Opis przypadku *Case report*

Nasal cavity cancer in a rabbit

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Summary

Exotic animal medicine is a dynamic part of veterinary medicine. It is very important to publish rare cases in order to share experience. Diseases in the sinuses and nasal cavities are common. Seemingly ordinary upper respiratory tract infections can have very different causes, i.e. foreign bodies, abscesses or neoplastic lesions. The latter are among the extremely rare ones. Their diagnosis is difficult due to the need for specialised examinations, i.e. tomography or rhinoscopy. The case described in this report concerns a rabbit in which extensive diagnostics were performed to determine the cause of chronic nasal discharge. Bacteriological cultures, CT scans and rhinoscopy were performed to remove the lesion. To determine its nature, a histopathological examination was also performed, which revealed the presence of a nasal carcinoma. A rabbit with a recurrent bilateral nasal discharge was brought to the clinic. It was initially diagnosed with bacterial rhinitis and treated with antibiotics. During the next 6 months, the discharge recurred and then became unilateral and white-coloured. In a further diagnostic procedure, the rabbit had a skull radiograph, which excluded sinus infections and the presence of a foreign body in the nasal cavity. After the following 6 months, the rabbit appeared to have a louder than usual respiratory murmur and snoring during sleep. A radiograph showed a lesion in the nasal conchae. A rhinoscopy further revealed a mass within the right nasal cavity. The lesion was removed and submitted for histopathological examination, which confirmed nasal carcinoma. Radiation therapy was suggested, which the owners declined. After removal of the lesion, the nasal discharge decreased and did not contain any blood. Further treatment of the rabbit after the rhinoscopy consisted of nebulisation with a solution of budesonide and enrofloxacin 2 × 2 daily for 5 days, after which the condition began to stabilise. A follow-up clinical examination 3 months after the rhinoscopy revealed no recurrence of the clinical symptoms.

Keywords: rabbit, cancer, nasal cancer

Neoplastic processes within the nasal cavity of rabbits are rarely diagnosed. Literature data in this regard are very scarce (8, 11, 12). Neoplasms of the nasal cavity are most often accompanied by unilateral (purulent or serous) nasal discharge, ocular discharge (if the lacrimal ducts are affected), snoring, louder breathing and/or wheezing, difficulty breathing, decreased appetite and decreased activity. The diagnosis is based mainly on the findings from CT scans and rhinoscopy, while radiography does not seem very useful in this regard (11).

A differential diagnosis of neoplasms of the nasal cavity should take into account chronic upper respiratory tract infections, usually caused by Pasteurella spp, the presence of foreign bodies in the nasal cavity and rhinoliths.

The case described here reviews the diagnostic and therapeutic efforts undertaken to diagnose nasal carcinoma in a rabbit.

Detailed case description

A rabbit, male, aged 6 years, of the Big Light Silver breed with a recurrent bilateral nasal serous discharge was presented to the Small Mammal Unit of the Clinic of Infectious Diseases, University of Life Sciences in Lublin. Apart from slight dyspnoea, the rabbit presented no other symp-

Tab. 1. Nasal cavity culture results

Antibiotics	Sensitivity
Gentamicin CN 10	R
Marbofloxacin MAR5	S
Doxycycline DO30	S
Penicillin G P10	R
Convenia CVN30	R
Sulphamethoxazole/Trimethoprim SXT25	S
Amoxicillin/clavulanic acid AMC30	S
Draxxin TUL30	R
Oxytetracycline OT30	S

toms – it had a good appetite and was active. Nasal cavity swabs were taken for bacteriological culture. The cultures showed growth of *Staphylococcus aureus*. The antibiotic susceptibility of the isolated strains is shown in Table 1. Initially, based on the results of the bacteriological examination, the rabbit was treated with oxytetracycline at a dose of 25 mg/kg q 24 h for 14 days. The treatment resulted in a reduction in the nasal discharge; nevertheless, it did not resolve completely and persisted with varying severity for the next 6 months. To exclude sinusitis and the presence of a foreign body in the nasal cavity, the rabbit underwent a head radiograph, which showed no abnormalities. Over the following weeks, the discharge from the nasal cavity became unilateral (right-sided), white in colour and contained admixed blood. It was accompanied by a louder than usual respiratory noise and snoring during sleep. The rabbit then underwent another head radiograph, which showed an irregular opacity, 5.39 mm in diameter, within the nasal conchae (Fig. 1). A CT scan and rhinoscopy were recommended.

