

Steri-strips as an aid to intra-operative monitoring of the eye during endoscopic sinus surgery

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Abstract

Although uncommon, ocular complications of endoscopic sinus surgery have the potential to cause considerable morbidity. Direct intra-operative monitoring of the eye may alert the surgeon to potential complications at an early stage. We describe the use of Steri-strips during endoscopic sinus surgery as an aid to monitoring for ocular complications during surgery. This is a cheap, simple and effective method of intra-operative monitoring.

Key words: Otorhinolaryngologic Surgical Procedures; Orbit; Complications; Endoscopy; Paranasal Sinuses

Introduction

Orbital complications during endoscopic sinus surgery are relatively rare, with an incidence of 3 per cent.¹ The major orbital complications include orbital oedema, intra-orbital haemorrhage, medial rectus disruption and optic nerve injury.² The eye is particularly at risk during ethmoid sinus surgery through breach of the lamina papyracea. Eye signs indicative of intra-orbital damage include proptosis (suggesting an increase in intra-orbital pressure) and pupillary changes (such as dilatation or an afferent pupillary defect). Inadvertent traction of intra-orbital fat or other structures may lead to movement of the eye which may be visualised intra-operatively.

Monitoring of the eye during surgery is well described, with various methods reported including manual retraction of the eyelid by an assistant, eyelid retractors or Geli-perm®,³ and use of flash visual evoked potentials.⁴ Any method must also ensure eye protection during surgery, as corneal abrasion may result from direct trauma or through drying of the cornea.⁵ In surgical procedures of less than one hour's duration, corneal abrasions due to dryness are unlikely.⁶

We describe the use of a Steri-strip as a simple aid to monitoring of the eye during endoscopic sinus surgery.

Materials and methods

At surgery, a 12 mm Steri-strip (3M, St Paul, Minnesota, USA) is cut in half and applied to retract the upper eyelid on the side being operated upon. This is secured to the forehead (see Figure 1). Lacri-lube (Allergan, Marlow, UK) is instilled into the opened eye to prevent dryness.

The eye is then observed throughout the procedure. When surgery on the first side is finished, that eye is closed and the procedure repeated on the other side.

Discussion

This procedure allows monitoring of the eye at risk, throughout the procedure. Since the surgical assistant is

not required to retract the eyelid, they are more able to be fully involved in the procedure. In addition, this method reduces the risk of direct trauma to the cornea, compared with digital retraction of the eyelid by the assistant.

Compared with other methods of retraction, our method is simple and non-invasive. It is cheap and the Steri-strip is only used once, thus not requiring sterilisation, in contrast to the Williams retractor with its attendant cost implications.³



FIG. 1
Intra-operative use of Steri-strip (3M, St Paul, Minnesota, USA).

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Accepted for publication: 16 June 2008. First published online 15 August 2008.



FIG. 2
William's Retractor.

We believe that our method is inherently safer than the alternative lid retraction methods described, such as the Williams retractor (Figure 2) or even paperclips.⁷

Conclusion

Use of Steri-strips to monitor an eye at risk during endoscopic sinus surgery is safe, effective and cheap.

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Mr J Tahery takes responsibility for the integrity of the content of the paper.

Competing interests: None declared
