

Commentaries

Squamous Cell Carcinoma in the Third Eyelid of Horse in Center of Iran

Peyman Dehghan Rahim abadi^{1*}, Hamidreza Moslemi²,
Mohammad Hassan Najj zadeh¹, Hannaneh Golshahi³, and Diba
Golchin³

¹Department of Clinical science, University of Tehran, Iran

²Department of Clinical science, University of Semnan, Iran

³Department of Pathology, University of Tehran, Iran

***Corresponding author**

Peyman Dehghan Rahim abadi, Department of Clinical science, veterinary school, University of Tehran, Tehran, Iran, Tel: 00989368375217; Email: peyman.dehghan@ut.ac.ir

Submitted: 29 December 2017

Accepted: 31 January 2018

Published: 02 February 2018

ISSN: 2378-931X

Copyright

© 2018 Rahim Abadi et al.

OPEN ACCESS

Keywords

• OSCC; Third eyelid; Horse; Iran

Abstract

Ocular squamous cell carcinoma (OSCC) is the most common ocular tumor in horses, which is not frequently reported. The etiology of the OSCC is multifactorial. Exposure to UV light and lack of periocular pigmentation are considered to be predisposing factors. In horses, conjunctiva and nictitating membrane are most frequent sites for OSCC. A definitive diagnosis can only be made by histopathological examination. In our report, an eleven years old, white crossbred gelding was referred to teaching hospital of Garmsar University with notable mass on the third eyelid of the right eye. Physical examination revealed a fleshy yellowish white mass with fragile texture and rancid odor, of about 2cm width on the third eyelid. All vital signs were within normal limit. Ancillary test were done and then the patient were qualified for a surgical treatment. Under Anesthesia the mass was removed and submitted to pathologic laboratory. Histopathological examination revealed that infiltrating keratinocytes formed multiple islands and nests of neoplastic cells. These cells had polygonal shape and intercellular bridges between keratinocytes were noticeable. There were eosinophilic materials in the center of the islands identified as keratin pearls. According to mentioned characteristics, squamous cell carcinoma was diagnosed. According to literature, OSCC is more often seen in horses that are exposed to sunlight at long duration periods. Considering that Garmsar is located in desert and arid regions of Iran (34/ 52), it has a high sunshine duration. Postoperative examination on days 15, 30, 90, and 120 revealed no signs of tumor recurrence or other complications. The patient's vision was pretty normal.

ABBREVIATIONS

OSCC: Ocular Squamous Cell Carcinoma; UV: Ultra-Violet; CBC: Complete Blood Count; HPF: High Power Field

INTRODUCTION

OSCC is the most common ocular tumor in horses which is not frequently reported [1]. The etiology of the OSCC is multifactorial [2-7]. Exposure to UV light and lack of periocular pigmentation are thought to be the predisposing factors. In horses, conjunctiva and nictitating membrane are most frequent sites for OSCC [3,6]. A definitive diagnosis can only be made by histopathological examination [8-12]. Surgical excision, cryotherapy, hyperthermia, intralesional chemotherapy, and radiofrequency - individually or collectively- are choices for treatment procedures [1,4,11,13-16]. The following report outlines histopathological features of OSCC, and its treatment in the third eyelid of a horse in the central region of Iran.

CASE PRESENTATION

In the fall of 2013 an eleven-year-old, white crossbred gelding was referred to University of Garmsar Veterinary Teaching Hospital. The case presented with a notable mass on the third eyelid of the right eye. All vital signs were within normal range. Complete blood count and serum chemistry profile were normal

as well. Physical examination of the affected eye, revealed a fleshy yellowish white mass, so fragile and odoriferous, of about 2cm width on the free border of the third eyelid (Figure 1). Ophthalmic examination verified normal vision of the affected eye. The patient was qualified for a surgical treatment, and was premedicated with Acepromazine at a dose of 0.25mg/kg intravenously. Anesthesia was induced by administration of Ketamin hydrochloride 2mg/kg, and Xylazine 1.1mg/kg intravenously. After the surgery a single dose of Flunixin meglumine 1.1mg/kg was utilized and procain penicillin 22000U/kg, BID, was prescribed for 5 days intravenously. The removed tissue was immersed in 10% neutral buffered formalin, processed for light microscopy, sectioned at 5µm thickness, and stained with hematoxylin eosin. Thus histologic slides were prepared and reviewed.

