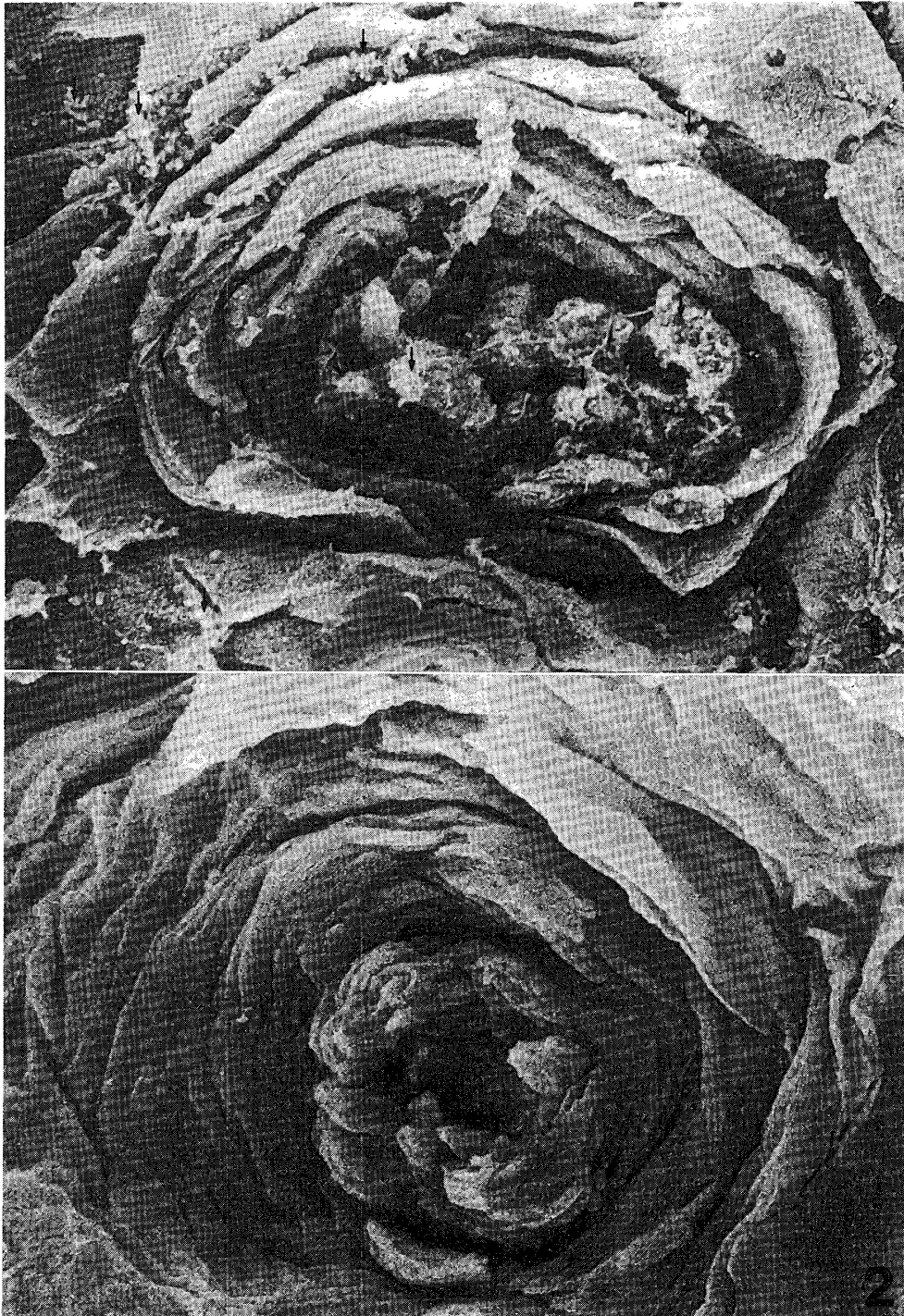


FIG. 1. A cyst-like structure on the luminal surface of a sheep ruminal pillar. Adhesion of bacteria (arrows) was noted in the cystic recess and on the surface of non-cystic honey cells. $\times 1810$

FIG. 2. Similar cyst-like Structure on the luminal surface of a rumen papilla. Bacterial colonies were absent. $\times 1450$

the cyst. We observed colonies of bacteria in the ruminal cyst on the pillar (Fig. 1), but similar colonies were also present on the non-cystic surface of the same epithelium (Fig. 1).

To date we have observed only two cases of this cyst during our scanning electron microscopic observation of a large number of rumen papillae from several sheep. We can advance, at present, no explanation on the significance of this structure, though we speculate that a local necrosis of the cells in deeper strata may be responsible to the formation of this "cyst".

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