Eyes

The eyes must always be examined with great care. Anophthalmia or microphthalmia are seen occasionally as congenital defects in calves. Anophthalmia is sometimes accompanied by the absence of a tail.

Eye movements

Repeated and spontaneous lateral movements of the eye (nystagmus) may be seen in some neurological conditions. 4. Some ocular movements are seen in normal animals. The eye moves to a limited extent within the orbit if the animal is visually following a moving object. If the head is tilted upwards the eyes move downwards within the orbit, a movement involving the vestibular system and known as vestibular eye drop.

Position of eyeball in orbit

The normal phenomenon of vestibular eye drop has been described above. Abnormal eye positions can occur in cases of damage to the nerves controlling ocular movements

Intraocular pressure and prominence of eyes

Gentle pressure on the eyeball through the upper eyelid should be exerted to assess intraocular pressure. The pressure should be the same in both eyes. Increased pressure is termed glaucoma and may affect one or both eyes. One eye may also be more prominent if it is displaced by a tumour mass or infection within the orbit. The eyes may be sunken in dehydrated cattle, and in severe cases a space is apparent between the eyelids and the eyeball. The eyes may also be sunken in severely emaciated animals which have lost all fat deposits within the orbit. The eye may appear sunken and have a reduced intraocular pressure if it has been accidentally penetrated or ruptured through overwhelming internal pressure.

Examination of ocular reflexes

Fixation, palpebral, corneal, menace and light response reflexes are checked on both sides. Inequality of pupil size may indicate general or specific neurological damage if there is no sign of glaucoma or intraocular infection. When assessing the pupillary light response reflex care must be taken to ensure that no physical damage, such as anterior synechia, interferes with the reflex.

Close examination of the eye

Good access can be difficult if the animal has ocular pain and is very sensitive to further discomfort.

Visual access to the eye is often aided by tilting the head slightly downwards on the side which is being examined. This will cause the animal to rotate the eyeball upwards with wide open eyelids allowing both direct visual access and facilitate the use of the ophthalmoscope.

All parts of the eye and eyelids should be carefully and methodically inspected. Topical anaesthetic instilled into the eye will also facilitate a pain-free examination. Ocular injury, infection and foreign bodies are quite common in cattle.

Sclera

The sclera is occasionally damaged by injury. Its vascularity is also increased in some cases of meningitis. Petechial haemorrhages in the sclera may be seen in cases of septicaemia and yellow discolouration may be present in jaundice.

Cornea

Corneal lesions in cattle are common, being chiefly the result of either New Forest disease or injury. Mild damage or early cases of New Forest disease may appear as a small corneal ulcer or area of corneal opacity caused by local oedema and neutrophil invasion. Growth of blood vessels (neovascularisation) from adjacent sclera leads to repair and in some cases an inert residual scar or pannus. Gen- eralised corneal opacity in both eyes is seen in keratitis and in some cases of malignant catarrh fever. More severe injuries or untreated corneal infection may cause deeper corneal damage and exposure of Descemet's membrane. If the membrane ruptures a staphyloma may form through which some of the interior components of the eye may prolapse. The exact extent of corneal injury or ulceration can be highlighted by the use of fluorescein dye strips which stain damaged tissue a luminous green. Fluorescein in the eye passes eventually with the tears into the nasolachrymal duct. Patency of the ducts is demonstrated by the presence of the dye placed in the conjunctiva appearing in the ipsilateral nostril. Patency can also be checked by retrograde flushing. A fine catheter is introduced into the small opening of the nasolachrymal duct on the lateral wall of the nostril. Sterile saline or a weak dye solution is introduced into the catheter using a syringe. If the duct is patent, fluid appears at the ocular conjunctiva.

Conjunctiva

The conjunctiva which lines the eyelids and is reflected onto the eyeballs should be salmon pink in colour and slightly moist. Dark pigment may occasionally prevent recognition of true conjunctival colour. Tear production is often increased when the conjunctiva is inflamed, and excessive tears may spill down the animal's face (epiphora). Chemosis (oedema of the conjunctiva) may be seen in cases of damage and severe inflammation.

Foreign bodies, chiefly chaff and hay seeds, frequently become trapped in the conjunctiva where they cause irritation and corneal damage . They should always be suspected and searched for when excessive lachrymation is seen. The incidence of ocular foreign bodies may reach near epidemic proportions when cattle are eating hay from over- head racks. The presence of sharp foreign bodies often provokes blepharospasm and anaesthesia of the cornea and conjunctiva with topical anaesthetic eye drops aids examination and treatment. Foreign bodies may be hidden in folds of conjunctiva and also behind the third eyelid which should be carefully lifted with forceps after topical anaesthesia . Even with care, some foreign bodies may be hard to find and a second search should always be implemented if the first is unsuccessful.

Eyelids – upper and lower

Partial or complete closure of the eyelids may be pre- sent in the absence of ocular abnormalities. Ptosis (local paralysis) of an upper eyelid may cause it to droop. Unilateral ptosis is seen in cases of Horner's syndrome. In this condition, caused by damage to the cervical sympathetic trunk, miosis (see below) and retraction of the eyeball may also be present. Tight closure of both lids – blepharospasm – may occur if a foreign body, corneal ulcer or other painful condition is present.

Third eyelid

The mucous membrane covering the third eyelid may be the origin of a squamous cell carcinoma which is highly invasive and may rapidly spread to the surrounding tissues including the eyeball . The third eyelid may flick across the eye in cases of tetanus if the hyperaesthetic animal is stimulated. The third eyelid may also appear more prominent if the eye is sunken or reduced in size