

Systemic Mycosis

I. Causative Agent and Disease

An unidentified marine fungus causes a systemic mycosis in basket cockles characterized by an intense inflammatory response with multiple granulomas containing necrotic cells and fungal hyphae. Infections have been discovered incidentally as well as associated with high mortality. There are no other known reports in the literature of a similar systemic fungus infection in adult bivalve molluscs.

II. Host Species

This fungus has been observed only in basket cockle populations from three locations in southeast Alaska during 1987 to 2005. The geographic distribution of the fungus in Alaska and whether other species of bivalves are susceptible are unknown.

III. Clinical Signs

The fungal infection may be grossly visible as external focal tissue discolorations with or without observed cockle mortality. Histological examination shows variable infiltration of host tissues by fungal hyphae that are contained within large granulomas.

IV. Transmission

The mode of transmission is unknown but is presumably horizontal via ambient seawater and/or the substrate where the cockles occur.

V. Diagnosis

Histological examination of hematoxylin and eosin stained material show large granulomas containing necrotic tissues and branching brown septate hyphae with basophilic conidia-like reproductive structures. Tissue sections of hyphae stain black (positive) by

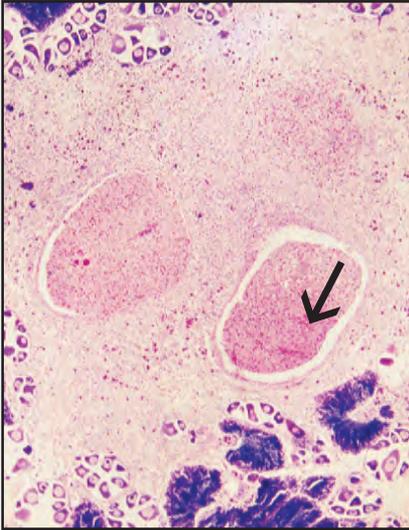
Grocott's method of methenamine-silver nitrate (GMS) for fungi. An opportunity has not occurred for further characterization of the fungus by attempted isolation on artificial media.

VI. Prognosis for Host

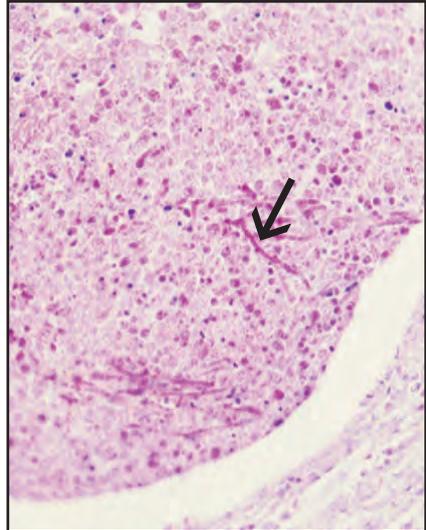
The fungal infection is highly invasive and likely responsible for the mortality of infected animals. The prevalence of this fungus in examined basket cockle populations has been low but its overall importance for causing enzootic disease is unknown.

VII. Human Health Significance

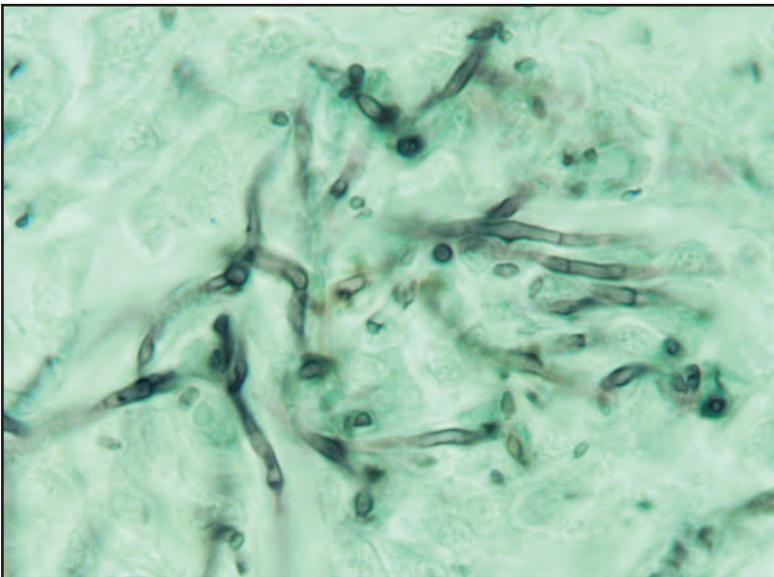
It is unlikely that this fungal infection in bivalve molluscs has any zoonotic significance for human health but definitive evidence is not available at this time.



Histological section of granuloma in connective tissue with two necrotic foci containing fungal hyphae (arrow)



Higher magnification of same necrotic focus with fungal hyphae (arrow)



GMS stain showing septate fungal hyphae (black)