



Hydatidosis - Role of canines

Deepa Jolly, K.Vrinda Menon and B Sunil

Echinococcosis is a zoonotic infection caused by cestodes of the genus *Echinococcus*. The definitive hosts include dogs, wild dogs foxes etc, in which adult worms are present in the intestines. More than 50,000 worms may inhabit the duodenum and upper jejunum of infected dogs and individual worms are said to disrupt the intestinal mucosa, such massive infection are well tolerated by the definitive host with no clinical signs. Intermediate hosts include sheep, pigs, goats, cattle and humans in which metacestodes develop, which are referred to as hydatid cysts.

Human beings especially children, acquire the disease by ingestion of *Echinococcus* eggs which occurs by hand to mouth transfer of eggs after contact with infected dogs but may also result from ingestion of food, water, soil or fomites contaminated by infected dog faeces. Four species of *Echinococcus* are known to cause disease in human beings *E.granulosus*, *E multilocularis* *E vogeli* and *E oligasthus*. Both *E.Granulosus* and *E multilocularis* tend to establish systematic cycles when suitable prey-predator relationships exist in the wild life population.

E.granulosus

It is the widespread species causing cystic hydatid disease. The eggs when ingested hatch and release oncosphere. The larva grows

slowly and infrequently and exceeds more than a few centimeters in diameter in slaughtered sheep and cattle. Cyst commonly develops in the liver (65%), but can also be found in the lungs (20%), brain (1%), peritoneal cavity (8%), kidney (3%), bone marrow and other organs (3%) The most serious development is when the cyst ruptures and causes an anaphylactic reaction that may be fatal.

Epidemiology

❖ It is spread all over the world, the Mediterranean area, middle east, Indian subcontinent Africa, Australia and Central America.

❖ Depends largely on dissemination of eggs by tapeworm carrier rural dogs and stray dogs.

❖ Inappropriate standard of meat inspection or practice of private slaughtering without mandatory meat inspection favours distribution

❖ Pattern of transmission is dependent on the genetic variant of *E.granulosus* prevailing in an endemic area

❖ It is of epidemiological relevance that *E.granulosus* has a number of genetic variations adapted either in sheep or cattle or horse or pig (usually designated as dog-sheep, dog - cattle, dog-horse strains etc), individual strains may differ in features of morphology, biology (fertile/ sterile cyst ratio), antigenic composition and infectivity to man.

❖ Older animals are less susceptible to infection and develop sterile cysts more frequently.

❖ Eggs may survive over a year in the environment, but perish rapidly if exposed to high temperature.

Control

1. Health education and personal hygiene
2. Limiting the population of stray dogs
3. Regimented antihelminthic medication (Praziquantal during prepatent period every 6 months of potential infection on more practically every 3 months)
4. Prohibition of the feeding of uncooked offal to dogs and cats
5. Efficient meat inspection procedures with effective disposal of rejected meat and offals
6. Avoid eating unwashed fruits and vegetables in areas of endemicity.
7. Food stuffs can be rendered safe by heating at 45°C for 3 hours. Eggs survive storage in household deep freezer but lose infectivity after 3 days of freezing at -80°C.



Dr.Deepa Jolly,
Dr.K.Vrinda Menon and
Dr.B Sunil
Department of Veterinary
Public Health College of
Veterinary and Animal
Sciences Mannuthy

