

Squamous Cell Carcinoma of the Eyelid in a Cat

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Rak płaskonabłonkowy powieki u kota

Z wywiadu uzyskanego od właściciela kota wynikało, że od 3 tyg. na dolnej powiece pojawiła się trudno gojąca się rana. Badanie zeszkrobiny wykazało obecność komórek typowych dla SCC. Podjęto interwencję chirurgiczną, której kolejne etapy przedstawiają ryciny zamieszczone w tej pracy. Przez siedem dni po zabiegu kot otrzymywał leki przeciwbólowe i antybiotyki.

Case History

Species: Feline
Breed: Domestic Shorthair
Sex: Female neutered
Age: 13 years 11 months
Colour: Tabby and White. Non pigmented eyelids, white periorbital hair.
Weight: 3.60 kg

The owner reported right ocular discomfort and an unusual appearance of the lower right eyelid for over 3 weeks duration.



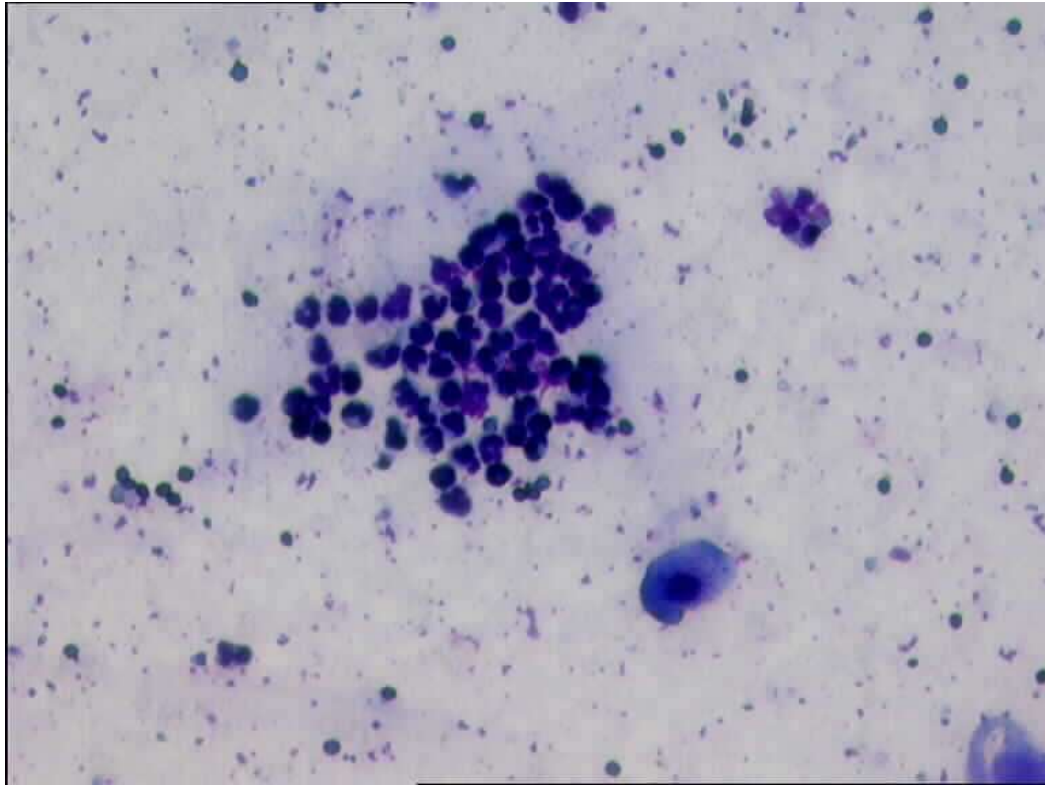
Pic. 1 Right eye: lower eyelid mass and excessive lacrimation

