Streptococcus phocae in Marine Mammals of Northeastern Pacific and Arctic Canada: A Retrospective Analysis of 85 Postmortem Investigations.

https://arctichealth.org/en/permalink/ahliterature285894

Author: Nicole D Taurisano
Brian P Butler
Diana Stone
Harry Hariharan
Paul J Fields
Hugh W Ferguson
Martin Haulena
Paul Cotrell
Ole Nielsen
Stephen Raverty

Source: J Wildl Dis. 2017 Oct 05;
Date: Oct-05-2017
Language: English
Publication Type: Article

Abstract: Streptococcus phocae is a pathogen of marine mammals, although its pathogenicity remains poorly understood. Recovery of this bacterium from asymptomatic carriers suggests that it is an opportunistic pathogen. We investigated the role of S. phocae in naturally occurring disease and its significance as a pathogen based on postmortem investigations. Between 2007 and 2012, 1,696 whole carcasses, tissue samples, or both were submitted from the northeastern Pacific and Arctic Canada for diagnostic testing. Streptococcus phocae was cultured from phocids (n=66), otariids (n=12), harbor porpoises (Phocoena phocoena; n=5), and sea otters (Enhydra lutris; n=2). Pathologic manifestations of S. phocae-associated disease included localized, as well as systemic, inflammatory lesions with common findings of suppurative bronchopneumonia (n=17) and bacteremia (n=27). Lung lesions were frequently culture-positive for S. phocae, suggesting commensal colonization of the oropharynx with subsequent opportunistic infection of the respiratory tract during tissue injury, coinfection, immunosuppression, or other debilitating conditions. The presence of a positive spleen culture, and interpretations at necropsy and histopathology, were used to determine the presence of S. phocae bacteremia. Less frequent lesions that were culture positive for S. phocae included abscesses (n=9), meningitis (n=7), and cellulitis (n=1). The majority of cases with S. phocae lesions featured pre-existing conditions that presumably contributed to some degree of debilitation or immunosuppression, including emaciation (n=29), liver mercury accumulation (n=29), trauma (n=22), severe pulmonary or cardiovascular nematodiasis (n=9), concurrent bacterial or viral infections (n=8), or sarcocystosis (n=6). These findings suggest that S. phocae could be characterized as an opportunistic pathogen, associated with debilitating conditions in stranded and rehabilitating marine mammals. Wildlife investigators can use these results to draw more definitive conclusions regarding positive S. phocae cultures during postmortem studies in marine mammals.

PubMed ID: 28982020 View in PubMed →
Streptococcus phocae is a pathogen of marine mammals, although its pathogenicity remains poorly understood. Recovery of this bacterium from asymptomatic carriers suggests that it is an opportunistic pathogen. We investigated the role of S. phocae in naturally occurring disease and its significance as a pathogen based on postmortem investigations. Between 2007 and 2012, 1,696 whole carcasses, tissue samples, or both were submitted from the northeastern Pacific and Arctic Canada for diagnostic testing. Streptococcus phocae was cultured from phocids (n=66), otariids (n=12), harbor porpoises (Phocoena phocoena; n=5), and sea otters (Enhydra lutris; n=2). Pathologic manifestations of S. phocae-associated disease included localized, as well as systemic, inflammatory lesions with common findings of suppurative bronchopneumonia (n=17) and bacteremia (n=27). Lung lesions were frequently culture-positive for S. phocae, suggesting commensal colonization of the oropharynx with subsequent opportunistic infection of the respiratory tract during tissue injury, coinfection, immunosuppression, or other debilitating conditions. The presence of a positive spleen culture, and interpretations at necropsy and histopathology, were used to determine the presence of S. phocae bacteremia. Less frequent lesions that were culture positive for S. phocae included abscesses (n=9), meningitis (n=7), and cellulitis (n=1). The majority of cases with S. phocae lesions featured pre-existing conditions that presumably contributed to some degree of debilitation or immunosuppression, including emaciation (n=29), liver mercury accumulation (n=29), trauma (n=22), severe pulmonary or cardiovascular nematodiasis (n=9), concurrent bacterial or viral infections (n=8), or sarcocystosis (n=6). These findings suggest that S. phocae could be characterized as an opportunistic pathogen, associated with debilitating conditions in stranded and rehabilitating marine mammals. Wildlife investigators can use these results to draw more definitive conclusions regarding positive S. phocae cultures during postmortem studies in marine mammals.