The Journal of Laryngology & Otology (2011), ***125***, *309–310.*
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doi:10.1017/S0022215110002665

SHORT COMMUNICATION

Safe application of mitomycin C within the nasal cavity

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Abstract

Objective: To describe a novel technique of delivering mitomycin C safely via endoscopic sinus surgery.

Case report: Mitomycin C was applied in the median frontal drainage pathway of a 44-year-old woman suffering from recalcitrant chronic frontal sinusitis. The mitomycin C was soaked onto a neurosurgical patty, which was delivered through a nasopharyngeal tube trimmed to ensure delivery directly to the desired area, thus sparing adjacent mucosa.

Conclusions: Mitomycin C has been suggested to have a useful role in reducing post-operative scarring after endonasal surgery. The long term safety of topical mitomycin C is not yet known, and inadvertent topical application to adjacent mucosa should be avoided. The described technique achieves this in a simple manner, and can be easily applied to other locations.

Key words: Frontal Sinus; Mitomycin C; Endoscopic Surgery; Complications

Introduction

Although topical mitomycin C has been used for more than 20 years, it is a relative newcomer to the field of otolaryngology.[1] It has an anti-proliferative action on fibroblasts which may reduce scarring and fibrosis.

Amonoo-Kuofi *et al.* have investigated the efficacy of mitomycin C in reducing frontal ostium stenosis after endoscopic sinus surgery. They applied 1 ml of 0.6 mg/ml mitomycin C solution, soaked onto 0.25 cm wide ribbon gauze, to the frontal ostial region for 5 minutes, via an endoscopic or combined endoscopic and external approach, after the frontal ostial region had been enlarged.[2] The study concluded that mitomycin C appears to have a useful role in reducing post-operative scarring, and may obviate the need for repeated and more extensive surgery.

Based on this approach, the current paper explores a novel approach to delivering mitomycin C within the nasal cavity.

Case report

Mitomycin C was applied in the median frontal drainage pathway in a 44-year-old woman suffering from recalcitrant chronic frontal sinusitis.

This patient had previously undergone three endoscopic modified Lothrop procedures but had restenosed rapidly post-operatively, despite having had a large central drainage pathway created (Figure 1). Repeated balloon dilatation of the tract had also failed to prevent closure.

The tract was reopened endoscopically. Mitomycin C was administered soaked onto a neurosurgical patty, which was delivered through a nasopharyngeal tube (Figure 2) which had been trimmed to ensure delivery directly to the desired area, thus sparing adjacent mucosa. The same technique could be applied to deliver mitomycin C to the posterior choanae in cases of choanal atresia.

Discussion

When applying mitomycin C (or any other cytotoxic agent), it is important to avoid inadvertent topical application to adjacent mucosa. We could find no previous description in

FIG. 1

Pre-operative CT demonstrating soft tissue stenosis of median frontal drainage pathway.

Accepted for publication 21 July 2010 First published online 7 January 2011

https://doi.org/10.1017/S0022215110002665 Published online by Cambridge University Press

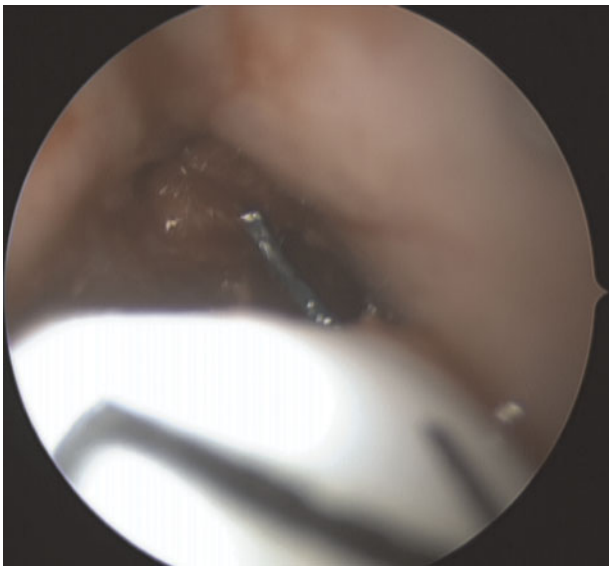

FIG. 2
Intra operative picture demonstrating MMC soaked pledgelet in position, deliver through NP tube.

the ENT literature of a safe technique for mitomycin C delivery.

Mitomycin C application has previously been described for the treatment of oesophageal strictures.[3] The drug was delivered via a semi-rigid sheath introduced over a guide wire. Grasping forceps were then introduced through the instrument channel of the endoscope, and used to apply a mitomycin C soaked pledget to the desired area.

Based on this principle, we devised the above-described, novel approach for delivering mitomycin C within our patient's nasal cavity.

Although no post-procedure images were available for our patient, due to lack of suitable image capture equipment in the out-patients department, endoscopic examination revealed a smooth, healed, well mucosalised tract.

Conclusion

Although topical mitomycin C has been used for more than 20 years, it is a relative newcomer to the field of otolaryngology.[1] It has an anti-proliferative action on fibroblasts which may reduce scarring and fibrosis.

It has been suggested that mitomycin C may have a useful role in reducing scarring following endonasal surgery, which may obviate the need for repeated and more extensive surgery.

When applying mitomycin C, or any other cytotoxic agent, it is important to avoid inadvertent topical application to adjacent mucosa. However, we found no previous reports on the safe delivery of mitomycin C within an ENT clinical context.

The long term safety of topical mitomycin C is not yet known. The drug has been shown to be carcinogenic in rats and mice. Therefore, until long term safety data become available, it seems sensible to minimise unwanted contact. Our technique achieves this in a simple manner, and can be easily used in other locations.

Acknowledgements

We thank Mr David Roberts, ENT Consultant, for facilitating supply of the intra-operative image, and for his support and guidance throughout the writing process. We also thank Geoffrey Ibe, medical student, for his support in data collection and literature review.

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Ms T Gutierrez takes responsibility for the integrity of the content of the paper
Competing interests: None declared

https://doi.org/10.1017/S0022215110002665 Published online by Cambridge University Press