



## Eye affections in sheep and goats in state of Kuwait

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### ABSTRACT

Numerous surgical affections are common among sheep and goats in different localities all over the world which may cause economic losses and most of these affections are curable. This study is especially for eye injuries in sheep and goats, which were recorded in two year from October 2017 to October 2019 in different farms belonging to Public authority for agriculture affairs and fish resources - Kuwait City, Kuwait. Thirteen different surgical affections were recorded in sheep and 11 in goat. In sheep keratoconjunctivitis, pick eye and hyphema were the highest (12.90%) affection followed by 9.68% affection of corneal dermoid cyst, nictate gland and cherry eye. In goat Keratoconjunctivitis was recorded as highest (20%) eye affections followed by eye tumor (13.33%), pink eye, cherry eye, hyphema, corneal dermoid cyst and nictate gland (each 10%). Cataract was found in both sheep and goat with 6.45 & 6.67% respectively. However Keratoconjunctivitis was the most common eye surgical affection in both sheep and goat in Kuwait city.

## Introduction

The most common ocular affections recorded in cattle, buffaloes, and sheep were conjunctivitis, keratitis, subconjunctival abscess, and prolapse of the nictitating glands, hyphemia and cataract (Misk, 1993). Faulty differentiation of tissue during ocular development can produce a dermoid characterized by a mass of normal skin in an abnormal location. The anomaly occasionally develops along the eyelid margin and within the palpebral conjunctiva at the lateral canthus, although the temporal perilimbal conjunctiva and cornea are more typical locations (Radostits et al., 2007). Traumatic injury to the cornea may be superficial or deep enough to cause lacerations of the epithelium and /or stroma and in some cases to the deeper structures in the eye. Lesions involving the full depth of the cornea are complicated by collapse of the anterior chamber and bleeding may occur due to deeper damage involving the iris (Knottenbelt and Pascoe, 1994). Prolapse of the nictitans gland (cherry eye) may be caused by inherent instability of the connective tissue which anchors the gland at the base of the third eye lid, (Ward, 1998). The nictitating membrane of large animals is frequently affected by neoplasms, malformations, foreign bodies and inflammations (Gelatt and Wolf, 1988). It was affected also by subconjunctival abscess, dermoid (Youssef et al., 1993). Infectious Ovine keratoconjunctivitis (IOK) has the common name pink eye. Keratoconjunctivitis is inflammation of the covering mucosa of the eye, including orbit and the inner surface of the eyelids. When the inflammation

extends to layers below the conjunctiva the diseases called keratoconjunctivitis (Radostits et al., 2007).

The principle cause of keratoconjunctivitis in domestic sheep and goats was *Mycoplasma conjunctivae* (Baker et al., 2001 and Michael et al., 1972). The surface (cornea) of the eye has become blue and opaque leaving the sheep temporarily blind in this eye. Treatment Seek veterinary advice on treatment which will include antibiotic and anti-inflammatory treatment. In simple cases the lower eyelid is everted by rolling down the skin immediately below the lower eyelid. Topical antibiotic in an ophthalmic ointment is then applied to the eye to control potential secondary bacterial infection. In addition, this lubricates movement of the lower eyelid thereby reducing the likelihood of inversion. If eyelid inversion recurs after rolling out the lower eyelid, an injection of 0.5ml of antibiotic can be given into the lower eyelid. The lamb is securely held by an assistant and a 21-gauge 15 mm needle introduced through the skin of the lower eyelid parallel to, and approximately 1 cm below the lower eyelid. This volume of antibiotic effectively everts the lower eyelids and forms a depot to control possible secondary bacterial infection. Alternatively, thin metal clips which are placed at a right angle to the eyelids, and closed using fine pliers (Eales clips), can also be used to evert the lower eyelid. These clips have the advantage that they can be inserted quickly by one person. Surgical excision of an elliptical strip of skin and drawing the cut edges together with sutures can be used to evert the lower eyelid but is rarely necessary. Fibrosarcoma is a

malignant tumor of the connective tissue which originates from fibroblasts. It has variable presentations depending on species, age, site, and etiopathogenesis. Fibrosarcomas are usually localized subcutaneously but they may originate from visceral organs. Although this tumor occurs in all animals, it is most commonly observed in old cats and dogs (Goldschmidt and Hendrick, 2002; Erer and Kiran 2009).

**Materials and Methods**

The study was conducted from October 2017 to October 2019 in different farms belonging to Public authority for agriculture affairs and fish resources - Kuwait City, Kuwait. In this study were recorded 61 injuries of Eye affection in sheep and goats the mentioned in Table 1

**Table 1:** Eye affections of sheep and goat in Kuwait

Eye affections	Sheep	Goat
Corneal dermoid cyst	3 (9.68)	3 (10)
Lower eyelid wound	2 (6.45)	1 (3.33)
Cataract	2 (6.45)	2 (6.67)
Nictate gland	3 (9.68)	3 (10)
Keratoconjunctivitis	4 (12.90)	6 (20)
Trichitis	1 (3.2)	2 (6.67)
Circumocular	1 (3.2)	-
Eye tumor	2 (6.45)	4 (13.33)
Hyphemai	4 (12.90)	3 (10)
Exophthalmos	1 (3.2)	-
Pink eye	4 (12.90)	3 (10)
Swelling lower eyelid	1 (3.2)	-
Cherry eye	3 (9.68)	3 (10)
<b>Total</b>	<b>31</b>	<b>30</b>

