Study of the cellular prion protein expression by the follicular dendritic cells in ovine pharyngeal tonsils.

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BACKGROUND

If the most likely portal of entry in natural scrapie has been suggested to be the alimentary tract, other potential routes though to be effective experimentally. Sheep and hamsters inoculated with scrapie intranasally have been showed to develop TSE. PrPd was essentially confined in the pharyngeal tonsils, making this lymph organ a possible portal of entry for the scrapie agent.

OBJECTIVE

Our study analysed the possible implication of the follicular dendritic cells (FDCs) network in the replication of the scrapie agent in the nasopharyngeal ovine mucosa.

MATERIAL AND METHODS

Pharyngeal tonsils were obtained from clinically healthy sheep and were cut in 1mm thick slices. The lymphoid follicles were isolated from the connective and epithelial tissues, submitted to enzymatic digestions and sedimentation gradient. Cellular prion protein expression was analysed on FDC clusters by immunoperoxidase and immunogold labelling after incubation with moAb Pri909.

RESULTS

The immunoreaction of the FDCs was limited to the light zone of the germinal centre of the lymphoid follicles. Some extensions were able to run through the dark zone and the mantle zone. Immunolabelled PrPc was detected in both the light and the dark zones of the germinal centre. The mantle zone remained unstained.

The FDC membrane engulfed 8 to 22 compacted lymphocytes and one or two FDC nuclei were distinct. After immunoperoxidase labelling, PrPc was located on the membrane extensions wrapped around lymphoid cells.

CONCLUSION

Our results demonstrate that the FDC of the ovine pharyngeal tonsils express PrPc on their cytoplasmic membrane in the same way of the FDC resident in lymphoid organs known to be sites of replications of PrPd during a scrapie infection. This support the hypothesis that the pharyngeal tonsils may be involved in scrapie pathogenesis.