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POST-MORTEM ISOLATION OF *Vibrio alginolyticus* FROM AN ATLANTIC WHITE-SIDED DOLPHIN *(Lagenorynchus acutus)*

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Abstract: Post-mortem examination of a stranded Atlantic white-sided dolphin *(Lagenorynchus acutus)* revealed congested lungs, sanguinous fluid in the peritoneal cavity, and an oral wound. Histopathologic findings were acute necrotizing hepatitis and acute focal bronchopneumonia. *Vibrio alginolyticus* was isolated from the blood and other organs.

INTRODUCTION

There are three halophilic marine bacteria of the genus *Vibrio* known to cause disease in man. *Vibrio parahemolyticus* has long been known to cause foodborne gastroenteritis associated with seafood.[2,3,5,6] A rather less common organism, *Vibrio alginolyticus,* has caused wound infections after recent exposure to seawater,[9] and has been responsible for septicemia and even death.[10] Finally, a rare, unnamed *Vibrio* was recently reported in a sizeable number of cases of septicemia originating either from seafood ingestion or from wounds exposed to seawater.[1]

In lower mammals, there exists a report of a stranded Pacific pilot whale in which *V. parahemolyticus* was among several bacteria isolated from a normal appearing lung.[7] In another paper, *V. alginolyticus* was one of the bacterial isolates from a dolphin with necrotic stomatitis, but there was no clear evidence that it was a pathogen.[4] In the case presented here, though definitive pathologic studies were not undertaken, it is suspected that *V. alginolyticus* was a significant factor in the stranding and death of the dolphin.

NECROPSY FINDINGS

On 30 August 1978, an Atlantic white-sided dolphin *(Lagenorynchus acutus)* was washed ashore at Amagansett, Long Island, New York. The animal was bleeding profusely from the mouth and very shortly thereafter expired on the beach. Personnel from the New York Ocean Science Laboratory removed the carcass to a large freezer until necropsy could be performed the next morning.

The dolphin was an adult male, 2.34 m long (snout to notch) and weighed an estimated 150 kg. There was sanguinous fluid in the peritoneal cavity and the lungs were so congested as to resemble the color of liver. At the left commissure of the mouth a ragged but fairly fresh wound had penetrated the maxillary soft tissue approximately 3 cm. The gastrointestinal tract was empty save for four squid beaks and a single unidentified nematode found in the stomach.

Tissue specimens of lung, spleen and liver were placed in 10% formalin for histopathology and swabs were taken from the lung, liver and heart blood for culture.

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RESULTS

Microscopic: One section of liver examined revealed congestion with some perivascular mononuclear infiltrate. In another section, there were multifocal areas of extensive necrosis and hemorrhage with acute inflammation as well as several smaller foci of neutrophils and macrophages diffusely scattered in no particular relationship to hepatic architecture. Intracellular gold-brown granular pigment was present multifocally and probably represents hemosiderin accumulation. The lung was extremely congested and there were focal areas of chronic-active inflammation surrounding a bronchus whose epithelium was destroyed by a mixed inflammatory infiltrate. The spleen showed lymphoid reactivity and diffuse congestion and hemorrhage.

The final microscopic diagnosis was acute necrotizing hepatitis and acute focal bronchopneumonia.

A smear made from the heart blood and stained with Giemsa revealed numerous free bacteria.

Microbiologic: Swabs were submitted to a local commercial diagnostic laboratory which sent the cultures to the New York State Department of Health. The sole organism that was isolated from all swabs was identified as *V. alginolyticus*. The bacteriological data leading to this conclusion were sent to Dr. Hollis Cox, Department of Veterinary Microbiology and Parasitology, School of Veterinary Medicine, Louisiana State University, who upon review agreed the data strongly supported the identification.

DISCUSSION

The halophilic vibrios overwinter in bottom sediments and, as the water temperature rises in the summer, they become associated with zooplankton and reach their greatest concentration during July and August.[8] Indeed, the occurrence of human infections are during the late summer months,[2,5] which coincides with the date of stranding of the dolphin studied in this paper. The possible routes by which the organism invaded the vascular system would be through the intestinal mucosa, the lung, or the oral wound.

Whether a primary pathogen or merely a post-mortem saprophytic invader, investigators in marine mammal medicine should be alert to the possibility of this organism to cause disease. Also, there should be an awareness of the potential for zoonotic disease when handling these animals or their tissues.

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