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antigens also exists, but that has not been a significant problem with the use of this test in domestic poultry.

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An Infection by *Vibrio alginolyticus* in an Atlantic Bottlenose Dolphin Housed in an Open Ocean Pen

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An adult male Atlantic bottlenose dolphin (*Tursiops truncatus*) had a history of recurring skin problems. The dolphin weighed 159 kg and was kept in Kaneohe Bay, Hawaii, in an open ocean floating pen, 6 m square, 3.5 m deep, enclosed by 16-cm-square wire mesh. The lesions were first noted in 1975 and were always similar in size, shape and location: 2.5- to 5.0-cm-diameter oval ulcers at the anterior insertion of the pectoral fins. In 1983, the lesions appeared the most severe since 1975. The dolphin's skin was ulcerated to the musculature in the cranial insertion area of both pectoral fins and, in addition, to the subcutaneous tissue on the tip of the rostrum and on the leading edge and lateral aspects of the dorsal fin. The dermis in the region of the pectoral lesions contained a mild neutrophil infiltrate with some neutrophil migration into the overlying stratum spinosum; such characteristics are consistent with chronic, active dermatitis.

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Although the dolphin had been treated under several different therapeutic plans previously, with varying degrees of success, lesions always recurred within 4 to 6 mo.

In May 1983, during a 26-day period of no treatment, the lesions became progressively larger and more inflamed than previously seen. Before cultures were taken, the lesion and surrounding area were aseptically prepared using Povidine Iodine surgical scrub, rinsed with alcohol, and allowed to dry for 60 sec. Single swab culturettes (Precision Culture C.A.T.S.™ with Modified Amies Medium, Precision Dynamics Corporation, 3031 Thornton Avenue, Burbank, California 91504, USA) were used to take cultures from the lesions. Samples were transported to the laboratory on ice and were plated within 1 hr of collection.

Each sample was plated on *Salmonella-Shigella* agar, blood agar, M-Endo agar LES, Membrane Filtration Agar for recovery of *Vibrio parahemolyticus* (Watkins et al., 1976, Appl. Environ. Microbiol. 32: 679–684), mannitol salt agar and

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TCBS agar. Each culture was incubated at 37 C and observed at 24, 48 and 72 hr. Growing colonies were biochemically typed using a computer-assisted API-20E system with 2% marine salts diluent (MacDonell et al., 1982, Appl. Environ. Microbiol. 44: 423–427), and were gram-stained and tested for oxidase and catalase. The isolated organisms were then compared to known strains source of *V. alginolyticus* control cultures (American Culture Collection Strain #17750) to confirm identification.

Vibrio alginolyticus was the only pathogenic organism isolated on any of the media initially. TCBS agar was found to be the optimum medium for the recovery of the *Vibrio* species. The second and a third series of cultures, taken 6 and 11 wk into treatment, produced identical results. These cultures were again confirmed using the same two test systems and with the appropriate controls.

No bacterial growth was detected on cultures taken from the affected areas during week 13, or during three post-treatment cultural attempts. No bacterial growth occurred in the blood cultures.

The dolphin's hematologic values changed little during the active infection. Except for a blood sample at week 13 of treatment showing a 10% reduction in hematocrit and a 35% reduction in lymphocytes (from this animal's normal), the dolphin's blood counts and blood enzyme and chemistry values were within acceptable limits throughout the treatment.

Minimal antibiotic inhibitory concentrations were determined using the Septor® Gram Negative/MIC panel (Bethesda Biological Laboratory, 2, Cockeysville, Maryland 21030, USA). The *Vibrio* organisms were found to be sensitive to trimethoprim/sulfamethoxazole, tetracycline, gentamycin, kanamycin and chloramphenicol. Resistance was shown against carbenicillin and ampicillin.

Based on antimicrobial susceptibility results, a therapy was initiated using 4.8 g (30 mg/kg) of Tribrissen® (trimethoprim/sulfadiazine, Burroughs Wellcome Co., Kansas City, Missouri 64108, USA) given orally once daily. Antibiotic therapy continued until all cultures were negative and the wounds were healed. The total treatment period was 13 wk, and treatment was discontinued after culture results were negative. Recrudescence has not occurred for 18 mo.

We have identified *V. alginolyticus, V. parahaemolyticus, V. fluvialis, V. vulnificus, V. cholera* (non-O-antigen) and several unclassified *Vibrio* species as normal inhabitants of the sea water in which our dolphins live (unpubl. data). Some of these *Vibrios* are also routinely isolated from blowholes, pharynx and feces of the dolphins at the Hawaii facility.

Several species of *Vibrio* are known to have caused epidemics in humans in both estuarine and nearshore marine environments (Blake et al., 1980, N. Engl. J. Med. 300: 1–5). Small odontocetes are free-ranging and occur in most inshore areas of the world. Species of *Vibrio* were also identified as normal inhabitants of newly captured small cetaceans by Solangi and Dukes (1983, Nat. Mar. Fish. Serv. Final Report #NA82-GA-C-00023,300, Washington, D.C., 177 pp.), and of cetaceans maintained in captivity over long periods of time. The potential for human acquisition of infections of *Vibrio* from dolphins exists. Species of *Vibrio* may be both primary and/or opportunistic pathogens in dolphins, therefore, people who maintain and deal with dolphins or come in contact with stranded dolphins must remain constantly aware of the zoonotic potential of these organisms.

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