Material and methods. A rhinoscopic examination was performed under general anaesthesia. Medetomidine (0.1 mg/kg i.m.) and butorphanol (0.05 mg/kg i.m.) were used for premedication prior to maintenance anaesthesia using isoflurane (2-3%). Local anaesthesia was also administered through an infraorbital nerve block with a mixture of lignocaine (2 mg/kg) and bupivacaine (0.5 mg/kg). Rhinoscopy was performed with the use of rigid Storz optics with

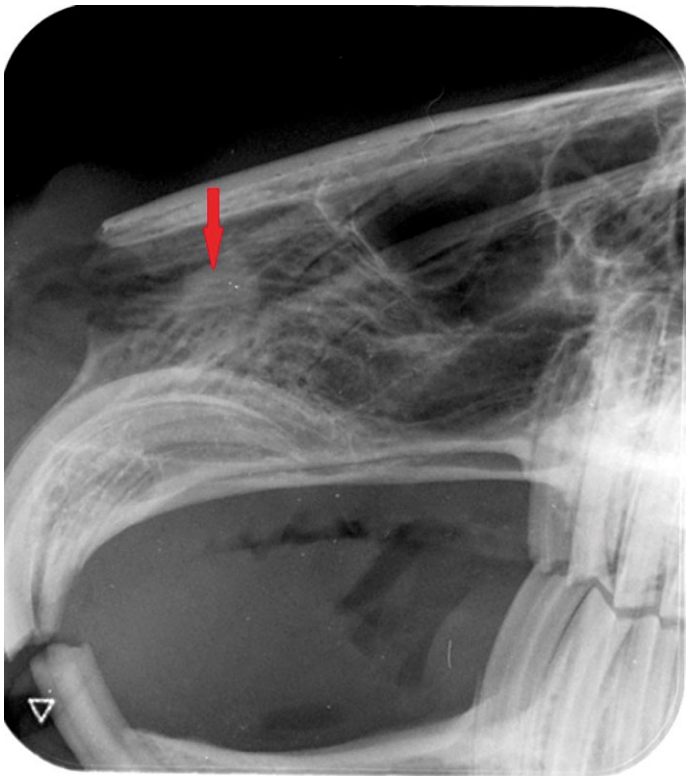

Fig. 1. Radiograph taken on dental film. The right nasal concha lesion is marked with an arrow

a diameter of 1.8 mm, and the observations were made on a monitor. The examination revealed the presence of a mass within the right ventral nasal concha. The tissue with lesions was removed with forceps and sent for histopathological examination.

Ten tissue specimens measuring 0.2-0.4 cm × 0.3 cm × 0.3 cm were sent for histo-pathological examination. The slides were stained with haematoxylin and eosin (HE), according to the standard procedure. The microscopic images of the biopsy specimens were similar. All of them consisted of fragments of a mass composed of mucus-producing glandular epithelium arranged into solid nests, packages, and ducts of various sizes. The cells had round to oval nuclei with indistinct nucleoli. Moderate anisonucleosis and moderate mitotic activity were observed. The lesions were

