REDUCED PRE-PATENT PERIOD IN EXPERIMENTAL INFECTION OF PIGLETS WITH THE COCCIDIUM ISOSPORA SUIS

The duration of pre-patent period in coccidia is considered to be specific (Jeffers T. K. and Shirley M. W., 1982: Genetics, specific and intraspecific variation. In: Long P. L. (Ed.), The biology of the coccidia, University Park Press, Baltimore, pp. 63—100). The pre-patent period reported for the coccidium *Isospora suis* is five days (Lindsay D. S., Stuart B. P., Wheat B. E., Ernst J. V., 1980: J. Parasitol. 66: 771—779, Harleman J. H. and Meyer R. C. 1984/1985: Vet. Parasitol. 17: 27—39). On 5th DPI these authors found sexually mature stages of *I. suis* in histological sections of the intestinal mucosa.

In our experiments with the coccidia *Isospora suis* we infected one-day-old piglets with different doses of *I. suis* oocysts. The birth of piglets was induced (Estrophan Spofa, cloprostenol) on 112th day of gravidity. The piglets infected with doses of 1,000, 10,000, 50,000, 100,000 and 200,000 oocysts of *I. suis* began to shed oocysts as early as three and a half days p.i. (85 HPI). At the same time after infection we killed the piglets and immediately collected samples from 11 sites of the small intestine for histological investigation. The first sample was taken 5 cm from ostium (OIC), the next sample — 15 cm from OIC and the subsequent samples were taken at the distance of 30 cm in cranial direction as far as the duodenum. Symptoms of catarrh in the posterior half of jejunum was macroscopically detected only in the piglet infected with the dose of 100,000 oocysts of *I. suis*. In the region about 110 cm from OIC, i.e. between the middle and posterior jejunum, abundant sexual stages were histologically demonstrated in the epithelium of atrophied intestinal villi. In our cases the shedding and occurrence of sexual stages in the intestinal mucosa did not depend on the amount of oocysts in the infectious dose.

This was the first observation of the prepatent period lasting three and a half days in experimental infection with the coccidium *I. suis* demonstrated coprologically and based on the histological finding of sexual stages in the intestinal mucosa. The pre-patent period shorter than five days in infections with *I. suis* was recorded only by Robinson et al. (Robinson Y., Morin M., Girard C., Higgins R., 1983: Can. J. Comp. Med. 47: 401—407). These authors observed the shedding of oocysts as early as 4th DPI in 18.7 % of 28 SPF three-day-old piglets infected with different doses of *I. suis* oocysts. On 4th day p.i. only three SPF piglets were dissected and the histological investigation revealed asexual developmental stages of coccidia in the sites of focal changes in atrophied intestinal villi. Gametogonia was described by Robinson et al., 1983 (ibid.) as late as 5th day p.i.

In the original description of *I. suis* (Biester H. E. and Murray C., 1934: Am. Vet. Med. Assoc. 85: 205—219) the pre-patent period lasting six days was reported in 5-month-old piglets. Matuschka and Heydorn 1980 (Zool. Beitr. 26: 405—476) described the pre-patency of five days. The mentioned differences in the duration of pre-patent period indicate a certain dependence of the duration of prepatency on the age of piglets.

The duration of prepatency of coccidia may be influenced to a certain extent by various factors, such as the age of the parasite, the state of defensive mechanisms of the host, or the effects of anticoccidics (Jeffers T. K. and Shirley M. W., 1982: ibid.). We presume that the occurrence of an unusually short pre-patent period in *I. suis* in our experiments is associated with the incomplete development of defensive mechanisms (insufficient immunocompetence) of prematurely born piglets. In our further experiments with piglets born spontaneously and infected on 1st day after birth we recorded prepatency lasting five days.

J. VÍTOVEC and B. KOUDELA
Institute of Parasitology,
Czechoslovak Academy of Sciences,
České Budějovice