

Bovine Eye Diseases: Cancer Eye

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Cancer eye, technically known as Squamous Cell Carcinoma, is a common locally invasive tumor of the eyes and eyelids of older cattle. Like pinkeye, its occurrence is associated with exposure to sunlight and is more common in cattle with white eyelids and conjunctiva. As a result, cancer eye is very common in Colorado dairy cattle.

The third eyelid appears to be the most common site of cancer eye in dairy cows, followed in frequency by the lower lid and then by the limbus (junction of the clear cornea with the sclera or colored portion of the eye). Cancer eye may exist in a "pre-malignant" form as a flat white plaque or as a wart-like growth on the lower lid. The malignant form is not well-circumscribed, and its surface is ulcerated. Malignant squamous cell carcinoma will grow steadily and will invade adjacent tissues including the eyeball itself, conjunctiva, and eventually the bony orbit. Once the eyeball is invaded, blindness in the affected eye will soon follow. Metastasis to distant sites is uncommon; the tumor is more likely to extend to local lymph nodes such as those below the ear and behind the mandible.

Failure to identify and treat cancer eye leads to the growth of large, unsightly, foul smelling tumors. Cattle with these tumors may continue to eat and produce milk reasonably well, but tend to lose weight. They are condemned at slaughter (by some estimates cancer eye is responsible for 12% of all carcass condemnation) and are refused by auction markets in Colorado. Furthermore, the presence of such tumors in clear view on a dairy farm may lead the general public to question the humane treatment of cattle on that farm and in the dairy industry in general. Therefore, Colorado dairy farmers should check their cattle frequently when cattle are held in lockups or as they enter the milking parlor. Early lesions are successfully treated by veterinarians and are much less likely to recur.

Treatment of cancer eye depends on its location and the degree of involvement of ocular structures. Veterinarians easily remove lesions on the third eyelid by cutting out the free border of the third eyelid using local anesthesia and tranquilization. Lesions removed in this way are very unlikely to recur. On the lids, small lesions (< 1 inch) are managed by cutting out the bulk of the tumor and then applying hyperthermia (high temperature) or cryotherapy (freezing) to kill the remaining tumor cells in the tissue of the lids. Instruments to accomplish either hyperthermia or cryotherapy are commonly available to veterinarians. Larger lesions on the lids may require surgical removal and radical reconstructive surgery, although in some advanced cases the lid cannot be repaired and the eye must be removed. Cancer eye lesions on the eyeball itself are somewhat tricky to treat if sight is to be preserved. The bulk of the tumor is cut off carefully to avoid puncture of the eyeball, and the lesion is treated with hyperthermia. Removal of the entire eyeball is indicated when tumors have spread to the extent that the eyeball is blind; the tumor has invaded deeper structures surrounding the globe; or the eyelid is involved to the extent that it cannot be repaired after removal of the tumor. It may appear to be a drastic procedure, but trained veterinarians can accomplish it quickly and humanely. At slaughter, one-eyed cattle are not condemned as long as the local lymph nodes are not involved. Such cattle are accepted in Colorado auction markets, although the price paid may be discounted.