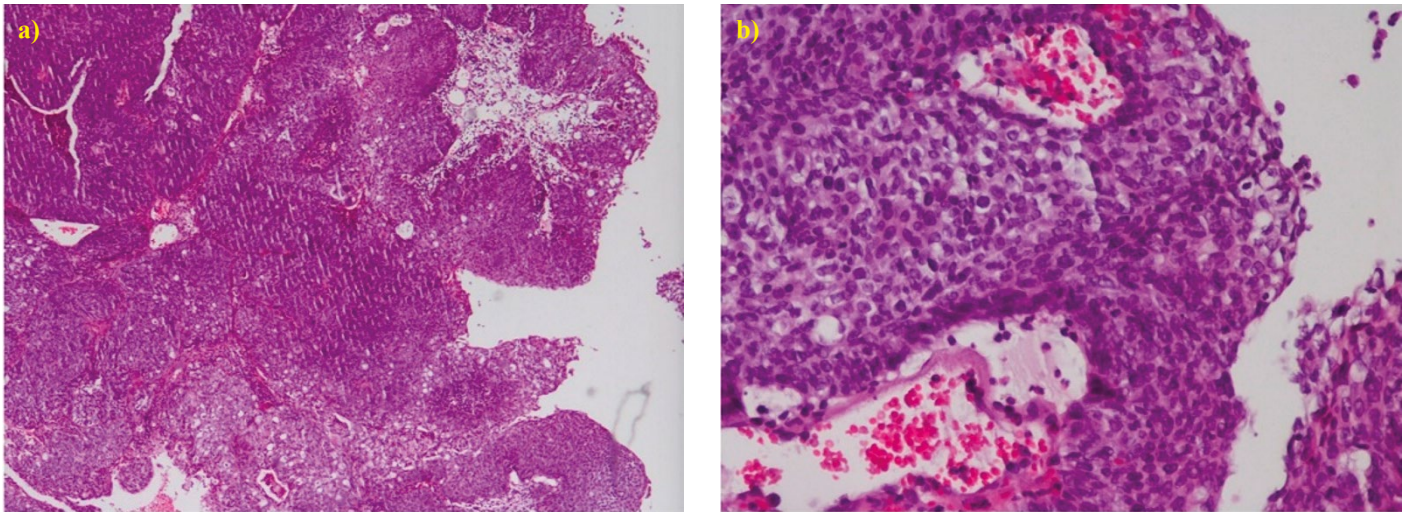

Fig. 2. Microscopic image of a nasal cavity specimen: a) Stain. HE, magn. 4×; b) Stain. HE, magn. 20×

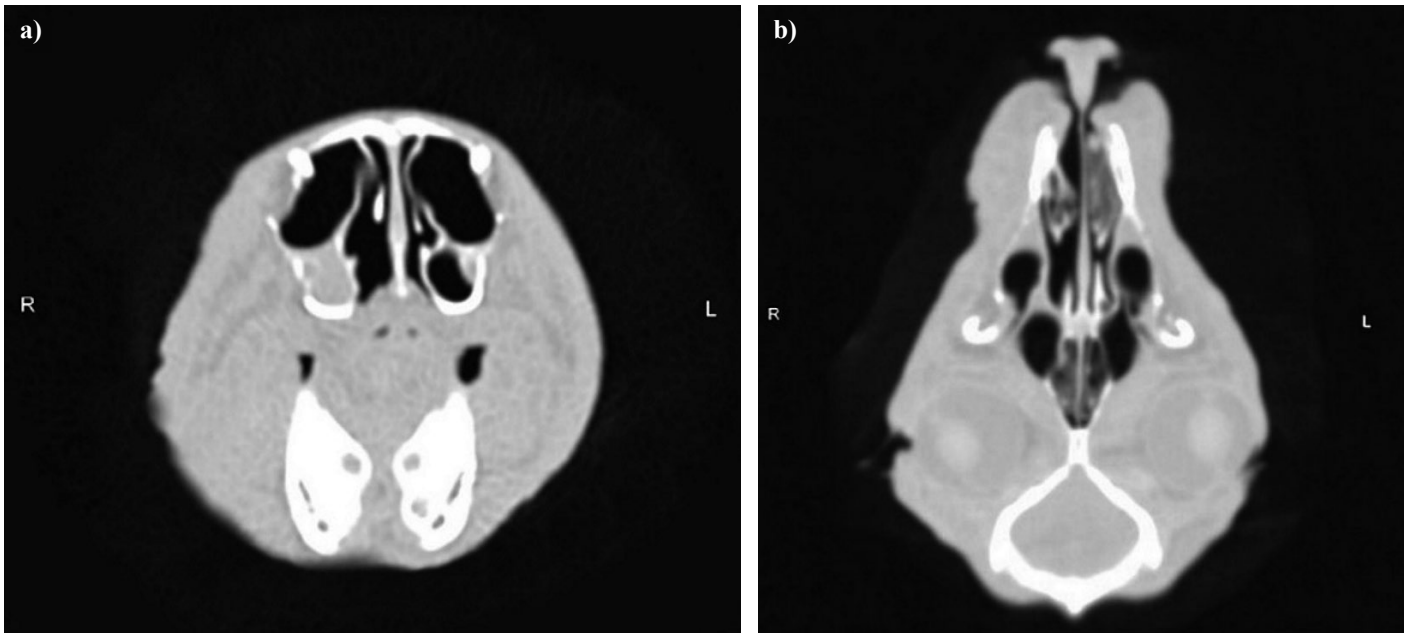

Fig. 3. CT scans: a) AP projection; b) DV projection

accompanied by a mixed inflammatory cellular infiltration composed of neutrophils, lymphocytes and plasma cells (Fig. 2). Based on the microscopic picture, the rabbit was diagnosed with nasal carcinoma.

