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attaching and effacing E. coli which would eliminate the use of experimental animals.
Eight field strains of calves presumably EPEC, as well as a positive and a negative control were tested for their attaching and effacing ability in the intestinal loop test. The same strains were brought on HeLa cells to evaluate the adherence patterns, followed by an ultrastructural control of the attaching and effacing in vitro.
Two of 8 field strains and the positive control showed the typical attaching and effacing (AE) with cups and pedestals in the intestines of the calf. The lesions were the same in the loops of the ileum and in the distal jejunum. The strains showing AE in the gut showed a similar lesion on HeLa cells and made LA.
In later in vitro tests of two isolates that produced no shiga like toxin in Vercell tissue culture but made LA on HeLa cells, we used Pearson's (1989) AEEC strain as a positive control. The reference strain and one field strain adhered perfectly to the HeLa cells. The production of cytotoxin seems not to be necessary for AE. These results indicate that the formation of cups and pedestals on HeLa cells observed in the transmission electron microscope corresponds with the AE in vivo. The LA is useful as a screening test for AEEC, but the ultrastructural investigation is still required to demonstrate AE. Therefore HeLa cells are suitable for the identification of AEEC of the calf and make the use of experimental animals superfluous. However, further investigations are necessary to further elucidate the mechanism of attaching and effacing.

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IMMUNOHISTOCHEMICAL DETECTION OF CHLAMYDIAE IN FORMALIN-FIXED TISSUE SECTIONS: COMPARISON OF A MONOCLONAL ANTIBODY WITH YOLK DERIVED ANTIBODIES (IGY)

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Immunohistological detection of chlamydiae in formalin-fixed and paraffin-embedded sections of various organs from several species is described. In a retrospective study, two antisera, a commercially available monoclonal murine antibody (IgMur) and vitelline immunoglobulins (IgY), extracted from the egg yolk of immunized hens, were compared and tested for their applicability under routine condition. Both antisera were applied to tissues from which chlamydiae had been isolated or in which the presence of chlamydiae had been suspected in specially stained sections. Antigen labelling was optimal with the monoclonal antibody. Vitelline immunoglobulins produced some unspecific reactions, especially in lung tissue sections. Because of the antigenic relationship between the vitelline antibodies and tissues of birds, IgY are not suitable for the detection of psittacosis on avian substrates, when using an indirect immunological method. Staining in other tissues e. g. intestine or placenta was of equal quality as that attained with monoclonal antibodies. Depending on the advantages and disadvantages in every individual case one of the two antibodies may be chosen for further studies. Vitelline antibodies should be prefered with respect to animal welfare. (To be published in Journal of Veterinary Medicine Series B 1991).

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PERIPHERAL INTESTINAL NERVOUS SYSTEM (PLEXUS SUBMUCOSUS) IN EXPERIMENTAL OEDEMA DISEASE OF CONVENTIONAL PIGS

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Escherichia coli enterotoxaemia (edema disease = ED) is caused by only a few serotypes of *E. coli* (0 138:81B, 0 139:12B and 0 141:85B) and is regarded as a degenerative angiopathy leading to oedema in various tissues. The typical findings of a full stomach and a nearly empty small intestine raise the question whether there are significant morphological changes in the peripheral intestinal nervous system, possibly due to direct neurotoxic effects. We examined the ultrastructure of the Plexus submucosus (= Meissner) in experimentally infected pigs which were killed in the course of a study on intestinal colonisation by an enterotoxaemic *E. coli* strain.
Thirteen of 19 infected animals showed clinical ED-signs, of which at necropsy 12 had oedema in one or more characteristic location. The most common lesions in the plexus were axon swelling of slight to moderate degree, rarely accompanied by ruptures and autophagic vacuoles containing degenerating myelin-like products. In all animals with plexus lesions only some but not all plexus were altered and within the altered plexus the lesions were not homogenous. Plexus lesions were seen in infected pigs with clinical ED (9 of 13) as well as in infected pigs without ED (4 of 6) as well as in not inoculated pigs (6 of 11). A difference between the three groups could not be found, particularly since 6 of 19 infected pigs had no plexus lesions.
Nearly all animals had concurrent infections with at least one of the following infectious agents: rotavirus, chlamydia, cryptosporidia, Balantidium coli, ascarids and still not identified protozoa. Rotavirus was demonstrated in 12 pigs, however in 7 of the 11 pigs without plexus lesions no rota virus was found. It is not clear which direct or