EXPERIMENTAL INFECTION OF CAT AND CHICKEN WITH CRYPTOSPORIDIUM SP. OOCYSTS ISOLATED FROM A CALF

The problems of cryptosporidial infections in various species of domestic and wild animals, but also in man, are now studied with an increasing interest. As it follows from the recent papers, e.g. by Tsimpri and Campbell (J. Clin. Microbiol, 14: 455–456, 1981), Moon and Bemis (Vet. Pathol. 18: 249–253, 1981), Tsimpri et al. (Am. J. Vet. Res. 42: 1460 to 1494, 1981), Heine and Bocch (Berl. Münch. Tierärztl. Wschr. 94: 209–292, 1981), Pavlišek (Poln. parasit, (Praga), in press), the oocysta of the genus Cryptosporidium probably do not exhibit a strict host specificity and this makes these infections the more important. About 10 species of cryptosporidians occurring in various host species have been described in the literature. However, we have been unable to find any report on the occurrence of this genus in cattle. In the opinion of the authors, the species Cryptosporidium sp. oocysta from a calf may represent a host-specific or non-host-specific organism.

Preparation of inoculum. The oocysta of Cryptosporidium sp. were obtained from a 12-day-old, spontaneously infected calf in the following manner. A sufficient amount of oocysta was taken from rectum of a calf and thoroughly homogenized by a glass rod. The sample was then placed in Petri dishes containing 3.5% solution of potassium dichromate and left for 4 days at the temperature of about 20°C. After addition of water the mixture was strained through a tea-strainer to remove the rough fragments, put into centrifugation tubes and centrifuged at 2000 c.p.m. After centrifugation the supernatant was then carefully decanted and the sediment

was transferred to a smaller Petri dish. The oocysta of Cryptosporidium sp. were floated with a saturated sugar solution by placing the bottom of another Petri dish (of smaller diameter) on the surface of the liquid. Approximately after 5–10 min the dish was raised and the liquid with oocysta was left to drop down or it was washed off into a beaker. The flotation was repeated several times. In this way we obtained 2–3 ml of a liquid to which 8–10 ml of water were added and the mixture was centrifuged. The oocysta were washed 2–3 times. After the last centrifugation the sediment contained concentrated oocysta of Cryptosporidium sp.

Experimental dose: 200 000 oocysta.

Mode of infection. 5 ml of the liquid containing the respective dose of Cryptosporidium sp. oocysta were added to 50 ml of milk and fed to a 21-day-old cat. The cat readily drank it.

Parasitological examination. Three days before the experimental infection the faeces of the cat were repeatedly examined for the presence of oocysta using Bézé's coccidial flotation centrifugation method. The results were always negative. The same method was used for daily examinations of all faeces of the experimental cat, which were performed for 45 days. The oocysta were detected at the magnification of 1000X.

The oocysta of Cryptosporidium sp. were found in the faeces of the experimental cat on days 5–12 after infection. On days 5–8 p. i., the faeces were almost diarrhoeic. A higher intensity of oocysta occurred on days 8–10 p. i. (at least one oocysta in each field of view at the magnification of 1000X). On the remaining days, the intensity of oocysta occurrence was rather low. No oocysta were detected on days 13–45 p. i., except on days 34 and 35.

Approximately the same dose of Cryptosporidium sp. oocysta isolated from a calf was fed with the food to two chickens. The chickens started to excrete oocysta already within some hours after infection and continued excreting them for two days. During the next 10 days, however, no oocysta were detected. We assume therefore that the oocysta of Cryptosporidium sp., found in us chickens were parasexual and that the experiment with a transfer of cryptosporidial infection from calf to calf was unsuccessful in this case.

The results indicate that there exists a transmission of Cryptosporidium sp. between calves and cats and, at the same time, they support the opinion of the authors supposing that the oocysta of the genus Cryptosporidium are not host-specific. The failure in infecting the chickens suggests that this problem should be further studied.

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