Echinococcosis

1. DISEASE
Cystic Echinococcosis (Hydatid disease) & Alveolar Echinococcosis (Alveolar Hydatid disease)

2. NAME, DEFINITION, ETIOLOGICAL SPECIES
Echinococcus granulosus and Echinococcus multilocularis
- Echinococcosis is a nearly worldwide occurring zoonotic disease caused by tapeworms belonging to the genus Echinococcus.
- The major species of global medical importance are Echinococcus granulosus causing cystic echinococcosis (worldwide) and Echinococcus multilocularis causing alveolar echinococcosis (Northern Hemisphere).
- The adult tapeworms parasitize the testinum tenue of carnivorous animals.

3. DESCRIPTION OF THE ANIMAL RESERVOIRS
- Dogs, foxes, other regional canids (polar fox, jackal) and cats serve as definitive hosts.
- Herbivorous and omnivorous animals, like sheep, cattle, goats and pigs act as intermediate hosts for E. granulosus.
- Small mammals, mostly rodents, like field mice, water voles and muskrats act as intermediate hosts for E. multilocularis.
- Humans and many mammals can be infected as accidental hosts.

4. CLINICAL SIGNS, IF THERE ARE ANY
- E. granulosus: cysts filled with liquor – growing expansionary, serious hepapthopathy or cysts in lungs, CNS, spleen etc.
- E. multilocularis: infiltrative growth of the metacestode like a malignant tumour, serious hepapthopathy with metastasis in further organs (lungs, CNS, etc.).
- Definitive hosts have no symptoms.
- Intermediate hosts rarely show symptoms.
- Usually, accidental hosts show first symptoms years after infection.

5. WAY OF TRANSMISSION TO HUMANS
- Oral intake of eggs (egg → hand → mouth) after contact with infected animals (eggs can stick to the fur), contaminated water, soil or food.

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**6. CLINICAL SIGNS IN HUMANS**
- Usually, humans show first symptoms years after infection.
- *E. granulosus*: cysts filled with liquor - growing expansionary, serious hepathopathy or cysts in lungs, CNS, spleen etc.
- *E. multilocularis*: infiltrative growth of the metacestode like a malignant tumour, serious hepathopathy with metastasis in further organs (lungs, CNS, etc.).

**7. DIAGNOSIS IN HUMANS**
- Medical imaging
- Antibody test (IHA, ELISA, Western Blot)
- CAVE: no puncture of the liver due to danger of metastatic spread

**8. PREVENTION OF THE DISEASE**
- Personal hygiene (handwashing, especially after contact with animals and soil).
- Washing and cooking of fruits, berries, etc.
- Control of stray dogs.
- *E. granulosus*: deworming in intervals of 6 weeks (praziquantel).
- *E. multilocularis*: deworming in intervals of 4 weeks (praziquantel).