Meibomian adenoma in a Syrian hamster (Mesocricetus auratus): a case report

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ABSTRACT: A two-year old male Syrian hamster (Mesocricetus auratus) was brought to the Surgery Clinic at the Istanbul University, Veterinary Faculty, Research and Practice Hospital, with a non-healing wound on the right upper eyelid. An ulcerated, bleeding wound was observed and diagnosed as an eyelid mass. The eyelid mass was excised and submitted for histopathological examination, which resulted in a diagnosis of meibomian adenoma. After excision of the mass, the right upper eyelid became deformed and adopted an abnormal shape. The surgical site was examined two weeks later. No abnormality was observed and the appearance of the right eyelid had returned to normal. Although there are many reports on benign tumours such as polyps, adenomas, haemangiomas and papillomas in hamsters, to the authors’ knowledge, this is the first report on a meibomian adenoma in a Syrian hamster which was resolved by surgery.

Keywords: tumour; eye; meibomian adenoma; hamster

Syrian hamsters have been used in various medical research fields, particularly in carcinogenesis studies (Handler 1958; Bloom at al. 1967; Yanagi et al. 2000; Kondo et al. 2008). However, reports on spontaneous tumours in domestic hamsters are scarce (Kondo et al. 2008).

Reported neoplasms of the Syrian hamster include intestinal polyps, adrenal adenomas, splenic haemangiomas, islet cell pancreatic tumours, hepatic adenomas, squamous papillomas of the forestomach, fibroadenomas (Hankenson and Van Hoosier 2002), plasmacytomas, lymphomas, adrenocortical adenocarcinomas, haemangiomas, uterine leiomyosarcomas (Kondo et al. 2008) and adenocarcinomas of the mammary gland (Kondo et al. 2009).

The meibomian (tarsal) glands are large sebaceous glands that can be viewed through the conjunctiva as white parallel streaks near the lid margin. Secretion from the meibomian glands provides nutrition to the cornea and forms the lipid layer of the pre-corneal tear film (Lackner 2001; Martin 2005), which prevents evaporation and the spilling of tears onto the face. Alterations in secretion may lead to lid and corneal pathology (Martin 2005).

In this report, a case of a meibomian adenoma in a hamster is described. To the authors’ knowledge, the following report represents the first case in which a meibomian adenoma in a hamster was diagnosed and successfully treated.

Case description

A two-year old male Syrian hamster was brought to the Surgery Clinic at the Istanbul University Veterinary Faculty, Research and Practice Hospital with a complaint of a non-healing, bleeding wound on the eyelid (Figure 1). Upon examination, an ulcerated mass was identified on the right upper eyelid.

Following sedation of the patient using medetomidine hydrochloride (0.2 mg/kg, intramuscularly, Domitor®, Pfizer, Germany), the surgical site was shaved and prepared for excision of the mass. General anaesthesia was then achieved using ketamine hydrochloride (100 mg/kg, intramuscularly, Alfamine®, Alfasan, Holland). Under general anaesthesia, the mass was lifted upwards and excised. The surgical wound was sutured with simple interrupted sutures using 6/0 Vicryl (Ethicon, Johnson...
Figure 1. Ulcerative mass observed on the right upper eyelid

and Johnson Medical Ltd., UK). The retrieved mass was then submitted to the pathology laboratory for histopathological investigation.

In the immediate post-operative period, a deformation was observed in the right upper eyelid due to surgery (Figure 2). However, in the follow-up examination one week later, this surgery-related deformation was seen to have partially resolved. In the check-up two weeks after the operation, the deformation had completely disappeared and the right upper eyelid had the same appearance as the left upper eyelid (Figures 3 and 4).

With regard to histopathological findings, a large amount of glandular structure in the form of islets surrounding basal cells was observed. These were composed of foamy, eosinophilic, uniform sebaceous cells in the dermal layer. Focal squamous metaplasia was detected in the centre of several glands. Light lymphoplasmocytic infiltration of some circumglands was also observed. A comedone structure, which was filled with keratin, lipid and a small amount of mononuclear cells, was detected in the centre of the tumour mass. On the basis of the localisation of the mass and of the typical histological findings, the mass was diagnosed as a meibomian adenoma (Figures 5 and 6).

**DISCUSSION AND CONCLUSIONS**

The age at which hamsters develop neoplasms varies widely. The normal lifespan of hamsters is between 18 and 24 months. According to the study of Kondo and colleagues, the mean age of hamsters with neoplasms was relatively high with respect to their lifes-
Figure 5. Gland islets formed by sebaceous and basal cells located in the dermis. Gland islets and squamous metaplasia (black arrow), comedone structure opening onto epidermal surface (K), lymphoplasmocytic infiltration (red arrow).

Figure 6. Gland islets formed by sebaceous and basal cells located in dermis and squamous metaplasia lesions in the centre of glands.

The rate of spontaneous tumour formation in hamsters has been reported to be higher in Siberian hamsters compared to Syrian hamsters (Kondo et al. 2008). However, we could find no information on the incidence of eyelid tumours or on the types of tumours in hamsters. Nevertheless, the eyelid tumour observed in the hamster in this case showed similarities to the general properties of eyelid tumours observed in cats and dogs (Aquino 2007).

In conclusion, a two-year old male Syrian hamster brought to our clinic with an eyelid tumour was diagnosed with a meibomian adenoma. Based on the course of recovery in this case we are of the opinion that surgical excision represents a very suitable treatment method in cases of eyelid tumours in hamsters. We hope that this case report will contribute to an understanding of eyelid tumours in hamsters.

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