

Adenovirus and herpesvirus surveillance in Procellariiformes, southeastern Brazil.

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Procellariiformes (albatrosses, shearwaters and petrels) are among the most threatened avian groups. Nevertheless, studies on viral pathogens causing chronic/sublethal effects in Procellariiformes are still very scarce, limited to reports of only three viral agents (*avipoxvirus*, influenza A virus and herpesvirus). We surveyed adenovirus and herpesvirus in Procellariiformes, viruses of particular concern for these species given their potential to spill over among other individuals and bird species, capable of causing severe disease and even death. We analyzed fresh carcasses of 50 individuals, comprising 11 Procellariiformes species of the families Procellariidae (n=8), Diomedidae (n=2) and Oceanitidae (n=1), that stranded dead or died during rehabilitation in São Paulo state, southeastern Brazil, rescued by the Beach Monitoring Program of Santos Basin (IPEC/PMP-BS), between 2017 to 2021. Tissue samples from brain (n=47), lungs (n=50), and kidneys (n=50) were frozen at -80 °C until processing. Total DNA was extracted and subsequently tested using two nested pan-PCR protocols to partially amplify the DNA polymerase genes of adenovirus and herpesvirus. Positive samples were confirmed by sequencing in both directions. Overall, 14% (7/50) of the seabirds were adenovirus-positive - Cory's Shearwater (*Calonectris borealis*, n=3/10), Southern Giant-Petrel (*Macronectes giganteus*, n=3/4) and Black-browed Albatross (*Thalassarche melanophris*, n=1/8), in lungs (n=6/49), brain (n=2/50), and kidneys (n=1/50); and 24% (12/50) were herpesvirus-positive - Black-browed Albatross (n=7/8), Cory's Shearwater (n=2/10), Southern Giant-Petrel (n=1/4), Manx Shearwater (*Puffinus puffinus*, n=1/6), and Atlantic Yellow-nosed Albatross (*Thalassarche chlororhynchos*, n=1/1), in lungs (n=10/47), kidneys (n=8/50), and brain (n=5/50). This study broadens these viruses' host range in seabirds, being the first description of adenovirus in Procellariiformes worldwide. Ongoing analysis will use histopathology to investigate if these agents caused any impact on the health of the infected

individuals. Our findings greatly contribute to the current knowledge regarding infectious agents in Procellariiformes, and warrant further health investigations in this endangered seabird group.