

NASAL MUCOSAL ADENOCARCINOMA IN A PET RABBIT

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Abstract

A 6-year-old male rabbit (*Oryctolagus cuniculus*) presented with upper respiratory disease that was nonresponsive to antibiotic therapy. Computed tomography revealed a severe space-occupying lesion of the right nasal cavity, deviation of the nasal septum to the left, and narrowing of the left nasal cavity. An exploratory rhinostomy was performed for the purposes of diagnostic sample collection and to improve airflow as clinical signs of dyspnea were becoming more pronounced. The histopathologic disease diagnosis from the biopsy samples was nasal mucosal adenocarcinoma. Palliative rhinostomy provided only temporary improvement in airflow, and the patient was euthanized 3 days later. On necropsy, neoplasia was found to extend into the rhinopharynx. This is the first reported case of nasal mucosal adenocarcinoma in rabbits. This important differential diagnosis should be considered for any rabbit with clinical signs of upper respiratory disease that is nonresponsive to medical therapy. Copyright 2014 Elsevier Inc. All rights reserved.

Key words: dyspnea; mucosal adenocarcinoma; neoplasia; rabbit; rhinostomy

A 6-year-old male rabbit (*Oryctolagus cuniculus*) was presented for a second opinion for treatment of signs consistent with upper respiratory disease (nasal discharge, conjunctivitis, and what was described as a "mild dry cough"). The referring DVM administered enrofloxacin (22.7-mg tablet orally, once daily, Baytril; Bayer, Shawnee Mission, KS USA) with no treatment response. On recheck examination, the animal's general behavior was reported as improved, but the respiratory condition (congestion and coughing) remained. Lung sounds were reported as slightly harsh. The owner was advised to continue enrofloxacin as prescribed. On presentation to one of the authors' clinic (A.M.L.), the rabbit was in good weight and condition with disease abnormalities being limited to the upper respiratory system. There was moderate serous discharge from both nares and increased stridor on inspiration. Respiratory rate was within normal limits, but respiratory effort was mildly increased, and worsened with handling. There was no evidence of what was described as a cough.

A deep nasal sample was obtained with a small culture swab from the right ventral nasal meatus and submitted for aerobic culture and sensitivity. The owner declined other diagnostic testing including a complete blood count, plasma biochemistry panel, and diagnostic imaging.

Aerobic culture and sensitivity revealed *Staphylococcus pseudintermedius*, which was suggested to be a nonpathogen, and *Pseudomonas aeruginosa*, which was resistant to every tested

antimicrobial drug with the exception of amikacin. Owing to the current unavailability of commercial injectable amikacin, difficulty of administration, and potential untoward effects, the owner was sent home with instructions for nebulization, 3 times a day, with compounded amikacin solution (amikacin sulfate, nasal, 17 mg/0.6 mL; CustomMed Apothecary, Indianapolis, IN USA).

The owner reported mild improvement over the first week of treatment, but then the respiratory

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effort worsened. At recheck examination, the results of the external physical examination were similar to the first presentation, with the exception of a moderately worsening respiratory effort and mild dehydration based on skin turgor. The owner consented to additional diagnostic testing, including a plasma biochemistry analysis, which had unremarkable results. Owing to the superiority of computed tomography (CT) over plain radiography for evaluation of the nasal cavities, the owner elected CT diagnostic imaging.

The rabbit was administered 100-mL balanced electrolyte solution subcutaneously and then sedated with midazolam (0.5 mg/kg, intramuscularly, midazolam injection; Akorn Inc., Lake Forest, IL USA), hydromorphone (0.10 mg/kg, intramuscularly, hydromorphone HCl injection; Baxter Healthcare Corp., Deerfield, IL USA), ketamine (7 mg/kg, intramuscularly, Ketathesia; Butler Schein Animal Health, Dublin,

OH USA), and dexmedetomidine (0.005 mg/kg, intramuscularly, dexmedetomidine HCl; Pfizer Animal Health, NY, NY USA). A 24-gauge catheter was placed in the cephalic vein and fluids were administered at 10 mL/hour during the procedure. Just before the scan, anesthesia was induced with etomidate (intravenously, etomidate, Braun, Melsungen, Alemania) to effect, and the rabbit was intubated. After intubation, respiratory effort was significantly improved, as expected. Anesthesia was maintained with 2% to 3% isoflurane (Isothesia, Butler Schein Animal Health) in 100% oxygen (1.5 L). Recovery was uneventful.

