

Black Spot Disease (*Neascus*)

I. *Causative Agent and Disease*

Black spot is caused by digenetic trematodes (flukes) in the family Diplostomatidae. The cercarial forms of the trematodes penetrate the skin of a fish, where they encyst and develop into metacercariae. The fish surrounds the cyst with black pigmented melanin in response to the foreign organism. The black spots are often visible to the naked eye. These worms are present in both freshwater (*Posthodiplostomum*, *Uvulifer*, *Crassiphiala*) and seawater (*Cryptocotyle*).

II. *Host Species*

Salmonids and other fresh water and marine fish are second intermediate hosts.

III. *Clinical Signs*

Infested fish exhibit black, raised nodules in the skin which are often 1-2 mm in diameter.

IV. *Transmission*

Fish are parasitized by exposure to surface water containing parasitized snails. The actively swimming cercariae from the snails penetrate the skin of the fish where they develop into metacercariae. The definitive hosts are fish eating birds that complete the life cycle by releasing eggs into the water with feces. The eggs hatch into miracidia which parasitize the snails.

V. *Diagnosis*

Presumptive diagnosis is made by the observation of small, multifocal, slightly raised black spots in the fish skin. Confirmation is obtained by observing metacercariae in the cysts in wet mount preparations or histological sections.

Tissue sections often reveal a thick, fibrinous capsule around the encysted metacercariae with the periphery of the capsule containing numerous melanocytes.

VI. *Prognosis for Host*

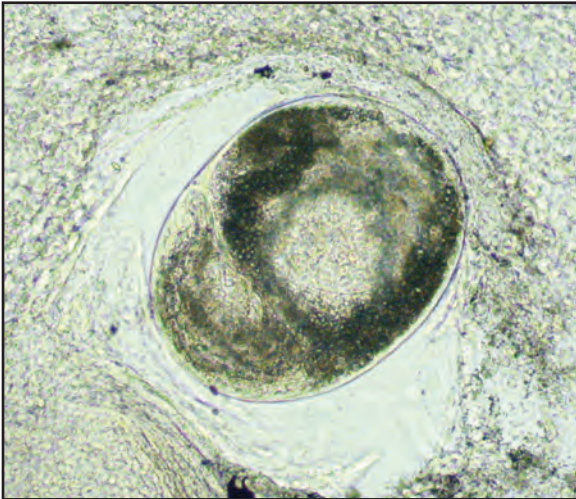
Most metacercarial infestations of the skin are relatively non-pathogenic, although the aesthetic quality of the fish is reduced.

VII. *Human Health Significance*

There are no human health concerns associated with this parasite.



Typical black spots composed of melanin that surround encysted metacercariae of the larval genus *Neascus* in an Arctic grayling



Encysted metacercaria of *Neascus*