Diseases of molluscs

Parasitic diseases—Infection with Marteilia refringens

Signs of disease

Important: animals with disease may show one or more of the signs below, but disease may still be present in the absence of any signs.

Clinical signs of disease in an infected animal

- poor condition and emaciation
- high mortality
- cessation of growth

Gross signs of disease in an infected animal

- discolouration of digestive gland
- tissue necrosis

Disease agent

Marteilia refringens is a haplosporidium protozoan parasite affecting the digestive system of the flat oyster. In Europe, this disease is commonly known as Aber disease, digestive gland disease of the European oyster, or marteiliosis.



Healthy flat oyster

Source: French Research Institute for Exploitation of the Sea-IFREMER



Flat oyster infected with M. refringens

Source: French Research Institute for Exploitation of the Sea-IFREMER





Infection with Marteilia refringens continued

Host range

calico scallop

Molluscs known to be susceptible to the disease:

American oyster* (Crassostrea virginica)
common cockle* (Cardium edule)
European flat oyster* (Ostrea edulis)
New Zealand dredge oyster* (Ostrea chilensis)
Olympia oyster* (Ostrea conchaphila)
rock oyster* (Saccostrea cuccullatta)
Argentinian flat oyster (Ostrea puelchana)

mussels (Mytilus edulis, Mytilus galloprovincialis)

(Argopecten gibbus)

Pacific oyster (Crassostrea gigas) southern mud oyster (Ostrea angasi)

A closely related protozoan, *Marteilia* sp, has been associated with disease in *Saccostrea cuccullata* in Western Australia.

Presence in Asia-Pacific

EXOTIC — has not been officially reported in the Asia–Pacific region under the NACA–FAO–OIE quarterly aquatic animal disease reporting program.

Epidemiology

- Infection with *Marteilia refringens* produces high mortality, associated with sporulation in the epithelial cells of the digestive tubules.
- Earlier stages of sporulation occur in epithelia of the digestive ducts and, possibly, gills.
- An intermediate host or a free-living stage is thought to be required in the lifecycle of this parasite.
- Marteilia refringens can occur in some oysters without causing disease.
- The factors triggering a pathogenic host response are not clearly established, but may include environmental stresses or stock differences in disease resistance.

Differential diagnosis

The differential diagnostic table and the list of similar diseases appearing at the bottom of each disease page refer only to the diseases covered by this field guide. Gross signs observed might well be representative of a wider range of diseases not included here. Therefore, these diagnostic aids should not be read as a guide to a definitive diagnosis, but rather as a tool to help identify the listed diseases that most closely account for the gross signs.

^{*} naturally susceptible (other species have been shown to be experimentally susceptible)





Infection with Marteilia refringens continued

The clinical signs of infection with *M. refringens* are practically identical to those of infection with other haplosporidia (ie high mortalities associated with colourless and translucent tissues, poor condition, pale digestive gland and a shrunken body). Therefore, any presumptive diagnosis requires histological laboratory examination.

Sample collection

Because of uncertainty in differentiating diseases using only gross signs, and because some aquatic animal disease agents might pose a risk to humans, you should not try to collect samples unless you have been trained. Instead, you should phone your national hotline number and report your observations. If samples have to be collected, the agency taking the call will advise you on what you need to do. Local or district fisheries/veterinary authorities could advise you on sampling.

Emergency disease hotline

For your national emergency disease hotline number, see Whom to contact if you suspect a disease.

Further reading

http://www.oie.int/aac/eng/cards/en_diseasecard.htm

http://www.pac.dfo-mpo.gc.ca/sci/shelldis/pages/madoy_e.htm

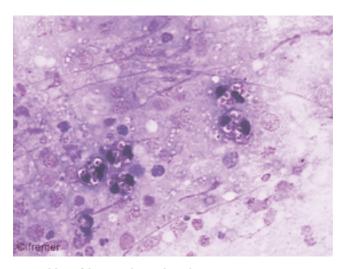
The currently accepted procedures for a conclusive diagnosis of infection with *Marteilia refringens* are summarised at http://www.oie.int/eng/normes/fmanual/A_00040.htm

These hyperlinks were correct and functioning at the time of publication.

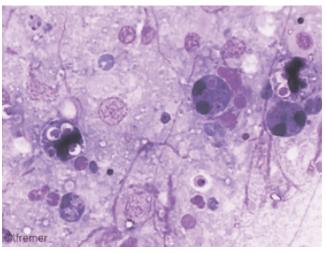




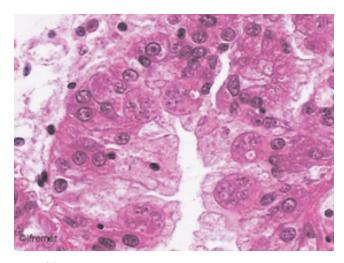
Histological images



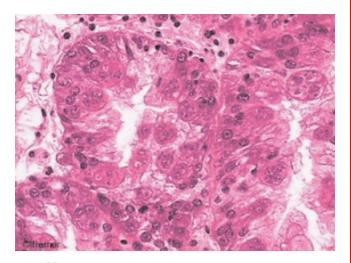
Marteilia refringens tissue imprint 1 x 80 Source: French Research Institute for Exploitation of the Sea-IFREMER



M. refringens tissue imprint 1 x 120 Source: French Research Institute for Exploitation of the Sea-IFREMER



M. refringens 1 x 120 Source: French Research Institute for Exploitation of the Sea-IFREMER



M. refringens 1 x 80 Source: French Research Institute for Exploitation of the Sea-IFREMER

