

Anal glands adenomatous hyperplasia in the Eurasian otter (*Lutra lutra*): a case report

Adenomatózní hyperplazie análních žláz u vydry říční (*Lutra lutra*) - case report

Marie BRŮČKOVÁ^{1,2}, Pavel ŠIMERA^{3†}, Josef RAJCHARD¹

¹ University of South Bohemia in Ceske Budejovice, Faculty of Agriculture, Dept. of Biology, the Czech Republic, mapac@centrum.cz

² Czech Otter Foundation, Trebon, the Czech Republic

³ State Veterinary Institute Jihlava – Affiliation Ceske Budejovice, the Czech Republic

Abstrakt

U uhynulé samice vydry říční (*Lutra lutra*), která byla nalezena po střetu s automobilem v Chráněné krajinné oblasti Třeboňsko, byly na základě pitvy zjištěny výrazné patologické změny v anální oblasti. Jednalo se o papilární útvary šedavé barvy s hladkým povrchem i s drobnými ragádami. Histologické vyšetření prokázalo převážně chronickou adenomatózní hyperplazii hepatoidních žlázek s cystózní degenerací a rozsáhlou keratinizací povrchu žláznatého epitelu. Byl zaznamenán různý rozsah proliferace okolního vaziva s nehnisavou zánětlivou reakcí mezi žlázkami i v okolí zánětu. U vyder na rozdíl od psovitých šelem nebyl tento typ nádoru doposud zjištěn.

Abstract

A female specimen of Eurasian otter (*Lutra lutra*), killed by a car, was found in the Třeboň Basin Protected Landscape Area. The autopsy revealed serious significant pathological changes in the anal area: the papillary formations of grayish color with a smooth surface and small rhagades. The histological examination showed predominantly chronic adenomatous hyperplasia of hepatoid glands with cystic degeneration and extensive keratinization of the surface of glandular epithelium. Different stages of proliferation were found in the surrounding connective tissue with non-infected inflammations between glands. In otters, in contrast to canids, this type of tumor was not documented to this day.

Keywords:

rhagades, hepatoid gland, cystic degeneration, non-infected inflammation

Carnivora have modified sebaceous glands called the circumanal glands (Brodzki et al. 2014). These glands with holocrine secretion are located outside the anal canal and produce mucus used in chemical communication between individuals similarly to urine or faeces. The scent marks inform about sex, age and the reproductive status of the individual (Kean et al. 2011) as well as about social status and available food resources (Kruuk 1992). It is known that the anal glands can undergo pathological changes and the tumors of these glands are relatively common in domestic animals, especially dogs (Brodzki et al. 2014; Bowlt et al. 2013; Keyerleber et al., 2012; Sakai et al. 2012). Carcinoma of the perianal glands is the third most common type of cancer in dogs immediately after testicular and skin tumors (Brodzki et al. 2014). A targeted

survey and diagnosis of anal glands carcinoma in otters and other Mustelids was not conducted to this day. River otter is on the list of endangered and highly protected species in the Czech Republic and the species is also protected by European legislation. The systematic collection of data on the causes of death is an important source of information of the current status of the otter population.

Case description

A female specimen of Eurasian otter (*Lutra lutra*), killed by a car, weighing 4.8 kg and body length of 103 cm, found on July 15, 2005, 500 m east of Třeboň in the Protected Landscape Area Třeboňsko, was subjected to a comprehensive pathological examination aimed at detection of the overall health status of this animal. Investigations were carried out in State Veterinary Institute Jihlava – Affiliation České Budějovice. Tumors found in the anal region were subjected to detailed histological examination.

Pathological examination of the cadaver confirmed traumatic injury as the cause of death. Fracture of the ribs on the right side of the thorax was the source of subsequent bleeding into the surrounding tissues and fracture of the cranium was the source of subsequent bleeding into the cranial cavity. The condition index (Kruuk 2006) of the otter was slightly below average (K=0,89).

No significant bacterial organ infection or parasitic invasion has been found. The female age was not detected. Cavity there were missing incisors in the left half of the two jaws in the oral. A friction surface of the incisors was abrasive, a tartar was found at the root of the tooth, and there was found a significant swelling of a dental alveoli. The otter's uterine serosis was blooded and ovaries were inactive. A large rupture of the lobus quadratus was found in the liver. The stomach was slightly dilated and only mucus was found in its contents.

While the animal was in good nutritional status, there was a swelling around the anus and an effusion of perianal glands 0.5 x 1 cm in size with obstructed dilated ducts, containing thick yellow-orange color secretions. There were found several organized caseated lesions of the lens size.

The autopsy revealed multiple tumors in the anal area. Four histological sections (samples) of the neoplasm were taken from the perianal area for subsequent examination.

In the first section overproduction of connective tissue was found within the sparsely scattered atrophic myofibrils and also on the edge of the sample. Numerous hyperplastic hepatoid glands were found in the larger district with overproduction of keratin. Basal (reserve) cells remained at the periphery of the glands, while the interior was filled with the light foam cells with reticulated cytoplasm. Mitosis was not found in the glandular cells.

In the second section of the ragged skin, significant proliferation of connective tissue was observed. It was locally necrotic, there were only fragments left in the probable place of the inflammation. Unusually irregular surface of epidermis with papillomatous protuberances contained only small amount of cells.

The third histological sample revealed significant proliferation of hepatoid glands of different size which were subject to degeneration and cornification of glandular epithelia. Proliferation of

ligaments was also present. Mitoses were not diagnosed in this sample. An accumulation of mucus in the lumen of the glands and keratinogenesis was detected. Cells contained light compact cytoplasm compared to reticulated cytoplasm of the glandular epithelial cells. Accumulation of fluid was observed in the efferent ducts. Extensive lymphocytic infiltrates were found in the interstitium.

The fourth sample of the compact papillomatous formation showed massive accumulation of clustered hyperplastic glands as described above, the ragged hyperkeratotic surface of epidermis, numerous lymphocytic infiltrates in the connective tissue and their surroundings and massive presence of cystoid formation of different sizes.

Discussion and conclusions

The histological examination of numerous tumors in the anal region confirmed the primarily chronic adenomatous hyperplasia of hepatoid (perianal) glands with cystic degeneration and extensive keratinization of the surface of glandular epithelium. Different range of proliferation of surrounding connective tissue with non-septic inflammatory response between glands and around the inflammation was found in all sampled sections. This kind of pathological process usually arises from chronic irritation of obstructed ducts with subsequent formation of cysts, necrosis and inflammatory processes, as it was found in this case. In carnivora, this process is more common than occurrence of adenoma only. In otters, unlike in canids (Bowl et al. 2013), it was not documented to this day. The occurrence of different types of cancer was registered only rarely in otters. Bae et al. (2011) described the case of hepatocellular adenomas with pancreatic nodular hyperplasia.

These types of tumors usually do not cause immediate serious health problem in animals, but it may serve as a gateway for the secondary infection accompanied by the formation of local abscesses or fistulas with possible development of malignant neoplasm. As it was presented in this case, this diagnosis may be important also in Mustelids. Otters and other species of Mustelids are often bred in zoological gardens and the possibility of adenomatous hyperplasia of the anal glands should be considered while doing the health examinations of these species. It would be beneficial to register and analyze all similar pathological cases in otters and other Mustelids to extend our knowledge in this field.

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