**Results and Discussion**

This study is the first record of eye affections in sheep and goat in Kuwait. Thirteen different surgical affections were recorded in sheep and 11 in goat. In sheep keratoconjunctivitis, pick eye and hyphemai were the highest (12.90%) affection followed by 9.68% affection of corneal dermoid cyst, nictate gland and cherry eye (Table 1). In goat Keratoconjunctivitis was recorded as highest (20%) eye affections followed by eye tumor (13.33%), pink eye, cherry eye, hyphemai, corneal dermoid cyst and nictate gland (each 10%). Cataract was found in both sheep and goat with 6.45 & 6.67% respectively. However Keratoconjunctivitis was the most common eye surgical affection in both sheep and goat in Kuwait city.

Faulty differentiation of tissue during ocular development can produce a dermoid characterized by a mass of normal skin in an abnormal location. The anomaly occasionally develops along the eyelid margin and within the palpebral conjunctiva at the lateral canthus, although the temporal perilimbal conjunctiva and cornea are more typical locations (Radiosities et al., 2007). Infectious Ovine keratoconjunctivitis has the common name pink eye.

Keratoconjunctivitis is inflammation of the covering mucosa of the eye, including orbit and the inner surface of the eyelids. When the inflammation extends to layers below the conjunctiva the diseases called keratoconjunctivitis (Radostits et al., 2007).

Conjunctivitis in individual animals can occur as a result of irritation by dusty hay (particularly if fed from overhead racks), dust, wind, bright sunlight or localized trauma or foreign objects in the conjunctivae, or as a result of an allergy. Infectious keratoconjunctivitis ('pink eye' or contagious ophthalmia) is an acute contagious disease characterized by inflammation of the conjunctiva and cornea in one or both eyes (Matthews, 2016).





**Figure 1:** A) Mature cataract in goat. B) Necrotic iris following perforating corneal ulcer. C) tumor in the eye in goat. D) superficial keratitis in sheep. E) Corneal dermoid in lamb. F) Granuloma of the third eyelid in a goat. G) Prolapse of the nictitate gland of the third eyelid in a goat. H) exophthalmos. I) Entropion in goat. J) Wound in the lower lid. K) Swelling under lower eyelid lamb one week old. L) Hyphemia in the anterior in goat.

In sheep and goats, corneal edema is a common clinical sign of various ocular conditions such as: corneal ulceration, keratitis, anterior uveitis, and many systemic diseases, and precludes the direct visualization of intraocular structures by ophthalmoscopy (Whittaker et al., 1999).

IKC or pinkeye is recognized world-wide as a common condition affecting the eyes of domestic sheep and goats (Giacometti et al., 2002). It is a very painful disease which usually appears during hot dry weather conditions and spreads through close contact and flies.

Pink eye is caused by one of a number of different microorganisms. In the United States, the microorganisms most commonly associated with pinkeye in sheep and goats are *Chlamydia psittaci ovis* and *Mycoplasma conjunctivae*. The *Chlamydia* organism is the same organism that can cause enzootic abortions in ewes and does. Several other bacteria may play a secondary role in infections.

Lacerations of the eyelids should be repaired promptly to prevent lid deformities infections and exposure-induced damage to the cornea.

Entropion is a inward rolling of the eyelid which is also observed in sheep and goat in Kuwait city. It is quite a common congenital defect in sheep and goats, most commonly affecting the lower eyelid

Reported tumors of the eyelids in small ruminants include squamous cell carcinoma, fibroma, fibrosarcoma, melanoma and lymphoma. Tumors of the third eyelid are occasionally observed and include squamous cell carcinoma, adenocarcinoma and lymphoma. Excision is generally curative (Matthews, 2016).

Similar to other food-producing animals, ocular diseases in sheep and goat play a significant role in economic losses (Whittaker et al., 1999; Waldrige and Colitz, 2002; Potter et al., 2008), however, individual ophthalmic examinations are not frequently performed as part of a herd health program (Townsend, 2010).

## Conclusion

The characteristic cases an Ani affection in 4 adults of sheep and goats has been watched, in Kuwait. Individual ophthalmic examinations are not frequently performed as part of a herd health program but are very important to ensure the health of herd. Eye disease in sheep and goat can be extremely painful or cause permanent blindness. It can be a significant cause of reduced feeding and condition loss. Therefore diagnosis, recording and treatment are important in order to prevent the eye diseases of these animals.

## Competing interests

The authors declare no competing interests.

## Author's contributions

Khalifah Ali contributed to the collection of the data, clinical examination, and surgery. Haithem Ali Mohamed Ahmed Farghali contributed to the conception and design of the work in addition to writing of the manuscript. Ashraf Ali Eldesoky Shamaa contributed to the conception and design of the work in addition to revision of the manuscript.

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