

## *Neisseria* SPECIES ISOLATED FROM DOLPHINS<sup>1</sup>

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*Neisseria* species have been identified as part of the normal microbial flora of several domestic and experimental animals,<sup>1</sup> but they have not however, been observed in marine mammals.<sup>3</sup> We are presently studying on a long-term basis, the total microbial profile (bacteria, viruses, and fungi) of marine mammals in their natural habitat and the inter- and intra-species changes which occur when the animals are brought into contact with man, other animals, and when placed in isolation under husbandry conditions.

The present report describes the isolation of a bacterium *Neisseria mucosa* from dolphins (*Lagenorhynchus obliquidens* and *Delphinus bairdi*). The importance of this observation with regard to the husbandry of marine mammals is discussed.

### MATERIALS AND METHODS

Thirty-five dolphins were captured by net approximately 25 miles due west of the Channel Islands (50-60 miles from shore). Divers brought the animals aboard ship and within 10 minutes samples for culture were obtained from the mouth, eye, blowhole, conjunctiva, skin (axilla or flipper), vagina or prepuce, and anus. The animals were then returned to the ocean. The samples were obtained with dacron swabs<sup>4</sup> and placed aseptically in Amies Transport Medium.<sup>5</sup> The transport medium was maintained between 6 and 20C for 24 to 36 hours before plating onto various media for isolation and identification. Samples from the throat, mouth, blowhole, anus,

and vagina or prepuce were cultured in duplicate on PPLO medium.<sup>5</sup> One plate was incubated at 37C (10% CO<sub>2</sub>) and the other at 37C (20% CO<sub>2</sub>). Samples from other body sites were plated on blood agar, nutrient agar, phenylethyl alcohol agar with 5% blood, eosin-methylene blue agar, chocolate agar, thioglycolate broth, Sabaroud dextrose agar, and Dubos' oleic agar.<sup>5</sup> Duplicate plates were incubated aerobically and anaerobically at 6C, 20C, and 37C for 48 hours. All dissimilar colonies from all plates were selected from primary cultures and subjected to routine clinical bacteriology procedures.

### RESULTS

Only five of several hundred bacterial isolates proved to be gram negative, oxidase positive diplococci. These were initially isolated on PPLO medium aerobically at all temperatures of incubation from the blowhole of two female dolphins (*L. obliquidens*) and the blowhole, mouth, and throat of three female dolphins (*D. bairdi*) respectively.

The colonial appearance after incubation at 35C on nutrient agar overnight was similar for all five isolates, i.e. entire, smooth, 2-3 mm in diameter, slightly raised, butyrous, and containing a buff, yellow pigment.

The colonial morphology and production of acid in media containing 1% carbohydrate indicated that the dolphin isolates belonged to one of three species of chromogenic *Neisseria*, i.e. *N. mucosa*, *N. sicca*, or *N. perflava*. Prototype

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