Epidermal Rhomboid Plaques and Bacterial Sepsis Caused by 
Erysipelothrix rhusiopathiae in a Bottlenose Dolphin (Tursiops truncatus)

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ABSTRACT

A dead adult female bottlenose dolphin (Tursiops truncatus) was recovered from west Florida with a series of rhomboid plaques across the body which showed multiple organ inflammation, vasculitis, neutrophilic infiltration and bacilli consistent with acute bacterial sepsis. Histologic examination of skin lesions revealed necrosis compatible with infants but no evidence of bacilli. Aerobic bacterial culture isolated Photobacterium damselae from spleen, kidney, and blood and Edwardsiella hoshinae from blood. Photobacterium has been known to cause fatal septicemia in the aquaculture industry, and Edwardsiella sp. has been cultured from a cetacean with fatal septicemia. Erysipelothrix rhusiopathiae was isolated from spleen and blood samples. The disease in cetaceans has two forms: dermatological (treatable in cetaceans) and septicemic (usually fatal in cetaceans) (Dunn et al 2001). E. rhusiopathiae is zoonotic to humans. Due to its zoonotic potential, we recommend that all apparent dermatological cases be assessed for systemic infection of Erysipelothrix sp. and the potential role of other pathogenic bacteria to aid in accurate diagnosis and treatment implementation, as well as to minimize risk to humans handling affected animals.

DISCUSSION

The risk of zoonotic transmission of E. rhusiopathiae from cetaceans to humans is not fully understood; however, it is a known zoonotic disease commonly contracted from pigs and has been reported to infect humans who had been in contact with a deceased pilot whale in an isolated epidemic (Chastel et al. 1975). While there are vaccines and antibiotics that can successfully treat these bacteria, the risk of transmission is of significant concern for the marine mammal biologist dealing with potentially infected carcasses, particularly as an untreated infection could lead to permanent tissue damage or death. Those working in the areas of cetacean investigation, recovery and rehabilitation should be aware of the overt signs of Erysipelothrix infections. As the septicemic form may not have obvious outward indicators, appropriate personal protection equipment should be worn and precautions taken until the absence of the bacteria is confirmed in any suspected case.

REFERENCES


Dunn, J. L.; J. D. Buck; T. R. Robeck. 2001. CRC Handbook of Marine Mammal Medicine, Chapter 16 Bacterial Diseases of Cetaceans and Pinnipeds. CRC Press LLC.


BACKGROUND

Erysipelothrix rhusiopathiae is a Gram-positive bacteria that has been widely identified as a disease causing agent in terrestrial mammals, birds, fish, and marine mammals. E. rhusiopathiae in cetaceans is generally expressed in one of two forms: dermatological and/or septicemic. The dermatological form of this disease is characterized by grey rhomboid plaques (Cooperider 1968) in the skin (Fig. I), whereas signs of the septicemic form include swollen lymph nodes, enlarged spleen, endocarditis and/or ecchymotic hemorrhage. Clinically, a patient may present as anorexic, lethargic or with pyrexia (Dunn et al 2001). However, clinical signs have been reported in as little as 20 minutes before death (Seibold and Neal 1956). The septicemic form is an acute disease process. Both forms are potentially fatal without treatment.

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