DISCUSSION

Postoperative examination on days 15, 30, 90, and 120 revealed no signs of tumoral recurrence, and the patient's vision was normal. Definitive diagnosis of OSCC is based on histopathological examination. Histopathological examination revealed that infiltrating keratinocytes formed multiple islands and nests of neoplastic cells. These cells had polygonal shape and intercellular bridges between keratinocytes were noticeable. The stroma formed small bands that surrounded the island and nests. There were eosinophilic materials in the center of the islands

identified as keratin pearls (Figure 2). In some area the glands like structures were detected. The rate of pleomorphism was moderate and the mitotic index in HPF (High Power Field) was low. Also, infiltration of neutrophils, plasma cells, hyperemia, and acanthosis were detected (Figure 3). According to mentioned characteristics, squamous cell carcinoma was diagnosed.



Figure 1 Appearance of the SCC and exudation on the third eyelid.

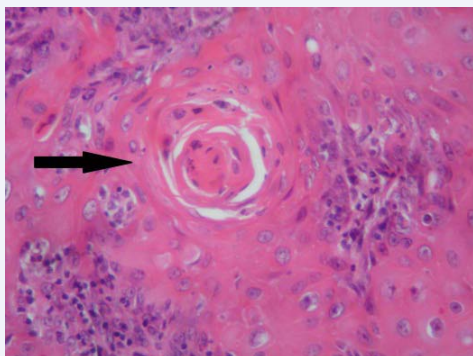


Figure 2 Histological section showing keratin pearls (arrow) Representing a squamous cell carcinoma (H&E stain x400).

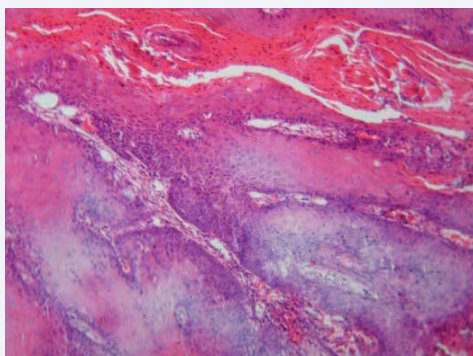


Figure 3 Infiltration of neutrophils, plasma cells, hyperemia, and acanthosis (H&E stain x100).

According to the literature it is believed that UV radiation along with lack of pigmentation of the periocular tissue plays an important role in occurrence of OSCC [17,2,3,7,9,4,18,5,6]. Tumor suppressor gene TP53 which can be found in subcutaneous tissue may be damaged by UV radiation [4,19]. Horses kept on pastures, receiving sunlight throughout the entire daytime, may be at a slightly higher risk of OSCC. Considering that Garmsar is located in desert and arid regions of Iran (latitude 35° 0' 0" N, longitude 52° 20' 0" E, average elevation is 856 meters above sea level), it has a high sunshine duration. OSCC is more often unilateral, and in the present case unilateral OSCC is reported in the third eyelid of the right eye. Although this neoplasm may arise in any ocular tissue, lower eyelid, lateral cantus, and third eyelid are most commonly involved sites in horses. The incidence of OSCC increases with advanced age [20]. The location of the tumor may determine its appearance. Affecting the limbus or cornea, OSCC presents as a mass [14,11,5], while in the third eyelid it may grow to a thickened, wavy tissue [13], like what is seen in this case.

In our case, examination revealed an odoriferous, fragile and fleshy mass on the free border of the third eyelid. Upon histopathologic evaluation, which revealed keratin pearls, SCC was diagnosed.

Involving the third eyelid, surgical removal is the most frequent treatment. There is little literature on the success of the treatment only by surgical excision because with the surgical excision alone, removal of the tumor with margins of safety conditions, seem impossible, thus it will not eliminate the residual tumoral cells [9,14,4,15]. Only a few cases of metastasis have been reported [14,4]. Despite the high rate of recurrence, In this case, no sign of recurrence or metastasis was observed in following checkups until 120 days after surgery, and the patient is living a normal life. Prognosis depends on the stage of the carcinoma, at which it is diagnosed and treated. Diagnosing the early-stage cancer can prevent further complications.

