

A *Steinhausia*-like infection in the Pacific oyster,
Crassostrea gigas

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Introduction

A few members of the Microspora are known to parasitize in marine bivalves. These intracellular protozoans are comparatively small (3~6 μm) organisms completing their entire life cycle in a single host cell. Intermediate hosts are not known (Lauckner, G. 1983). The microsporidian *Steinhausia* sp. has already been described in mussels, oysters and clams. *Steinhausia ovicola* has a wide geographical range, including ova of *Crassostrea gigas*, *Crassostrea echinata* and *Ostrea edulis* in Humboldt Bay, California, Korea, south western Japan including Hiroshima Bay, Northern Territory, Australia and Marennes, France. We describe a *Steinhausia*-like parasite (Microspora) that was observed in histological sections of oysters obtained from an oyster farm in Yeosu, Korea.

Materials and Methods

September 2005, samples consisting of 120 oysters were collected from an oyster farm in Yeosu, Korea. The oysters were fixed whole in Davidson's fixative for 24 h. Oblique transverse sections, approximately 5 mm thick, were taken from each specimen so that mantle, gonad, digestive gland and gills were included. The tissue samples were embedded in paraffin and 4 μm sections were stained with HE.

Results and Discussion

A low intensity (3/120=2.5%) *Steinhausia*-like infection was observed in histological sections of the mature ova of female oysters obtained from Yeosu in September, 2005. Sporocysts are typically found in the cytoplasm

but also occur in the nucleus of the host ova. All developmental stages of the parasites appeared within spherical or subspherical parasitophorous vacuoles. Amoeboid organisms, moving about freely among the follicles and in the genital canals of host, which actively penetrated host ova. Sporontal plasmodium in cytoplasm of infected ova as the earliest developmental stage of the microsporan. At later stages, cyst with mature spores and the oocyte became disintegrated. These sporocysts were spherical and 6.41~12.82 μm in diameter (mean 10.87 μm), and contained spherical spores (about 1.53~2.58 μm in diameter, mean 2.03 μm). The number of spores per sporocysts varied widely, from 22 to 30. Infection of the parasite did not caused an intensive hemocyte infiltration to the presence of the parasite as described by Figueras *et al.* (1991) and some parasitized eggs are necrotic. The mechanisms by which the oyster becomes infected is enigmatic. Vertical transmission is suspected but not yet proven. We have doubts about the importance of this parasite in the reproduction of the oyster because of the large number of ova produced by this marine benthic invertebrates.

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