

Bovine papillomavirus types 2 and 4 associated with a true papilloma of the alimentary canal of a dairy cow

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Bovine papillomaviruses (BPVs) belong to five genera included in the family *Papillomaviridae*. BPV types 1, 2, 13, and 14 are grouped together in the genus *Deltapapillomavirus*. BPVs 3, 4, 6, 9, 10, 11, 12, 15, 17, 20, 23, 24, and 26 belong to the genus *Xipapillomavirus*. BPV types 5, 8, and 25 are classified in the genus *Epsilonpapillomavirus*. BPV7 is the only member of the genus *Dyoxipapillomavirus*. BPV types 16, 18, and 22 are located in the genus *Dyokappapapillomavirus*, while BPVs 19, 21, and 27 remain in yet undefined genera. BPV infection can induce proliferative lesions of both cutaneous and mucosal epithelia in cattle, including the mucous membrane lining the alimentary canal. This study reports the BPV types detected in hyperplastic lesions of the alimentary canal of a cow from Mato Grosso state, Brazil. A dairy cow aged 8 years old was presented at the Veterinary Teaching Hospital of the University of Cuiabá, in Mato Grosso state, with extreme weakness associated with chronic intermittent diarrhea that occurred for several years. After natural death following four days of hospitalization, a complete necropsy was carried out where warts and plaques were verified in the esophagus, the areas surrounding and constricting the opening of the cardia, and the rumen pillars. Two lesions were evaluated by histopathological and molecular analyses. PCR amplification of partial fragments of the BPV L1 and E1 genes was performed followed by sequencing of the obtained amplicons. Histopathology analysis revealed one lesion as a true papilloma, and the second lesion as a fibropapilloma. PCR products sequenced from the fibropapilloma DNA showed infection by the BPV2. Inserts from selected clones containing partial fragments of the BPV L1 and E1 genes amplified from the true papilloma were sequenced and demonstrated a mixed infection by BPV2 and BPV4. Data presented by this study reinforce the association of single and mixed BPV infections with benign lesions of the alimentary canal of cattle, as previously demonstrated to occur in a buffalo from India. Moreover, the investigation of this case demonstrated the occurrence of massive papillomatosis of the upper alimentary tract in a cow raised on lands in midwestern Brazil without infestation by bracken fern, associated with infection by BPV types 2 and 4.

Keywords: Cattle; Esophagus; Rumen; Tumor; BPV; Brazil

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