Examination

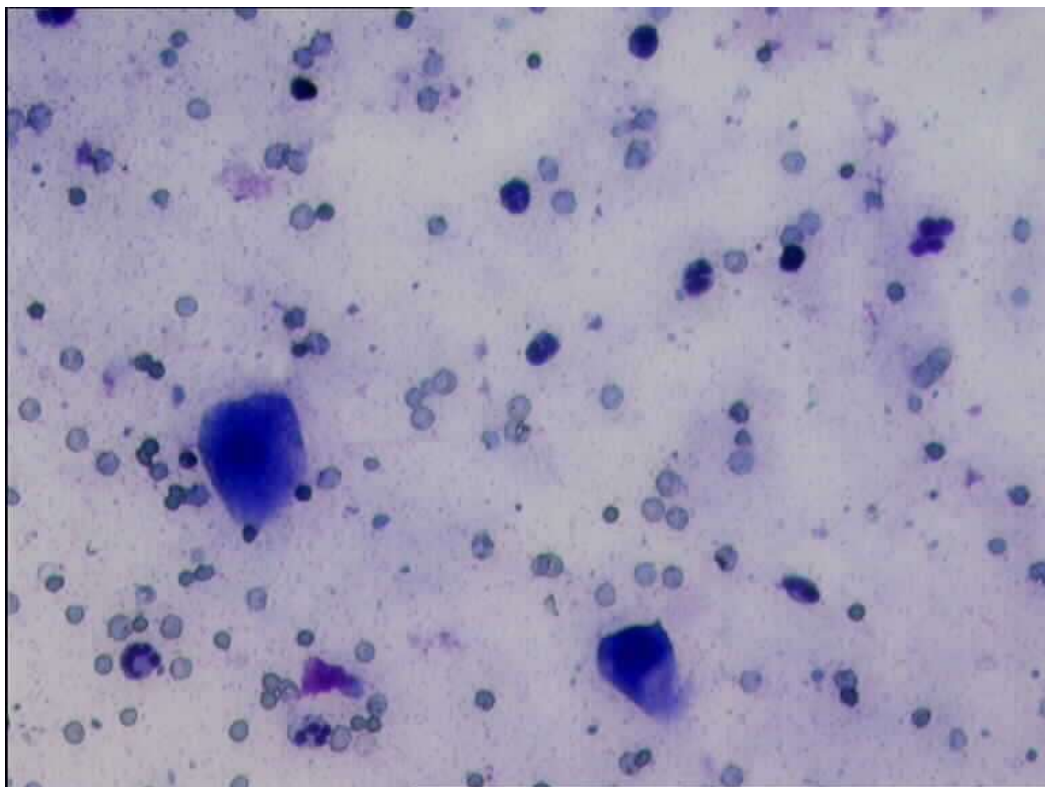
No abnormalities were detected on general physical examination or on examination of the left eye. Examination of the right eye revealed the following (Pic. 1):

- Blepharospasm
- Excessive lacrimation
- Raised, ulcerated lower eyelid mass occupying approximately 40% of the eyelid and extending ventrally into the periorbital skin for approximately 10mm
- Mild conjunctival hyperaemia

Impression smears and scrapes of the lesion were taken and stained with Rapi-Diff IITM (BIOS Europe). Microscopy revealed red blood cells, inflammatory cells (mainly neutrophils) and large squames (some nucleated and some keratinised) (Pics. 2 and 3).



Pic. 2 Neutrophils and nucleated squame (*Giemsa x 640*)



Pic. 3 Nucleated squames (*Giemsa x 640*)

Diagnosis

Differential diagnoses:

- Neoplasia: **squamous cell carcinoma** (SCC), basal cell carcinoma, mast cell tumour, fibroma/fibrosarcoma, lymphoma, neurofibroma/neurofibrosarcoma, papilloma, haemangioma/haemangiosarcoma, xanthomatosis
- Infectious/inflammatory: blepharitis (viral, bacterial, fungal, allergic, immune-mediated), eosinophilic eyelid plaques

Prognosis

Guarded

Treatment

Surgical excision with reconstructive eyelid surgery was advised. Preoperative medication was prescribed for 3 days: meloxicam (0.1mg PO BID) and amoxicillin/clavulanic acid (40mg/10mg PO BID). Under general anaesthesia thoracic radiographs (right lateral and dorsoventral) and abdominal ultrasound were performed and revealed no evidence of metastasis. Surgery was performed as follows (Diagrams A-D):