CT scans were obtained of the head and thorax without contrast (Fig. 1). In the head, the principal change was in the right nasal cavity. This change was evidenced by a mass of soft tissue hyperattenuation throughout the right nasal cavity from the level of the incisors to the caudal-most cheek tooth, and a significant loss of nasal

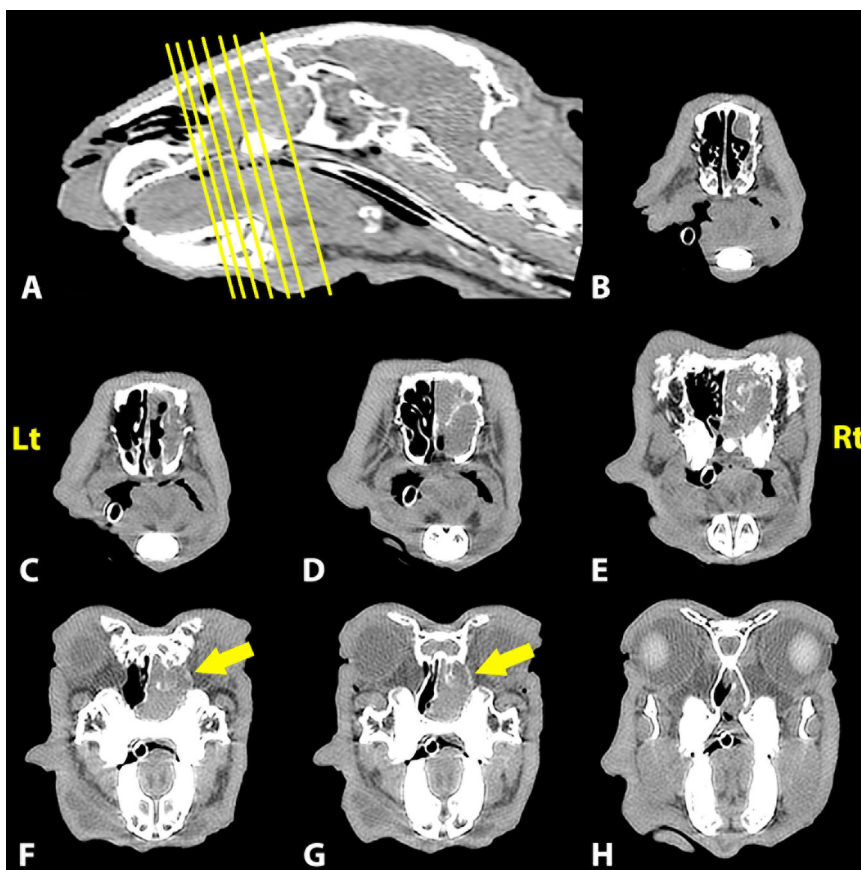


FIGURE 1. Computed tomography of the skull, lateral (A) and axial (B-H); soft tissue window. (A) Lateral view image, paramedian of the right side corresponding to the longitudinal section of the right mandibular incisor tooth. Yellow lines represent the scanning planes of the axial views. (B-H) Axial view image, showing radiodense material filling the nasal meatuses and recesses of the right nasal cavity, at the level of the ventral nasal concha (B and C), maxillary recess (D), maxillary cheek teeth arcades (E-G), and rhinopharynx (H). Asymmetry and deviation of the nasal septum (E-H) and lysis of the pterygoid bone along the medial aspect of the left orbit (F and G; arrow) are also visible.

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