REFERENCES

1. Radostits OM, Gay CC, Blood DC, Hinchcliff KW. *Veterinary Medicine*, Harcourt Publishers Ltd, London. 2007; 2040-2041.
2. Lavach J.D. & Severin G.A. Neoplasia of the equine eye, adnexa, and orbit: a review of 68 cases. *AVMA*. 1977; 170(2): 202-203.
3. Brook D.E. 1999. Section IV - Special Ophthalmology - 30. *Equine Ophthalmology*. In: Gelatt K.N. (Ed). *Veterinary Ophthalmology*. 3rd edn. Baltimore: Lippincott Williams & Wilkins, pp. 1053-1116.
4. Gionfriddo J.R., Severin G.A., Schou E. & Woodard S. Tattooing of the Equine Eyelid: A Retrospective Study. *Equine Vet Sc*. 2009; 29(2): 82-86.
5. Rebhun W.C. Tumors of the eye and ocular adnexal tissues. *Vet Clinic of North America: Equine Practice*. 1998;14(3): 579-606.
6. Rabo J.S., Usman H.S. & Kolo Y.M. Studies on ocular squamous cell carcinoma among horses in borno state Nigeria. *AJOL*. 2000; 3: 129-130.
7. Cotovio M., Almeida O.C., Oliveira J.P., Pereira J.E., Paulo J.R. & Peña M.T. Nictitans squamous cell carcinoma in a horse - surgical and medical (5 - fluorouracil) treatment. *RPCV*. 1999; 100(16): 219-221.
8. Gearhart P.M., Steficek B.A. & Peteresen-Jones S.M. Hemangiosarcoma and squamous cell carcinoma in a horse. Case report. *Vet Ophthalmology*. 2007; 10(2): 121-126.

9. Dugan S.J., Curtis C.R., Roberts S.M. & Severin G.A. 1991. Epidemiologic study of ocular/adnexal squamous cell carcinoma in horses. *AVMA*. 1991; 198(2): 251-256.
10. Plummer E., Smith S., Andrew S.E., Lassaline M.E., Gelatt K.N., Brooks D.E., Kalberg M.E. & Ollivier F.J. Combined keratectomy strontium-90 irradiation and permanent bulbar conjunctival grafts of corneolimbic squamous cell carcinomas in horses: 38 horses. *Vet Ophthalmology*. 2007; 10(1): 37-42.
11. Pigatto J.A.T., Hünning P.S., Pereira F.Q., Almeida A.C.V.R., Gomes C., Albuquerque L. & Driemeier D. Corneal squamous cell carcinoma in a dog. *Acta Scientiae Vet*. 2010; 38(2): 197-200.
12. Snyder S.P. Squamous cell carcinoma of the third eyelid in a dog. *AVMA*. 1984;184(8): 975-976.
13. Chahory S., Clerc B., Devauchelle P. & Tnibar A. Treatment of a recurrent ocular squamous cell carcinoma in a horse with Iridium-192 implantation. *Equine Vet Sc*. 2002; 22(11): 503-506.
14. Dugan S.J., Roberts S.M., Curtis C.R. & Severin G.A. Prognostic factors and survival of horses with ocular/adnexal squamous cell carcinoma: 147 cases (1978-1988). *AVMA*. 1991; 198(2): 298-303.
15. Schwink K. Factors influencing morbidity and outcome of equine ocular squamous cell carcinoma. *Equine Vet J*. 1987; 19(3): 198-200.
16. Junge R.E., Sundberg J.P. & Lancaster W.D. Papillomas and squamous cell carcinoma of horses. *AVMA*. 1984; 185(6): 656-659.
17. King T.C., Priehs D.R., Gum G.G. & Miller T.R. Therapeutic management of ocular squamous cell carcinoma in the horse: 43 cases (1979-1989). *Equine Vet J*. 1991; 23(6): 449-452.
18. Giuliano E.A., MacDonald I., McCaw D.L., Dougherty T.J., Klaus G., Ota J., Pearce J.W. & Johnson P.J. Photodynamic therapy for the treatment of periocular squamous cell carcinoma in horses: a pilot study. *Vet Ophthalmology*. 2008; 11(1): 27-34.
19. Sironi G., Riccaboni P., Mertel L., Cammarata G. & Brooks D. p53 protein expression in conjunctival squamous cell carcinoma of domestic animals. *Vet Ophthalmology*. 1999; 2(4): 227-231.
20. Leapis L.K. & Genovese L. Hemangiosarcoma of the third eyelid in a dog, *Vet Ophthalmology*. 2004;7(4): 279-282.

Cite this article

Rahim Abadi PD, Moslemi H, Najji Zadeh MH, Golshahi H, Golchin D (2018) Squamous Cell Carcinoma in the Third Eyelid of Horse in Center of Iran. *J Vet Med Res* 5(2): 1122.