



## Management of Ocular Squamous Cell Carcinoma by Eye Enucleation in a Three-Year-Old Ewe

**Samuel Kamau\*, Mark Mane, Melanie Wangui and Christopher Opiyo**

*Veterinary Surgeon (Egerton University), Nakuru, Kenya*

**\*Corresponding Author:** Samuel Kamau, Veterinary Surgeon (Egerton University), Nakuru, Kenya.

**Received:** October 28, 2024

**Published:** March 31, 2025

© All rights are reserved by **Samuel Kamau** *, et al.*

### Biodata

Owner-Tatton Agriculture Park

Species- Ovine

Breed- Merino

Sex- Female

Age -3 years

Weight -30kg

Color-White

### History

- Cauliflower like growth on the globe and eyelids of right eye that had been growing progressively for the past one year.
- The growth was non-responsive to conservative treatment and could bleed on slight contact with objects or rough surfaces.
- One case was reported from a herd size of 40 sheep.



**Figure a**

### General examination

- The patient was active and alert.
- Body condition score of 2.5 on scale of 1-5.
- The patient was lactating- 1 month old lamb.
- The growth had pus on the surface and was extensive, causing total blindness on the right eye.

### Vital parameters

- Temperature-38.4°C
- Heart rate-62 bpm
- Respiratory rate-28 breaths/minute
- Capillary refill time-2 seconds

### Significant finding

- The right eye had a bad odor and an ulcerated neoplasm with escharred surfaces covering the entire orbit and involving parts of the eye lids.

### Differential diagnosis

- **Squamous cell carcinoma** : A cauliflower like malignant neoplasia of epidermal cells, locally invasive and destructive that bleeds on slight contact
- Sheep with white or lightly pigmented skin are more susceptible
- **Papillomatosis**: A viral disease that can cause the formation of papillomas or warts on the skin or mucous membranes
- **Melanoma**: A type of skin cancer that present as pigmented nodules or plaques on the skin, eyes, and internal organs.

### Tentative diagnosis

- Squamous cell carcinoma

### Management.

- Management options available include, Surgery (eye extirpation), cryotherapy, electrocautery, local chemotherapy, radiation therapy.
- An eye extirpation was performed based on cost and available resources
- The procedure was performed to improve the quality of life of the animal and being a food animal, demand for cosmetic surgery is low.

Eye enucleation is indicated for squamous cell carcinoma, other indications include;

- Septic panophthalmitis
- Severe trauma beyond repair
- Severe glaucoma
- Severe proptosis

However, eye enucleation is contraindicated in cases of

- Pregnancy
- Malignant tumors
- When both eyes are affected

### Requirements

- **Surgery pack:** Scalpel and scalpel holder, hemostats, Needle holder, Thumb forceps, Scissors, Sutures material, Sterile gauze
- Chlorhexidine gluconate
- Povidone iodine

### Patient preparation

- The patient was starved for 12 hours prior to surgery
- Administration of 3ml Penicillin and dihydrostreptomycin (1ml/10kg) 12 hours prior to the surgery.
- Physical restraint using ropes and cast in sternal recumbency.
- Aseptic preparation of the surgical site by first removing the gross dirt using clean water, shaving, then scrubbing using chlorhexidine gluconate.

- Pre operative medication
- Administration of 3ml Penicillin and dihydrostreptomycin (1ml/10kg).
- Sedation of the patient using 0.2ml of 2% xylazine at a dosage of 0.1mg/kg.
- Palpebral infusion of lignocaine 2.5ml on each eyelid.
- Four retrobulbar nerve block-using lignocaine with adrenaline. 5ml of lignocaine was infused in each site .
- Ring block was also done around the eye.

### Procedure

- An incision was made on the upper eyelid 1cm away from the tumor starting from the skin, fibromuscular layer and the palpebral conjunctiva starting from the upper eyelid then the lower eyelid.
- Blunt dissection 360° around the orbit continuing down to the caudal aspect of the globe was done.
- The optic stalk was ligated by circumferential ligature using vicryl 2-0 then transected using curved mayo scissors.
- All muscles, adipose tissue, the lacrimal gland and fascia were removed, along with the eyelids and eyeball.
- The skin around the eye was undermined for easier apposition of the wound margins.
- Closure was done using simple interrupted suture pattern using vicryl 2-0.
- A small opening was left on the medial canthus of the eye where sterile gauze soaked in povidone iodine were introduced.

### Postoperative care

- Penicillin and dihydrostreptomycin 3ml (1ml/10kg) I.M 4/7
- Phenylbutazone 1.5ml I.M
- Tetanus toxoid injection one day after the surgery by intramuscular injection



**Figure b**

- Oxytetracycline spray was applied daily on the wound for 5 days
- The gauze was removed intermittently for three days.
- We removed the sutures after 14 days.



**Figure c:** Two days after the surgery.

### Post operative complication

No postoperative complication was encountered in our case, the prognosis was good

Complications that may be experienced include:

- Extensive hemorrhage from the optic artery.
- Wound dehiscence.
- Convulsion due to inadvertent injection of lignocaine into meningeal reflection of optic nerve.

- Orbital infection.
- Orbital emphysema.

### Discussion

There are several predisposing factors that can increase the risk of developing Squamous cell carcinoma in sheep, including:

- **Genetics:** Some breeds of sheep, such as Merinos and their crosses, are more susceptible to SCC.
- **Age:** SCC is more common in older sheep, especially those over the age of 3 years.
- **Skin color:** Sheep with white or lightly pigmented skin are more susceptible to SCC, as they have less natural protection against UV radiation.
- **Exposure to sunlight:** Prolonged exposure to sunlight, particularly during the can increase the risk of SCC.
- **Poor nutrition:** Sheep with poor nutrition, particularly those deficient in vitamin A, are more susceptible to SCC.
- **Environmental factors:** Sheep living in areas with high levels of UV radiation, such as high altitude or near the equator, are more susceptible to SCC.

Squamous cell carcinoma loss results in appreciable economic loss because of condemnation at slaughter and shortened reproductive life.

### Recommendation

We advised the owner on

- Heritability factor
- Roofed shelter