

11. Epidemiology-3 (Hydatidosis)

O-0195 A POSSIBLE URBAN CYCLE OF *ECHINOCOCCUS MULTILOCULARIS* IN SAPPORO CITY, JAPAN.

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In the two decades, red foxes have been observed in urban area in Hokkaido, Japan. This causes a serious public health threat, because fox is a major definitive host of *Echinococcus multilocularis*, the most important zoonotic parasite in this area. One patient in Sapporo found in 1997 was possibly infected with the hydatid disease at urban area. In this study, the distribution of resident foxes in the urban area of Sapporo were investigated and some fox feces were collected and examined by the monoclonal antibody based coproantigen detection method, then the infection risk of this zoonosis was evaluated.

In winter, fox trails on the snow were checked at 130 parks and woodland areas distributed evenly in urban area (242.4km², approximately 1,600,000 residents). Moreover, the location of the complaints about foxes by urban residents and the dead foxes collected were obtained from public health center to analyze fox distribution. These showed that foxes were all over the urban area, but were not evenly distributed. Foxes inhabited densely the urban peripheral area, especially near mountainous area. Fox breeding dens were found at 16 spots in and around the urban area. Fox feces were collected around the dens and were checked for the *Echinococcus* infection by the coproantigen detection method. Coproantigen positive feces were found at 7 spots. This shows that the foxes infected with *E. multilocularis* have invaded into the urban area. To clarify the urban cycle of *E. multilocularis*, parasitological investigation of intermediate hosts should be conducted and development of control measure of definitive host is urgently required.

O-0196 Urban cycle of *Echinococcus multilocularis* and risk assessment of infections of domestic dogs and cats

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The increase of the red fox (*Vulpes vulpes*) population even in urban areas of Switzerland poses several ecological questions and may have consequences for the control of epizootics such as rabies and echinococcosis. In totally 49% of 195 red foxes from the city of Zurich *E. multilocularis* was detected by the sedimentation technique. As few as 9 foxes (10%) harboured 74% of the total *E. multilocularis*-biomass (280,000 worms). The prevalence of *E. multilocularis* in foxes decreased significantly from 64% on the outskirts of the city to 19% in the centre. The prevalence of the heteroxenous *Taenia spp.* showed the same tendency in contrast to the monoxenous hookworms and ascarids. Furthermore, in 12 (26%) of 47 water voles (*Arvicola terrestris*) trapped in a park located within the urban area of Zurich, *E. multilocularis*-metacestodes were identified by morphological examination and by PCR. Fully developed protoscolices occurred in two of these cases. Further epidemiological studies are in progress to investigate the occurrence of an intermediate urban cycle including voles, dogs and cats using recently developed methods (coproantigen detection by ELISA and PCR for egg identification).

O-0197 AN EPIZOOTIOLOGICAL SURVEY BY DETECTION OF *ECHINOCOCCUS MULTILOCULARIS* COPROANTIGEN IN RED FOXES IN HOKKAIDO, JAPAN

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Echinococcus multilocularis is one of the most important zoonotic parasites in Japan. Diagnosis of the definitive hosts is important for understanding epizootiology and control of *E. multilocularis*. *E. multilocularis* infections in red foxes is mainly determined by necropsy to date, but a monoclonal antibody (EmA9) based coproantigen detection method for live animals has been developed in our laboratory. In this survey, the detection of *E. multilocularis* coproantigens was applied for monitoring the parasites infection in fox families. Thirty six denning sites of reproductive fox families were identified at an endemic area of Koshimizu-cho, eastern part of Hokkaido, Japan. Feces of each fox family were collected at the area <500 m from each fox den in April, June and September. Because juvenile foxes excrete only around their dens, their feces could be distinguished from adults' by its size in April and June. The coproantigen detection was in 47.1% (n=51), 57.6% (n=250) and 55.9% (n=256), and taenid eggs in 16.0%, 28.7% and 14.8% of each fecal sample from April, June and September, respectively. Although these relatively high prevalence (comparing to government statistics) did not show significant seasonal differences, the prevalence of juveniles were significantly higher than adults. In September, parasitological survey of rodents were also conducted around the cubbing dens where coproantigen or taenid eggs were positive in the previous survey. *E. multilocularis* and *Taenia taeniaeformis* were found in 4.5% and 1.7% of 174 captured rodents. These results showed that an cubbing dens become one of the important endemic foci where intermediate hosts frequently ingest *E. multilocularis* eggs derived from juveniles' feces. The coproantigen detection method would be an effective tools for understanding the epizootiology of *E. multilocularis* in the field.

O-0198 OCCURRENCE OF *ECHINOCOCCUS GRANULOSUS* IN A STRAY DOG IN MEXICO CITY.

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Exact data concerning the prevalence of hydatidosis/echinococcosis in Mexico is lacking, even its is known that this zoonoses is endemic. Human cases usually are recorded in hospitals and kept in files. Animal cases are recorded by the Ministry of Agriculture, or Local Health Offices, but never are published. The studies in dogs are done very seldom, it is necessary a well educated eye in order to avoid overlook the small worms.

During an ecological study on the community structure of intestinal helminths of stray dogs from Mexico City, we found an old male (more than 10 years old) massive infected with *Echinococcus granulosus*, its characteristics are as follows :

TABLE 1. *Echinococcus granulosus* in an adult stray dog from Mexico City, examined in October 1997. Measurements are given in μm and a mean of n=10.

| CHARACTERISTICS | NUM./SIZE |
|------------------------------|-----------|
| Total length | 904.4 |
| Gravid proglottid | 491.5 |
| Large hooks (Num. / length) | 13/40.9 |
| Small hooks (Num. / length) | 15/28.16 |
| Num. of testis | 29 |

These morphological characteristics fit with those obtained from experimentally infected dogs with cysts pig origin, of previous studies done by the senior author. It is therefore obvious that this dog came from a rural area, where got the infection and was spreading the eggs on public play grounds. In Mexico, has been reported in the literature about 25 autochtonous human cases of hydatidosis. Because of the "high" prevalence of cystic hydatidosis in slaughtered livestock, mainly pigs, it seems the life-cycle of *E. granulosus* is well established in Mexico.