- Mass excised including a visible margin of approximately 2mm leaving a defect of approximately 50% of the eyelid length
- Eyelid incised through meibomian gland openings at lateral border of defect using sharp dissection
- Blunt dissection used to separate conjunctiva from skin, extended to lateral canthus and continued laterally as an arc separating skin from underlying fascia
- Resulting skin flap rotated medially to fill defect and sutured to skin at the defect's medial edge and to the tarsoconjunctiva 1mm from the eyelid margin

- The free skin edges beyond the lateral canthus were sutured
- All sutures were simple interrupted using 6-0 polyglactin (Vicryl; Ethicon)

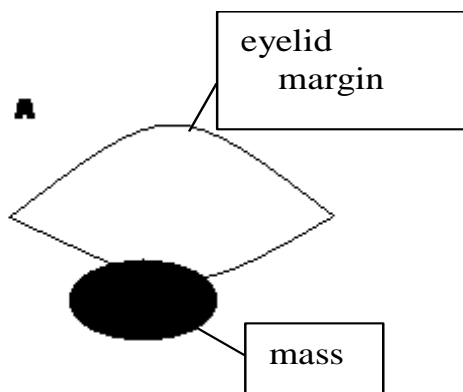


Diagram A *Site of mass*

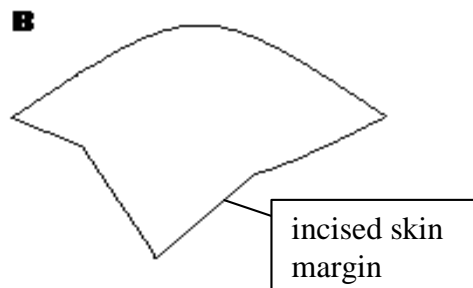


Diagram B *After excision of mass*

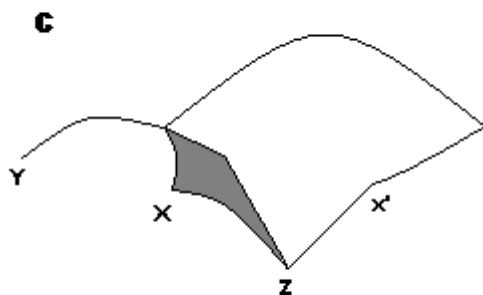


Diagram C Skin flap created by splitting eyelid margin and extending incision to **Y**

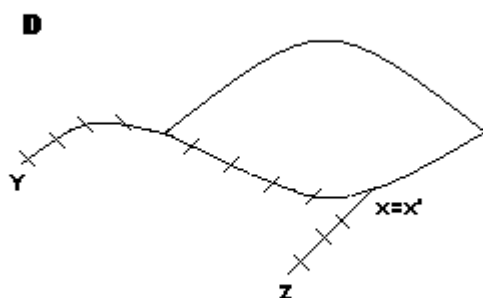


Diagram D . **X** advanced medially to **X'** (**X=X'**). **X=X'** to **Y** and **X=X'** to **Z** are sutured

Medical therapy was continued for 7 days with meloxicam, amoxicillin/clavulanic acid and chloramphenicol eye drops at the preoperative dose rates, routes and frequencies.

