Larval Diplostomulum of the Eye

I. Causative Agent and Disease
   This condition is caused by digenetic larval trematodes (fluke) of the genus Diplostomulum that parasitize the eye. One species is found in the lens (D. spathaceum) and others are found in the vitreous chamber of the eye. The parasites can remain in the eye for a long time often resulting in cataracts and blindness in the host fish.

II. Host Species
   Many salmonids and other fresh water fish are susceptible.

III. Clinical Signs
   The fish may have cataracts and the eye will look opaque.

IV. Transmission
   As with other digenetic trematodes, the fish becomes parasitized horizontally through the water from infested snails. The invasive cercariae from a snail (first intermediate host) penetrate the fish (second intermediate host), usually through the skin, and migrate to the eye where they develop into the metacercarial form. The life cycle is completed when the fish host is eaten by a piscivorous bird where the adult fluke develops in the gut.

V. Diagnosis
   This condition is diagnosed by wet mount observation of metacercariae in the lens or vitreous humor of the eye in a parasitized fish. Typical metacercariae can also be identified using histological methods.

VI. Prognosis for Host
   If parasitized bilaterally, complete blindness may result and the host fish will probably die from predation or inability to find food. When only one eye is parasitized, the host fish may survive for a long time.

VII. Human Health Significance
   There are no human health concerns associated with this parasite.
**Diplostomulum**

*Life Cycle*

- Fish eating birds (final host for adult trematode *Diplostomulum*).
- Mature egg.
- Ciliated larvae – miracidium.
- Infected snail.
- Free swimming cercaria.
- Fish with infected eye.
- Metacercaria from lens.

Metacercarial form of the eye fluke *Diplostomulum* from an Arctic grayling.