TÜBİTAK

Case Report

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Nasal squamous cell carcinoma in a cow

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Abstract: A patient with a turgid, hemorrhagic mass infected by myiasis in the left nostril and diagnosed as squamous cell carcinoma (SCC) is presented. Complete blood count (CBC) showed moderate neutrophilia and eosinophilia and vital signs were in normal range. After aseptic surgical preparations and local anesthesia, the mass removed en bloc and submitted to the Department of Veterinary Pathology for histopathological evaluation. SCC was recognized microscopically by identifying malignant epithelial cells demonstrating various degrees of differentiation towards keratinocytes.

Key words: Treatment, nasal tumor, SCC, cow

Introduction

Squamous cell carcinoma is a relatively common, locally invasive, and occasionally metastatic neoplasm of most domestic species. Sunlight is probably the most important carcinogenic stimulant for these tumors and accounts for the prevalence of squamous cell carcinoma on the eyelid and conjunctiva of cattle and horses, the ear pinna of cats and sheep, and the vulva of cattle, goats, and recently sheared sheep (1,2). Ocular squamous cell carcinoma is the most common neoplasm of the eye in cattle (2). Although ocular squamous cell carcinoma is a common neoplasm of cattle (2,3), nasal squamous cell carcinomas are rare (4) in cattle and other domestic animals (5). Intracranial squamous cell carcinoma also has been reported as a rare neoplasm in cattle (6).

In this report, the surgical treatment of a squamous cell carcinoma in a native Iranian cow was reported.

Case history

On June 21, 2006, a 5-year-old native cow was referred to the teaching hospital of the Faculty of Veterinary Medicine of Shahid Chamran University in Ahvaz. She had a turgid, hemorrhagic mass infected by myiasis in the left nostril (Figure 1). The mass appeared 2 months before and hemorrhage had begun 2 days earlier followed by myiasis. White larvae were seen in the wound. CBC showed moderate neutrophilia and eosinophilia, but vital signs, such as body temperature, heart rate, rumen motility and breathing, were in normal range.

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Figure 1. Gross appearance of the neoplastic lesion.

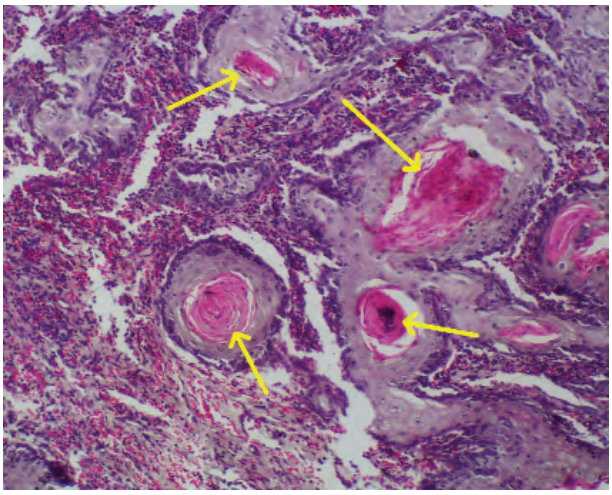

Figure 2. Several degrees of keratinization are observed through tumor cells (Arrows), ×200, (H & E).

According to historical findings, macroscopic appearance of the mass and clinical examination, it might be a tumor of an unknown source. Surgical treatment was performed on the wound (a neoplastic lesion). After positioning of the cattle in left lateral recumbency and physical restraining on the surgical table, the animal head was fixed down to prevent aspiration. The surgical area was prepared for aseptic surgery. Local anesthesia was obtained using 20 mL lidocaine 1% around the lesion, an incision was made around the pedicle of the lesion, and the mass removed en bloc after dissection. Antimicrobial drugs (penicillin-streptomycin) for 5 days after surgery and a single dose of subcutaneous Ivermectin 1% (1 mL/50kg, sc) were administered. The neoplastic mass was sent to laboratory for pathological examination. Healthiness of the cow was confirmed by a phone call with the cowman 3 months after operation.

Results and discussion

Squamous cell carcinoma was recognized microscopically by identifying malignant epithelial cells demonstrating various degrees of differentiation towards keratinocytes. Cytoplasm was abundant and eosinophilic. Several degrees of keratinization were observed through tumor cells (Figure 2). The tumor cells mostly resembled those of normal stratum spinosum, but have vesicular nuclei with one or multiple very prominent nucleoli (Figure 3, circled). Mitotic figures were observed in sections (Figure 3, arrowed).

Squamous cell carcinomas are usually firm, white, poorly demarcated dermal masses that are ulcerated and streaked with red. In addition to sunlight, carcinogens contained in tobacco, coal tar and soot, and arsenic have been shown experimentally or by epidemiologic inference to cause squamous cell

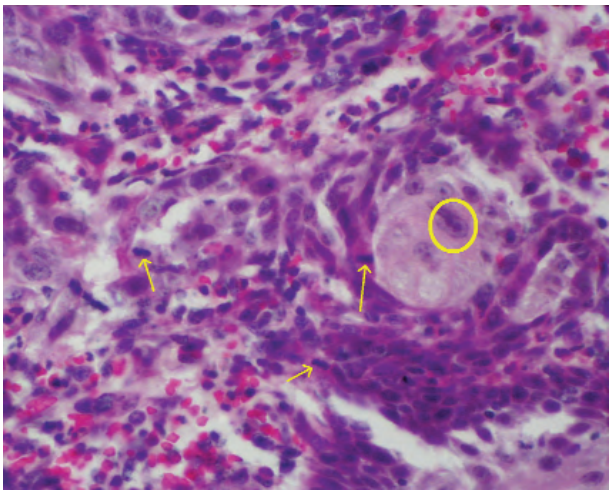

Figure 3. The tumor cells had vesicular nuclei with one or multiple very prominent nucleoli (Circled), and showed often mitotic figures (Arrows), ×400, (H & E).

carcinoma of skin and other tissues (1,2). Genetic factors and papillomaviruses also influence the occurrence of squamous cell carcinoma. The influence of epidermal injury per se in the initiation of cancer is still unsettled, but there is support for this theory in the greater risk of squamous cell carcinoma at sites of ear notching, branding, burns, and chronic inflammation (7). Histologically, squamous cell carcinomas in the nasal cavity and sinuses share the typical features of the neoplasm seen elsewhere in the body, although keratinization is not as prominent (8). Pycock et al. (4) reported an occurrence of squamous cell carcinoma in the nasal cavity of a cow. A retrospective study on the incidence of bovine external neoplasms in south-western Iran by Kohli et al. (9) shows that squamous cell carcinomas were the most common tumor (62%) followed by papillomas (26%). Gharagozlou et al. (2) studied the occurrence of ocular neoplasms in Tehran, Iran. In this study, the affected animals were female (100%), adult and more than 50% of them were aged more than 5 years. All of the animals (32 animals) showed SCC, except 2 cases with lymphosarcoma and hemangioendothelioma (2). An occurrence of squamous cell carcinoma at the dorsal part of the neck in an Iranian buffalo in Khuzestan province was also reported by Kohli and Ghadrdan Mashadi (10).

Surgical excision is the primary treatment option for most patients with SCC. The ability to completely excise the tumor depends on factors such as the size and location of the tumor. In a retrospective study evaluating response to therapy (surgery, RT, or cryotherapy) in 61 cats with nasal planum or pinna SCC, surgery provided the longest disease-free interval, with a median of 594 days. If complete surgical excision is not possible, adjuvant therapies may be pursued (5). In conclusion, the gross and histological findings found in this case were consistent with the diagnosis of squamous cell carcinoma and it was treated by surgical resection only.

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