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Parasitic diseases

A – Direct transmissible to man

B – Indirect transmissible to man

C – Not / or rarely transmissible to man

Parasitic diseases direct transmissible to man

- 1-Cysticercus bovis
- 2- cysticercus cellulose
- 3- Trichinella spiralis cyst
- 4-Hetrophyes hetrophyes
- 5-Opistherchois tenuicollis
- 6- Diphyllbothrium latum
- 7 - Anaskiasis

1- *Taenia saginata* (Beef tapeworm)

- Lives in the small intestine of man
- Cyst called *Cysticercus bovis* , *Beef measles* or *cysticercus inermis*
- Cyst is rounded or oval in shape
- The cyst is found most commonly in cattle but occasionally in buffalo

Infestation system

- 1- Direct in undeveloped areas when animals are contact with humans in the same area. Ova may remain infective up to 6 monthes
- 2-indirect as by wild birds

Location (predilection site)

- Heart , tongue , masseter muscles, diaphragh , shoulder, hind quarter , oesophagus ,

Inspection

The background of the slide features a pattern of stylized autumn leaves. The leaves are rendered in various shades of orange, from light tan to deep, dark brown, creating a textured, layered effect. The overall color palette is warm and monochromatic, typical of fall foliage.

judgment

- Heavy infestation means presence of more than one cyst dead or live in an area of meat at size of palm of the hand in different areas of the carcass .Heavy infestation necessitates total condemnation.
- In light infestation which not fulfill the above mentioned requirements , carcass should be treated before releasing (conditionally approved)

Conditionally approved

- It means the treatment of meat before release for consumption by:
 - 1-freezing at -10°C for not less than 10 days.
 - 2- boiling at 100°C for 2.5 hrs , the cuts should be not more than 5 lbs with thickness of 10 cm, and the thermal death point 58°C .
 - 3- pickling in brine salt solution 25 % for 3-4 weeks
 - 4-steaming under pressure (1/2) an autoclave for one hour

Control measures

- Improving meat inspection
- Prevention of cattle infection
- Treatment of infected persons.
- Use of modern method as ELISA for diagnosis of infected animals.
- Vaccination of cattle against C.bovis
- Thorough cooking of meat.

2- Pork tapeworm(taenia solium)

- In the upper part of small intestine of man.
- Cestode.

Pork measles (*Cystidercus cellulosa*)

- The cyst is found more commonly in the pig.
- Size 1.6 x 0.9 cm
- The cyst may be present also in humans by
 - A- ingestion of eggs
 - B- retroperistalsis movement of small intestine of man resulting in movement of eggs to the stomach hexacanth embryo release.
- Cyst may be present in brain and eye so called C.racemosus or proliferative cyst.

Location

- Heart , diaphragm , tongue , neck thigh shoulder, intercostal, and abdominal muscles

judgment

- Presence of one cyst dead or live needs total condemnation

Control measures

- Improving meat inspection
- Prevention of pigs infection
- Treatment of infected persons.
- Thorough cooking of meat.

Trichinosis, Trichiniasis, Trichinellosis, Trichinellasis

- Disease caused by *Trichinella spiralis*
- Produce toxic products leads to myocarditis and fatal encephalitis
- Adult worm is found in the intestinal tract.
- The sexes are distinct , male 1.5 mm, female about 3 mm.
- It is found in pig, rat , mouse , dog and man

Larvae

- Are found in muscular tissue (intramuscle fiber) of the same host.
- The cyst is lemon shaped containing coiled larva. It is parallel to the longitudinal axis of muscle fiber, near the tendon.
- Location : in pig pillars of diaphragm, muscles of tongue , larynx and the abdominal and intercostal muscles

Methods of detection

- Trichinoscope

Infection in man

- Man become infected by ingestion of raw or undercooked trichinosed flesh

judgment

- One cyst total condemnation

Control measures

- Improving meat inspection
- Prevention of pigs infection
- Treatment of infected persons.
- Thorough cooking of meat.

Fish parasites transmissible to man

Opistherchois tenuicollis (*O.felineus*)

- It is a trematode lives in the bile duct and pancreatic duct of dog ,cat, fox, pig and man. It measures 18 mm x 3mm
- Encysted metacercaria present in fish at the base of the fins

Life cycle

- 1st intermediate host snail
- 2nd intermediate host fish
- *Containing encysted metacercaria*

Methods of infection

- Through eating raw infected fish, metacercaria exist in the duodenum , then young fluke migrate via bile duct

Judgment

- All fish affected need total condemnation

Hetrophyes hetrophyes

- Very small trematode in the small intestine of dog , cat , fox , and man
- with a size 1.7 mm x 0.7 mm

Life cycle

- 1st intermediate host snail
- 2nd fish (*Mugile cephalus*, *Tilapia nilotica*)
- *Containing encysted metacercaria*

Judgment

- Condemned the affected fish

Diphyllobothrium latum

- It is a cestode , Occures in the small intestine of man, dog , cat and fox with a length 2--20 meter

