

Brucellosis in marine mammals: the potential role of respiratory parasites in the transmission of the bacteria

Lomba P.¹, Ectors F.², Garigliany M-M.², Vroomen S.², Jauniaux T.²

¹. Department, Morphology and pathology, FARAH, ULiège

². Department, Faculty of veterinary medicine, Liège, Belgium

Corresponding author: primaelle.lomba@student.uliege.be

Since their discovery in 1994, marine *Brucella* spp. have been isolated from various marine mammals. *B. ceti* infects cetaceans, while *B. pinnipedialis* is found in pinnipeds, though cross-infections occur. Apart from abortions they can cause, these Gram-negative intracellular bacteria are not directly fatal and can cause organ infections and lesions, weakening the animal. The transmission pathways of marine *Brucella* spp. remain unclear, but there is evidence that marine mammals can contract brucellosis by vertical, horizontal, and vectorial transmission via parasites, in particular pulmonary nematodes carrying the bacteria. These lungworms play a role in spreading *Brucella* spp., as first-stage larvae may also contribute to transmission of the bacteria in the marine ecosystem. This study aims to confirm the transmission of *Brucella* spp. by lungworm larvae in marine mammals, examining whether the first-stage larvae from the lungs of brucellosis-positive individuals are also infected by the bacteria. Lung samples from nine marine mammals (seven positive, two negative) were examined. After washing and concentrating the larvae, DNA extraction and PCR were performed to detect *Brucella* spp. Of the seven brucellosis-positive individuals, four had larvae likely carrying *Brucella* spp., while one brucellosis-negative individual also had larvae testing slightly positive. These results support the hypothesis of vectorial transmission of *Brucella* spp. by lungworms in marine mammals, validating the study's methodology despite some limitations.