TREMATODE INFECTIONS-GASTROINTESTI NAL

DISEASE: Amphistomiasis
AGENT
Gastrodiscoides hominis
RECOGNITION
Syndrome: Human: Usually subclinical. Mucoid diarrhea if parasites are numerous.
Animal: Similar to humans.
Incubation period: Unknown.
Case fatality rate: None.
Confirmatory tests: Microscopic examination of fresh feces for ova of ***G. hominis*** or identification of expelled flukes following treatment.
Occurrence: Asia and Guyana. Reservoirs are humans, pigs, deer, rodents, and nonhuman primates. Pigs are the primary reservoir.
Transmission: Ingestion of metacercariae on plants growing in water contaminated with feces of infected pigs (usually) or humans. Cercariae develop in planorbid snails.

CONTROL AND PREVENTION

Individual/herd Treat with tetrachlorethylene. Avoid eating uncooked aquatic plants in endemic areas.

Local/community: Treat infected pigs. Prevent contamination of water containing edible plants. Education regarding method of transmission.

Nationa/internationaI: None.

DISEASE: Echinostomiasis

AGENT

Echinostoma spp. ***(E. ilocanum, E. malayanum),*** for mammals; ***Echinostoma*** spp. ***(E. lindoense, E. revolutum), Echinopatyphium recutvatum, Echinochasmus perfoliatus, Hypderaeum conoideum,*** for birds

RECOGNITION

Syndrome: Human: Usually asymptomatic. With heavy parasite load colic and diarrhea.

Animal: Same as human.

Incubation **period: 2-3** weeks.

Case fatality rate: None.

Confirmatory tests: Microscopic examination of fresh feces for ova of ***Echinostoma*** spp.

Occurrence: Asia and the Philippines. Reservoirs are humans, dogs, cats, some wild animals, birds, and reptiles.

Transmission: Ingestion of one of the two intermediate hosts which may be (uncooked) planorbid snails or fish containing encysted metacercariae, or from water contaminated with feces of infected humans or animals.

CONTROL AND PREVENTION

Individual/herd: Treat with tetrachlorethylene. Avoid eating uncooked fish or planorbid snails in endemic areas.

Local/community: Education regarding method of transmission.

National/international None.

DISEASE: Fasciolopsiasis

AGENT: ***Fasciolopsis buski***

RECOGNITION

Syndrome: Human: Diarrhea, vomiting, anorexia. Edema of face, abdomen, or legs. Ascites from toxic metabolites of parasite. With very heavy parasite load, intestinal obstruction may occur.

Animal: Usually subclinical, but a heavy parasite load can mimic the human syndrome.

Incubation period: 1-2 months.

Case fatality rate: Low.

Confirmatory tests: Microscopic examination of fresh feces for ova of *F*. ***buski.***

Occurrence: Southeast Asia. Reservoirs are humans and pigs. Dogs may be infected.

Transmission: Ingestion **of** uncooked aquatic plants with encysted metacercariae from eggs voided into water by infected humans or pigs. Cercariae develop in planorbid snails.

CONTROL AND PREVENTION

Individual/herd: Treat with tetrachlorethylene. Avoid eating uncooked aquatic plants in endemic areas.

Local/community: Education regarding method of transmission. Mass chemotherapy of infected humans and pigs. Proper human and swine fecal waste disposal.

National/international: None.

DISEASE: Heterophydiasis

AGENT ***Heterophyes*** spp. ***(Het. heterophyes, Het. continua), Haplorchis*** spp. ***(H. pumilio, H. taichui, H. yokogawai)***

RECOGNITION

Syndrome: Human: Usually asymptomatic. Heavy load of parasites may produce abdominal pain and mucoid diarrhea.

Animal: Same as human.

Incubation period: Unknown.

Case fatality rate: None.

Confirmatory tests: Microscopic examination of fresh feces for ova of heterophyid flukes.

Occurrence: Asia, Pacific islands, Australia, Mediterranean. Reservoirs are humans, domestic and wild carnivores, and fish-eating birds.

Transmission: Ingestion of uncooked freshwater, brackish, or saltwater fish (primarily mullet) containing encysted metacercariae of heterophyid flukes. Cercaria develop in snails living in water contaminated with feces of infected host animals.

CONTROL ***AND*** PREVENTION

Individual/herd: Treat with tetrachlorethylene. Avoid eating uncooked fish in endemic areas

Local/community: Prevent fecal contamination of fish ponds. Avoid feeding raw fish to cats and dogs in endemic areas.

Natknal/international: None..

DISEASE: Metagonimiasis

AGENT

Metagonimus yokogawai

RECOGNITION

Syndrome: Human: Often asymptomatic. May produce mucoid diarrhea.
Animal: Same as human.

Incubation period. Unknown.

Case fatality rate: None.

Confirmatory tests: Microscopic examination of fresh feces for ova of ***M. yokogawai.***

Occurrence: Asia. Human cases have been reported in Spain. Reservoirs are humans, dogs, cats, mice, and fish-eating birds.

Transmission: Ingestion of uncooked fish (especially trout) with metacercariae encysted on undersurface of scales. Cercariae develop in snails living in water contaminated with feces of infected host animals.