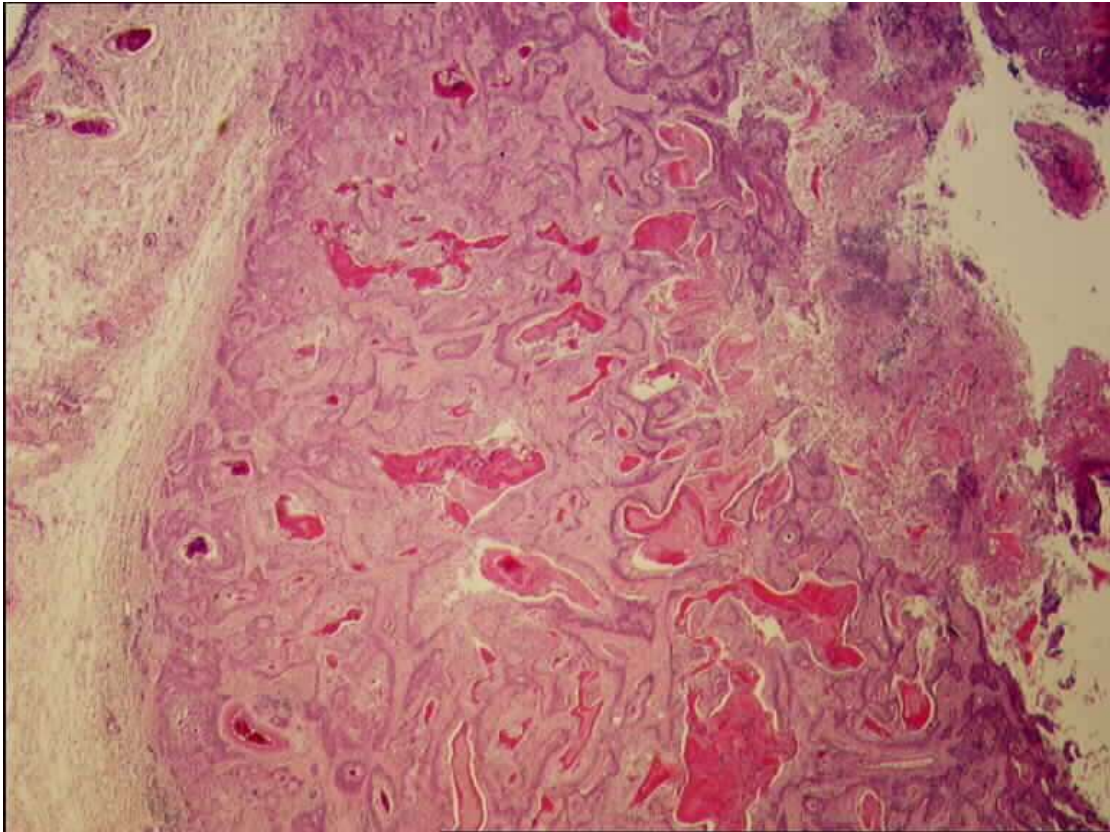
7 days after surgery there was no discomfort, abnormal eyelid closure or trichiasis but narrowing of the palpebral fissure was noted (Pic. 4). 6 months later the eye had a normal palpebral fissure and there was no recurrence of the disease.



