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INTRODUCTION

Treatment of equine sinusitis depends on an accurate diagnosis of the disorder. The objective is to remove abnormal tissue and restore normal sinus drainage. Early cases of primary sinusitis may respond to medical management, including administration of antibiotics, feeding from the floor (to encourage drainage), mucolytics and continuing exercise. Multiple repeated courses of antibiotics are generally not successful. Recurrence of clinical signs after cessation of antibiotic treatment is a clear indication for further investigation.

Indications for sinus surgery are derived from nasal endoscopy, radiography of the head and detailed intraoral examination. In some cases, adjunctive imaging techniques such as scintigraphy or computed tomography may be indicated before performing surgical procedures.

Trephination of the equine sinuses is the most commonly performed sinus surgery and can be safely carried out in the standing sedated patient in equine general practice. Sinus flap surgery may be performed in the standing sedated horse or under general anaesthesia. Standing sinus flap surgery has become increasingly popular in equine referral hospitals in recent years and offers several advantages including: reduced costs, reduced patient-associated risks, and less intraoperative haemorrhage. If good results are to be achieved appropriate good patient selection, and familiarity with regional anatomy and surgical techniques are imperative, whichever technique is employed.

Aetiology of sinusitis and % of cases with sino-nasal disease (from 277 cases reported by Tremaine et al. 2001):

1. Primary (infective) sinusitis 24%
2. Dental infection 22%
3. Maxillary (sinus) cysts 8%
4. Sinus neoplasia 8%
5. Progressive ethmoidal haematomas 6%
6. Sino-nasal trauma 5%
7. Mycotic sinusitis 4%
8. Polyps 3%
9. Other miscellaneous conditions 5%

INDICATIONS FOR SINUS TREPHTINATION

- Sinoscopy examination of the sinus interior.
- Placement of a lavage tube for initial treatment of primary sinusitis or dental sinusitis (later combined with oral extraction of the affected cheek tooth) or in combination with sinus flap surgery to allow post operative lavage.
- Endoscopically guided fenestration of the ventral conchal bulla.

INDICATIONS FOR SINUS FLAP SURGERY

- Primary sinusitis that has not responded to conservative management or has recurred after trephination and sinus lavage.
• Intrasinus mass diagnosed radiographically or by direct sinus endoscopy (e.g. sinus cyst, ethmoidal haematoma, neoplasm, fungal plaque).
• Inspissated pus present within the sinus (diagnosed radiographically and by direct sinus endoscopy). This material usually cannot be removed with lavage alone, particularly if the ventral conchal sinus is involved.
• Sino-nasal fistulation. This is indicated for chronic sinusitis with obstruction of the naso-maxillary ostium and poor sinus drainage.
• Repulsion of a cheek tooth that is not amenable to oral extraction e.g. nonerupted teeth or fractured teeth with large fragments missing.

COMPICATIONS OF SINUS SURGERY

Haemorrhage
Haemorrhage is rarely associated with sinus trephination unless the surgeon inadvertently makes contact with the ethmoturbinates or other structures with the trephine. Even if this occurs, haemorrhage will be self-limiting the majority of cases. Elevating the head of the sedated horse (so that it is higher than the heart) often helps to reduce bleeding.

Haemorrhage frequently occurs when sinus flap surgery is performed because the sinus mucosa is very vascular and may be particularly copious if a surgical fenestration is made between the sinuses and the nasal cavity. When sinus surgery is carried out in the sedated standing patient, haemorrhage tends to be reduced compared to sinus surgery performed in anaesthetised horses, due to the elevated head position of the standing horse. Measures to control haemorrhage must be readily accessible when performing standing sinus flap surgery. These include local application of pressure, packing the sinuses and nasal cavity with a long sterile piece of cotton gauze or sock and bandage pack. Use of topical adrenaline is not often effective due to the amount of haemorrhage, which quickly dilutes it and carries it away from the affected area. Horses undergoing sinus flap surgery should be under constant cardiovascular monitoring and appropriate i.v. fluid therapy. Facilities to collect/administer whole blood should be available. Temporary bilateral carotid occlusion has been described to reduce haemorrhage during the intraluminal stages of sinus surgery, but in this author’s experience is seldom required.

Patient noncompliance
Patient noncompliance is extremely rare for sinus trephination techniques, but is observed more often during standing flap procedures, particularly during creation of the osteoplastic flap if chisels or a bone saw are used. Fenestration of the nasal conchae and packing of the nasal cavity will cause resentment in most standing patients as the nasal aspect of the conchae is not only very vascular, but also well innervated.

Post operative incisional infections
Sinus surgery in patients with active sinusitis is classified as ‘dirty’ surgery using the National Research Council wound classification criteria (transection of clean tissues performed for the purpose of surgical access to a collection of pus). In addition, suture material used to close the sub-cutaneous tissues may potentiate wound infections. Fortunately, although the prevalence of wound infection post sinus surgery is relatively high, drainage and removal of remaining suture material (if appropriate) usually results in quick resolution of local infection with no long-term consequences.

Poor cosmetic result

Trephination:
When a small trephine hole is made into the sinuses, this usually results in an excellent cosmetic result with the defect being sometimes palpable but not visible. Occasionally, horses may develop suturitis at the fronto-nasal suture, and if a large trephine hole is made, there may be a small concavity visible at the surgical site.

Sinus flap surgery:
Use of a large trephine to remove a disc of frontal bone has been reported to result in an excellent/very good surgical result in 42% of cases and a poor result in 13% (Quinn et al. 2005). Although cosmetic results of the standard 3-sided osteotomy technique have not been reported objectively in the literature in large numbers of horses, it is accepted that preservation of the bone flap is likely to provide a better cosmetic result by preventing depression at the surgical site, particularly if the animal is intended for showing or if a large bone flap is required (Freeman 2003). Some surgeons also advocate application of a compression bandage placed around the head in a figure of 8 pattern post operatively in order to improve cosmetic result; however, this is not this authors’ personal experience.
Recurrence of sinusitis

Recurrence of sinusitis after trephination and lavage is usually attributable to an ongoing underlying problem such as inspissation of pus, intrasinus mass, periapical infection etc. Recurrence of clinical signs is an indication to refer the horse for further diagnostics and sinus flap surgery if appropriate.

Recurrence of clinical signs after sinus flap surgery is reported to occur in around 27–28% of cases (Tremaine and Dixon 2001; Quinn et al. 2005), and these usually require some form of further investigation and/or surgical intervention.

REFERENCES AND FURTHER READING


