First evidence of Chelonid Herpesvirus 5 (ChHV5) infection in Green Turtles (Chelonia mydas) from Sabah, Borneo

ABSTRACT

Fibropapillomatosis (FP) of sea turtles is characterised by cutaneous tumours and is associated with Chelonid herpesvirus 5 (ChHV5), an alphaherpesvirus from the family Herpesviridae. Here, we provide the first evidence of ChHV5-associated FP in endangered Green turtles (Chelonia mydas) from Sabah, which is located at the northern region of Malaysian Borneo. The aims of our study were firstly, to determine the presence of ChHV5 in both tumour exhibiting and tumour-free turtles using molecular techniques and secondly, to determine the phylogeography of ChHV5 in Sabah. We also aim to provide evidence of ChHV5 infection through histopathological examinations. A total of 115 Green turtles were sampled from Mabul Island, Sabah. We observed three Green turtles that exhibited FP tumours and were positive for ChHV5. In addition, six clinically healthy turtles (with no presence of tumours) were also positive for the virus based on Polymerase Chain Reaction of three viral genes (Capsid protein gene UL18, Glycoprotein H gene UL22, and Glycoprotein B gene UL27). The prevalence of the ChHV5 was 5.22% in asymptomatic Green turtles. Epidermal intranuclear inclusions were identified in tumour lesions upon histopathological examination. In addition, phylogenetic analyses of the UL18, UL22, UL27, and UL30 gene sequences showed a worldwide distribution of the ChHV5 strain with no clear distinction based on geographical location suggesting an interoceanic connection and movement of the sea turtles. Thus, the emergence of ChHV5 in Green turtles in the waters of Sabah could indicate a possible threat to sea turtle populations in the future and requires further monitoring of the populations along the Bornean coast.