CONTROL ***AND*** PREVENTION

Individual/herd Treat with tetrachlorethylene. Avoid eating uncooked fish in endemic areas.

Local/community: Prevent fecal contamination of fish ponds. Education regarding method of transmission

National/international: None,

TREMATODE INFECTIONS-LIVER

DISEASE: Clonorchiasis

AGENT: ***Clonorchis sinensis***

RECOGNITION

Syndrome: Human: Asymptomatic in light infection. Fever, diarrhea, anorexia. Icterus and hepatomegaly may occur, if bile ducts become obstructed.

Animal: Same as human. Carcinoma of bile duct may develop in cats and dogs.

Incubation period: Variable. Up to 1 month.

Case fatality rate: Low.

Confirmatory tests: Microscopic examination of fresh feces or bile for ova of C. ***sinensis.***

Occurrence: Southeast Asia. Reservoirs are humans, dogs, cats, pigs, and rats.

Transmission: Cercariae develop in primary intermediate hosts (snails) inhabiting water contaminated with feces of infected animal definitive hosts. Cercariae emerge from the snail and attach to a second intermediate host, one of several species of freshwater fish or snails, in which they develop into metacercariae. Humans are infected by ingestion of raw secondary intermediate hosts.

CONTROL **AND** PREVENTION

Individual/herd: Treat with bithionol or praziquantel. Cook freshwater fish in endemic areas.

Local/community: Education regarding method of transmission. Prevent fecal contamination of fish ponds. Snail control.

National/international None.

DISEASE: Dicroceliasis

AGENT: ***Dicrocelium*** spp. ***(D. dendritcum, D. hospes)***

RECOGNITION

Syndrome: Human: Usually asymptomatic. Colic, diarrhea, flatulence.

Animal: With heavy parasite burden, weight loss, anemia, edema.

Incubation period: 7 weeks.

Case fatality rate: Low.

Confirmatory tests: Microscopic examination of fresh feces for presence of ova of ***Dicroceliurn*** spp. A false-positive result may **occur** if the patient recently consumed the liver of an infected animal. (Ova will appear in feces without infection).

Occurrence: Worldwide. Reservoir cattle, sheep, other herbivores.

Transmission: Ingestion of metacercariae in ants. Cercariae develop in land snails inhabiting pasture contaminated with feces of infected herbivores. Ants become infected when feeding on snails.

CONTROL AND PREVENTION

Individual/herd Treat with bithionol or praziquantel. Avoid chewing on plants in endemic areas. Treat infected herbivores with hetolin or thiabendazole.

Local/community Education regarding method of transmission. Control snails with molluscicides.

National/international: None.

DISEASE: Fascioliasis

AGENT: ***Fasciola*** spp. ***(F. hepatica, F. gigantica)***

RECOGNITION

Syndrome: Human: Often asymptomatic. Abdominal pain, diarrhea, icterus. With **a** chronic infection, toxemia. Laryngopharyngitis ("halzoun") may occur following ingestion of raw infected liver.

Animal: Hepatic necrosis, weight loss, ascites, death.

Incubation period Variable. **6-16** weeks.

Case fatality rate: Low.

Confirmatory tests: Microscopic examination of feces or bile for ***Fasciola*** spp. ova. False-positive results will occur if patient recently consumed liver from an infected animal. During early stages of infection, eggs will not be present, therefore serum for ELISA testing should be collected.

Occurrence: F. *hepatica* is worldwide. Human infection with ***F. gigantica*** has been reported in Africa, Asia, and Hawaii. Reservoirs are cattle, sheep, and other herbivores.

Transmission: Ingestion of aquatic plants with encysted metacercariae. Cercariae develop in snails inhabiting water contaminated with feces of infected herbivores. Halzoun results from eating raw liver from infected animals.

CONTROL AND PREVENTION

Individual/herd: Treat people with bithionol or praziquantel. Treat infected herbivores with triclabendazole. Avoid eating aquatic plants without first cooking in endemic areas. Cook liver from herbivores in endemic areas.

Local/community: Education regarding method of transmission. Eliminate snail intermediate hosts.

National/international None.

DISEASE: Opisthorchiasis

AGENT

Opisthorchis spp. (**O. *felineus, O. viverrini), Amphimenus pseudofelineus***

RECOGNITION

Syndrome: Human: Varies from asymptomatic to fever and icterus.

Animal: Same as human.

Incubation period Unknown.

Case fatality rate: Low.

Confirmatory tests: Microscopic examination of feces or bile for ova. Serum for ELISA testing.

Occurrence: Europe and Asia. Reservoirs are humans, pigs, and fish eating carnivores (otters, seals, foxes, etc).

Transmission: Ingestion of uncooked freshwater fish containing metacercariae. Cercariae develop in snails inhabiting water contaminated with feces from infected host animals.

CONTROL AND PREVENTION

Individual/herd: Treat with bithionol or praziquantel. Avoid eating uncooked fish in endemic areas.

Local/community: Education regarding method of transmission. Prevent fecal contamination of freshwater fish ponds. Snail control.

National/international: None.