Life cycle

- 1st intermediate host cyclope
- 2nd intermediate host fish (as Eel) containing pleurocercoid.
- In the caviar or liver

judgment

- Affected fish must be totally condemned

7- Anaskiasis

- Nematode
- It is found in Japan, the Netherland and USA.
- Definitive hosts are marine mammals.
- In Europe the disease called herring worm disease.
- In human cases :
 - in europe involved intestine
 - In Japan involved both gastric and intestinal infection..It is found in Japan due to eating raw fish is a traditional way of life

Parasitic diseases indirect transmissible to man

- 1-Hydatid cyst
- 2-Linguatula rhinaria

1- Echinococcosis

- Caused by *Echinococcus granulosus*
- *Cestode* ,*Found in the small intestine of dog.*
- *Cyst called hydatid cyst*
- *Hydatid cyst is present in food animals and man*

Structure of hydatid cyst

- External cuticular membrane
- Internal germinal layer, small papillae from which broad capsule attached by short pedicle or stalk
- Vesicular fluid
- Daughter cyst appear as a projection from the broad capsule

Shape of hydatid cyst

- Oval or spherical
- Size from pin head to child's head

Judgment

- Condemned the affected part or organ under strict hygienic measures to prevent dog reach such part
- In case of muscular affection, oedema and emaciation need total condemnation

Control measures



2- *Linguatula rhinaria* (tongue worm)

- Arthropode closely related to tick and mite.
- It occurs in the nasal and respiratory passage of dog

Larval stage

- *Linguatula serrata* ,(*Pentastomum denticulatum*)
- Occurs in the mesenteric lymph node (6-8 mm in length , millet seed to pea size , yellow to grey or green and found peripherally when calcified mistaken with tuberculous lesions

Judgment

- Isolated foci in the liver , spleen or lymph nodes may be excised .
- Affected mesentric lymph nodes , condemned and destroy mesentric fat , incise mesentric fat 15 cm from the intestinal attachment

Parasitic diseases not / or rarely transmissible to man

- 1- Nematodes
- 2- Cestodes
- 3- Trematodes
- 4- protozoa
- 5- arthropodes

Nematoteds

- *Ascaris* spp
- Judgment
- Heavy infested intestine with ascaridae should be affected with a sour odour which not disappear when the carcass is hung , boiling test should be applied after 24 hours

Ascaris suum

- In pig , mistaken wit tubercullosis
- Differentiation by
 - 1-malchories test (duodenum)
 - 2-zehil nelson stain (acid fast bacilli)
 - 3- inoculation to laboratory animal (guinea pig or rabbit)

Lung worms

- Judgment
- In slight infestation condemned the affected parts
- In heavy infestation condemned the lungs and judging the carcass depending on its condition
- Carcass that is edematous or emaciated because of parasitic bronchitis should be condemned

Cestodes

- Judgment
- Condemned the affected organs
- Heavy infestation accompanied with emaciation total condemnation
- *Coenureus cerebralis*
- Emaciated carcass total condemnation

worm	host	I.stage	I.H.	Site of larval stage
T.hyene	Hyene	C. Cameli C. dromedrii	camel	musculature
T.hydatigena	dog	C. tenuicollis	Sheep, goat, cattle	Abdominal cavity, viscera
T. ovis	dog	C. ovis	sheep	Heart, muscles
Multiceps.m ulticeps	dog	Coenureus cerebralis	Sheep, goat, cattle	C.N.S
T. pisiforms	dog	C. pisiforms	rabbit	Liver, mesentry
M. serialis	dog	Coenureus serialis	rabbit	muscles

Trematodes

- Fascioliasis
- Man may be infected by ingestion of encysted cercaria and not by the ingestion of animal liver containing the adult parasite
- Judgment
- Remove the affected part
- Cirrhotic liver or markedly pipey must be condemned

Dicrocoelium dendriticum

- Trematode
- Have two intermediate hosts ant and snail
- It is found in northern europe, north and south america
- Judgment
- Remove the affected part
- Cirrhotic liver or markedly pipey must be condemned

Protozoa

- Coccidia
- Eimeria
- Judgment
- Slight affection condemned the affected liver lesion
- Heavy affection condemned the liver and the carcass if emaciation is accompanied

Genus Sarcosporidia

- *S. miesheriana* (pig)
- *S. tenella* (sheep)
- *S. blanchardi*(cattle)
- *Balbiana gigantea* (larg macroscopic in buffaloe, oesophagus)

Judgment

- Localized affection condemned the affected parts
- Heavy infestation needs total condemnation

Arthropoda

- *Hypoderma bovis*
- Judgment
- Scraping of the skin on the back with a knife and clean should be applied over the warbled area

Oestrus ovis

In sheep

- Judgment
- In sheep suspected the head should be examined by splitting the skull in the middle line , presence of larvae and mucopurulent discharge , condemned the head

Thank you