After the rhinoscopy, the rabbit underwent nebulisation therapy with a solution of budesonide (1 mg) and enrofloxacin (10 mg/kg) q 12 h for 5 days. After removal of the lesion, nasal discharge decreased and did not contain any blood. The respiratory noise and snoring also disappeared. After 2 months, a follow-up CT scan revealed chronic right nasal cavity disease with partial destruction of the thickened right ventral nasal concha and thickened mucosa. The right ventral recess of the maxillary sinus was filled with fluid, and the mucosa of the concha was thickened. The right palatine fissure was dilated. In addition, the right tympanic cavity was filled with tissue masses (Fig. 3). No pathological changes were revealed on the chest CT scan (4). The owners were informed that the rabbit could undergo radiation therapy, to which they did not consent. A follow-up clinical examination 3 months after the rhinoscopy revealed no recurrence of the clinical symptoms.

Results and discussion

Disease processes in the skull area appear frequently in rabbits. Rhinitis and sinusitis are the most common in this species (2, 17). This type of problem can be associated with dental disease or ear infections; however, most commonly, they are bacterial infections that spread very easily through the head structures. Rhinitis in rabbits is most often associated with the presence of foreign bodies or rhinoliths formed by pus in the nasal conchae. Such problems are mainly found in young and adult rabbits, the latter over five years of age.

The most sensitive diagnostic method in such a case is a CT scan. A radiograph may not show the lesions or they may not be clearly visible. In dogs, the disease process is diagnosed based on radiographic findings in only 64% of cases (15). Our own observations indicate that a quick and effective method of diagnosing nasal disease is rhinoscopy. In many cases, this procedure allows the problem to be removed immediately, improving the level of comfort, and specimens of tissues with lesions to be sampled for further diagnostic examinations.

Neoplasms of the nasal cavity and sinuses represent a small percentage of the diseases diagnosed in the head area in rabbits. They are also not a frequent problem in other animal species. In dogs, only 1-2% of all neoplasms involve the head area, and in most cases (80%) they are malignant (4, 9). A retrospective study performed by Miwa et al. (11) conducted on seven pet rabbits diagnosed with intranasal tumours showed that the most common clinical signs were similar to the described case: nasal snoring when breathing, nasal discharge, and subsequent dyspnoea and anorexia. Six different histopathological types of tumours were diagnosed: intranasal adenocarcinoma, squamous cell carcinoma, osteosarcoma, carcinoid tumour, osteoma, and lymphoma. Skull radiography only revealed the abnormalities in three of seven cases, but CT identified the intranasal masses more clearly in all cases. All cases received tumour resection through rhinotomy and four cases received radiotherapy after surgery. In the six cases with a known outcome, the survival time after surgery was more than 13 months.

In the described case, the histopathological examination confirmed a nasal carcinoma which was not accompanied by metastases to other sites, as described in similar reports (11). It can be assumed that, as in dogs and cats, this type of process is also characterised by a limited metastatic process in rabbits (6, 13). This does not change the fact that treatment options for primary tumours located in the nasal cavity are very difficult.

The literature data indicate that treatment for this type of problem in rabbits may consist of rhinotomy,

and/or orthovoltage radiation therapy (11). The efficacy of such treatment varies widely. Of 4 rabbits with nasal cavity neoplasms undergoing orthovoltage therapy, 3 had recurrences in less than 6 months, with survival rates ranging from 13 months to 3 years (11). In animals who only underwent rhinotomy (2 rabbits), the survival period was more than 1.5 years (11). The cited observation results should be interpreted with caution for two reasons. Firstly, they concern too small a group of animals to unambiguously assess which treatment would guarantee the highest survival rate for the animals and, moreover, each of the cases described had a different histopathological diagnosis. In small animals treated mainly with radiation therapy, or radiation therapy supported by chemotherapy, recurrences were reported in 63-100% of cases (1, 3, 5, 7, 10, 16). In the described case, rhinotomy and subsequent radiation therapy was recommended. In the case reported here, the owner declined further treatment due to the significant improvement in the rabbit's clinical condition. A follow-up CT scan was performed to rule out any recurrence of the disease, revealing only partial destruction within the right nasal concha and a thickened nasal cavity. At the same time, the presence of metastases in the head and chest was excluded.

This case shows that although neoplastic processes in the nasal cavity in rabbits are not a common problem for this species, they should be taken into account in the differential diagnosis of nasal diseases, especially those with dyspnoea and bloody nasal discharge. Although the prognosis in this type of animal is guarded, the description presented here shows that a simple rhinoscopy procedure with removal of neoplastic tissue from the nasal cavity may contribute to prolonging the life of rabbits and improving the comfort of their lives.

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