

# Surgery of the Sinuses and Eyes



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## KEYWORDS

- Sinusitis • Sinusotomy • Enucleation • Ocular squamous cell carcinoma
- Eye surgery

## KEY POINTS

- Sinus lavage for the treatment of frontal and maxillary sinusitis can be very effective and is not difficult when the appropriate landmarks are identified.
- Conditions of the eye and eyelids necessitating surgery are common.
- When early intervention is performed, the outcome is generally favorable.
- Temporary tarsorrhaphy can be an effective means of supporting eyelid laceration repair and corneal preservation during periods of facial nerve paralysis.

Conditions of the head requiring surgery in cattle are not uncommon when considering the incidence of conditions such as ocular squamous cell carcinoma and requests for surgical dehorning. Surgery involving the eyes in cattle is relatively common, whereas surgery of the paranasal sinuses is less common. Generally speaking, however, surgery for conditions of the head tend to have a more favorable prognosis when there is early intervention.

## PARANASAL SINUSES

Cattle have 6 paranasal sinuses: the frontal, maxillary, palatine, lacrimal, sphenoid, and conchal.<sup>1</sup> Even though disease can affect any of these sinuses, practically and clinically, only the frontal and the maxillary gain attention of the clinician. Similar to the horse, the frontal sinus is very large. However, in cattle, the frontal sinus is separated into multiple compartments with the caudal frontal sinus being the most expansive, extending into the horn (if present) of mature animals. This extension is often referred to as the cornual diverticulum. A second diverticulum is located behind the orbit and is identified as the postorbital diverticulum.<sup>2</sup> The further compartmentalization of the caudal frontal sinus by irregular osseous and membranous partitions can

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The author has nothing to disclose.

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make successful treatment of purulent sinusitis a challenge due to the inability to thoroughly and completely lavage the sinus. The frontal sinus communicates with the nasal passage via multiple fenestrations into the ethmoid meatuses.<sup>1</sup> In longstanding or chronic cases, effective lavage may be achieved only with a frontal sinus flap. Within the maxillary sinus are contained the tooth roots of the upper premolar and molar teeth. Hence, in immature animals, the sinus is relatively small, whereas in older cattle, it becomes larger as the cheek teeth are extruded. The maxillary sinus communicates with the nasal passage through the nasomaxillary opening. However, this communication lies high on the medial wall of the sinus allowing fluid to accumulate below this opening in the rostral maxillary sinuses and palatine sinuses rather than draining out the nasal passages.<sup>1</sup>

## CONDITIONS OF THE PARANASAL SINUSES

### *Sinusitis*

Frontal sinusitis in cattle is frequently seen as a sequela to dehorning procedures in which the frontal sinus was entered via the horn base following horn removal. It also can be seen following traumatic fracture of the horn, tipping of horns (**Figs. 1** and **2**), sequestration of bone secondary to dehorning, and frontal bone fractures. Environmental and skin contaminants gain access to the caudal frontal sinus through these openings, causing inflammation, and in some cases, results in bacterial infection leading to accumulation of purulent material within the sinuses. Clinical signs of sinusitis can include lethargy, inappetance, purulent nasal discharge, head pressing, head tilt, and in chronic cases, distortion of the bones overlying the affected sinuses. There



**Fig. 1.** A 5-year-old crossbred cow presented for unilateral nasal discharge and recent history of tipping the end of the horns.

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