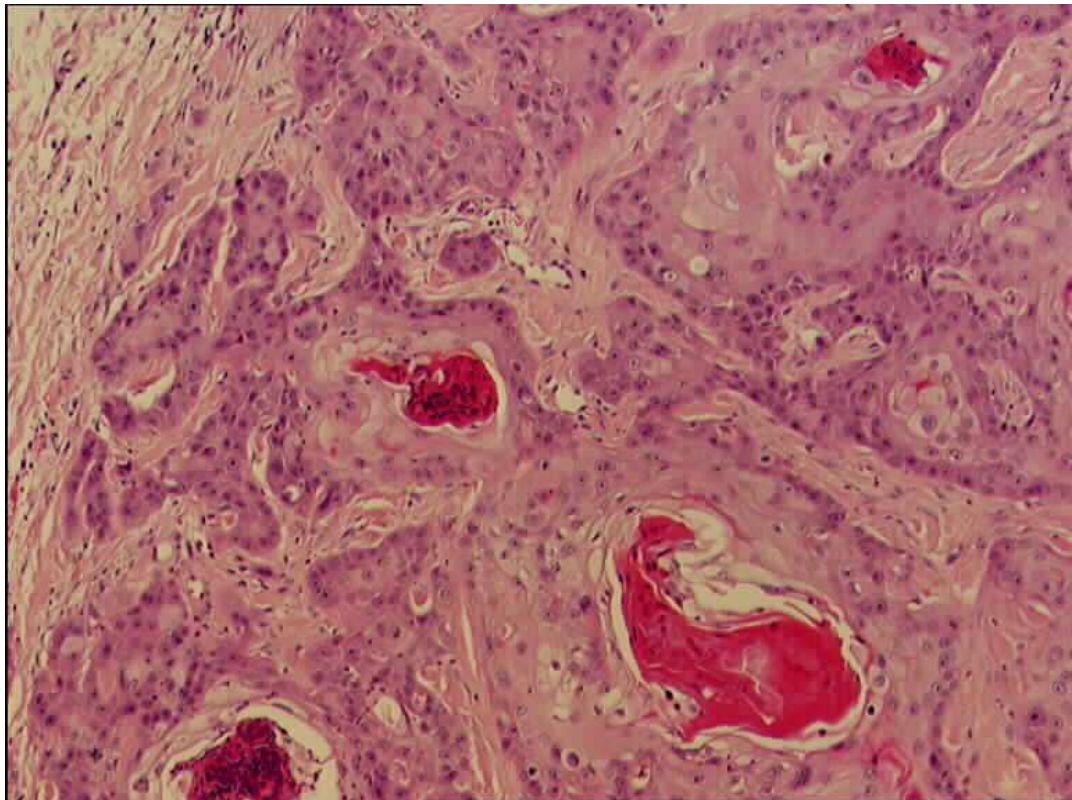
Pic. 4. 7 days after surgery showing reduction of the palpebral fissure of the right eye.

Results

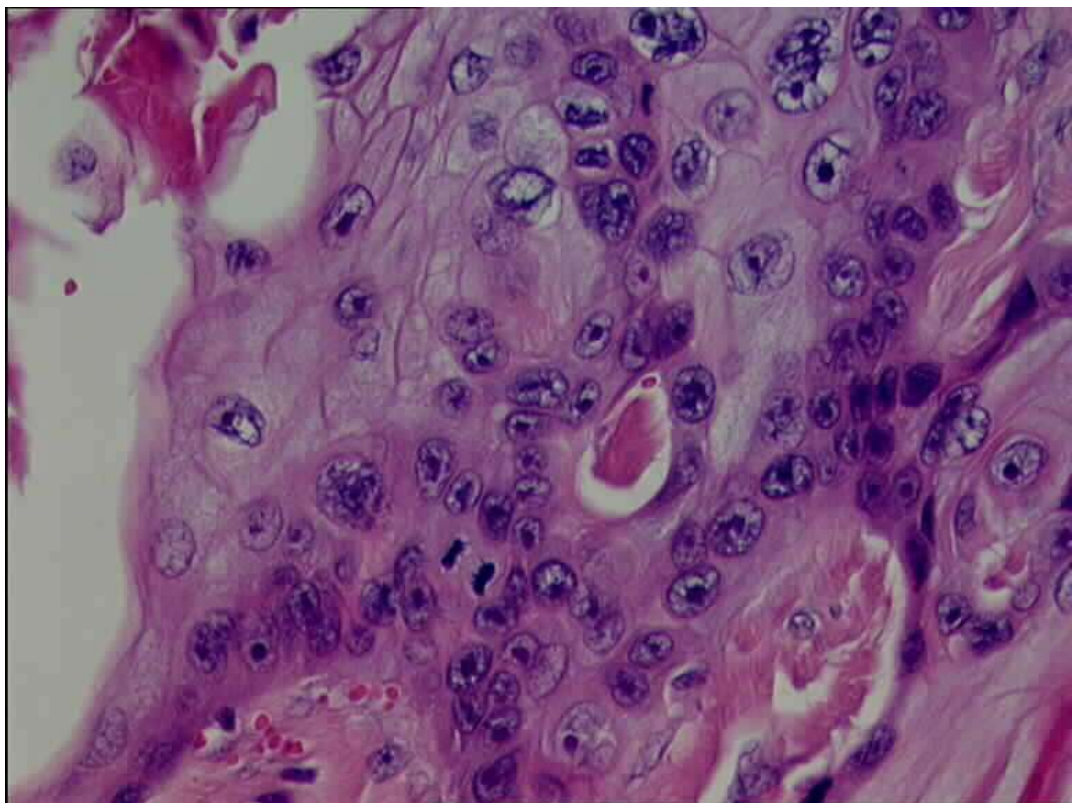
The histopathological diagnosis was SCC apparently arising within the ulcerated haired skin of the eyelid and invading the dermis but not penetrating the conjunctiva (Pics 5, 6 & 7). A tumour free margin was evident in the section examined.



