Cholangiocellular Carcinoma in Swiss South American Camelids: A case series

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Abstract

Background: Cholangiocellular carcinoma (CCC) is a rare tumor in South American camelids (SAC).

Methods: This case series is based on a retrospective review of electronic medical records of SAC cases diagnosed with CCC and admitted to the Clinic for Ruminants at the University of Bern, Switzerland. Results from clinical examinations, blood analyses, medical imaging, and pathological examinations were extracted.

Results: Four cases of CCC (three llamas, one alpaca) were documented between 2019 and 2023. The animals were between 9 and 15 years old. The most common clinical symptoms included a deteroriated general condition, inappetence, and weight loss. Laboratory tests revealed non-specific abnormalities such as hypoalbuminemia and elevated liver enzyme levels, though not in all cases. Imaging techniques (ultrasound, radiography, computed tomography) consistently detected abdominal effusion and liver abnormalities, including changes in liver size (either increased or decreased), heterogeneous parenchyma, in some cases, pleural effusion. All animals were euthanized 1 to 9 days after admission. The diagnosis was confirmed by ante-mortem via liver biopsy in one case and post-mortem in all cases. *Dicrocoelium dendriticum* (eggs or adult parasite) was identified in all cases through fecal parasitological, macroscopic, or histological examination.

Conclusion: SAC with CCC exhibit nonspecific clinical symptoms and clinicopathological findings, making diagnosis challenging. The presence of abdominal effusion and liver abnormalities on ultrasonography may raise clinical suspicion and indicate the need for a liver biopsy to achieve a definitive ante-mortem diagnosis. The consistent presence of *D. dendriticum* in all cases suggests a potential link between this parasitic infection, the associated inflammation, and CCC development, warranting further investigation.