Pic. 5. SCC: arising from ulcerated eyelid margin. Schirrous stroma and foci of acantholysis and keratinisation (H & E x 20)



Pic. 6. SCC: invasive margin with keratinisation (*H & E x 100*)



Pic. 7. SCC: nuclear atypia and mitotic figures (*H & E x 400*)

Discussion

SCC is the most common eyelid neoplasm in the cat (Blanchard i Keller) (Bostock). Others include basal cell carcinoma, mast cell tumour and fibrosarcoma (Hardman i Stanley) (McLaughlin, Whitley i Gilger) (Williams, Gelatt i Gwinn). Exposure to sunlight is a contributing factor for SCC and there is a marked predisposition in white cats and those with non-pigmented eyelids (Hardman i Stanley) (Williams, Gelatt i Gwinn). The tumour may appear as a white, roughened, irregular exophytic mass or a slightly raised or depressed ulcerative lesion on or adjacent to the eyelid margin (Hardman i Stanley) (Williams, Gelatt i Gwinn). SCC is a malignant tumour of epidermal origin and is characterised by irregular chords of epithelial cells that migrate downward disrupting the epidermal basement membrane and invading adjacent tissue (Hardman i Stanley) (Williams, Gelatt i Gwinn). SCC is locally invasive and metastasis to local lymph nodes occurs later in the disease (Hardman i Stanley). Treatment modalities include any or combinations of the following: surgical excision, with or without blepharoplastic techniques; radiotherapy (teletherapy and brachytherapy); cryotherapy; photodynamic therapy; chemotherapy; immunotherapy; laser therapy; hyperthermia, and intralesional carboplatin (Bostock) (Hardman i Stanley) (Nasisse) (Schmidt, Bertani i Martano) (Stell, Dobson i Langmack) (Williams, Gelatt i Gwinn). Surgical excision was elected in this case as it was anticipated that the mass could be excised with margins and that lid reconstruction could be achieved with a relatively simple one-off surgical procedure. Larger or more invasive masses may require more drastic surgical intervention and/or the addition of other treatment modalities.

Direct closure may be employed when lid defects are one-third or less of the length of the eyelid but larger defects require reconstructive surgery (Blanchard i Keller) (Lewin). The aims of such surgery are to recreate a normal palpebral fissure with adequate eyelid movement and a smooth, hairless eyelid margin (Van Der Woerd). Several such techniques have been described including bridge flaps, the mucocutaneous subdermal plexus flap, the rhomboid graft-flap, combined third eyelid and cutaneous advancement and the split eyelid flap (Blanchard i Keller) (Doherty) (Lewin) (Pavletic, Nafe i Confer) (Schmidt, Bertani i Martano). Bridge-flaps have the disadvantage

of requiring two operations and ptosis of the upper eyelid may result (Doherty). The mucocutaneous subdermal plexus flap has been shown to be very successful in dogs, however, in cats it is difficult to achieve without causing retraction of the upper lip (Doherty). Rhomboid graft-flaps can be used even if defects are greater than 60% although the risk of trichiasis is high if lining with conjunctiva cannot be achieved (Van Der Woerd). The split eyelid flap can be used to correct defects up to 50% of the eyelid margin, as in this case, and has the advantage of being a one-step procedure and usually results in a smooth, hairless eyelid margin (Van Der Woerd) although trichiasis has been reported as a potential failure of the technique (Lewin). This complication did not occur in this case.

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