International Journal of Pediatric Otorhinolaryngology (2008) 72, 1535–1540

ELSEVIER

International Journal of Pediatric Otorhinolaryngology

www.elsevier.com/locate/ijporl

Effects of Meropack in the middle meatus after functional endoscopic sinus surgery in children with chronic sinusitis

Ko-Hsin Hu [a,c,d], Kai-Nan Lin [b], Wen-Tyng Li [c], Hung-Meng Huang [e,*]

[a] *Department of Otorhinolaryngology-Head and Neck Surgery, Keelung Hospital, Department of Health, Keelung, Taiwan*
[b] *Department of Otolaryngology, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan*
[c] *Department of Biomedical Engineering, Chung Yuang Christian University, Chungli, Taiwan*
[d] *Hsin Sheng College of Medical Care and Management, Taoyuan, Taiwan*
[e] *Department of Otorhinolaryngology, Taipei City Hospital, Taipei Medical University, 12 Fu Chou Street, Taipei, 310, Taiwan*

Received 29 May 2008; received in revised form 11 July 2008; accepted 14 July 2008

KEYWORDS
Nasal dressing;
Meropack;
Sinus surgery;
Synechiae;
Postoperative hemorrhage

Summary

Objectives: The aim of the study was to evaluate the effects and morbidities of Meropack, an absorbable hyaluronic acid packing material, placed in the middle meatus after endoscopic sinus surgery in children with chronic sinusitis.
Methods: Sixty consecutive children with similar degrees of bilateral chronic sinusitis were enrolled in the study. Meropack was randomly inserted into one side of the middle meatus, while the opposite sinus was not packed after functional endoscopic sinus surgery. Patients were investigated 3, 8, and 12 weeks after surgery. The effects and morbidities of nasal dressings in the middle meatus were evaluated with respect to six distinct parameters: blood loss during surgery, postoperative hemorrhage, synechiae, granulation tissue, infection, and patency of the maxillary sinus ostia.
Results: Mean blood loss of packed and unpacked sinuses did not significantly differ ($p > 0.05$). Twenty-nine (15 packed, 14 unpacked) of the 120 sinuses underwent resection of the lateral wall of concha bullosa. Four of 14 unpacked sinuses had postoperative hemorrhaging, while the 15 packed sinuses did not ($p < 0.05$). The mean synechiae scores at the first follow-up visit for the Meropack filled and unpacked sinuses differed significantly ($p < 0.05$). For the 8- and 12-week follow-up visits, severity of adhesions, granulation tissue formation, infection rate, and patency of the

* Corresponding author. Tel.: +886 2 23916471x1235; fax: +886 2 27979497.
E-mail address: hmengh@yahoo.com.tw (H.-M. Huang).

doi:10.1016/j.ijporl.2008.07.006

maxillary sinus ostia did not differ significantly between the Meropack filled sinuses and the unpacked sinuses ($p > 0.05$ for all).
Conclusion: Meropack dressings effectively prevented postoperative hemorrhage, but did not significantly reduced synechiae after endoscopic sinus surgery. Therefore, we recommend that Meropack packing is not necessary for routine use following pediatric functional endoscopic sinus surgery (FESS). However, it should be reserved for children who are predisposed to develop postoperative hemorrhages or adhesions, such as resection of the concha bullosa, traumatic surgery with the creation of large raw surfaces on the middle turbinate, and revision surgery with preexisting adhesions.

1. Introduction

Chronic paranasal sinusitis is a relatively common disorder in children [1]. Functional endoscopic sinus surgery (FESS) is frequently performed for chronic rhinosinusitis refractory to medical management [2]. Adhesions between the middle turbinate and lateral nasal wall are the most frequent complication leading to unsatisfactory healing with obstruction of the ostiomeatal complex and subsequent failure of the procedure [3]. Postoperative care is equally important to the success of the procedure as surgical technique [4,5].

Various surgical techniques, including mucosal sparing techniques, middle turbinate resection or medialization, and frequent postoperative debridement are used to prevent postoperative synechiae [5—7]. Intranasal packing with a variety of materials is often applied to prevent postoperative hemorrhage and synechiae between the middle turbinate and lateral nasal wall [7—11]. Biodegradable nasal dressings that obviate the need for removal of nasal dressings are preferable for effective reduction of patient discomfort during postoperative care.

The aim of our study was to evaluate the effects and morbidities of Meropack, a new combination dressing designed to address the postoperative hemorrhage and synechiae of the sinus, packed into the middle meatus after FESS in children with chronic sinusitis compared to sinuses without nasal dressing.

2. Materials and methods

From January 2004 through December 2006, we selected 60 consecutive children with similar degrees of bilateral chronic paranasal sinusitis to undergo FESS and to participate in the study. Patient age ranged from 7 to 15 years (mean, 10.6 years). All patients revealed signs and symptoms of chronic paranasal sinusitis, such as yellowish rhinorrhea, nasal obstruction, postnasal drip, and the presence of nasal polyps, which had been present for between 8 and 16 months inclusively (mean, 11.0 months), and had not responded to antibiotic treatment for a period of at least 3 months. All participating patients underwent sinus CT examinations for diagnosis confirmation. Patients who underwent previous sinus surgery, had massive sinonasal polyposis, or computed tomographic evidence of unequal degrees of sinus disease were excluded from the study. The study was approved by the Bioethical Committee of the hospital and informed consent was obtained from patients' guardians prior to enrollment in the study.

All procedures were performed under general anesthesia. Following medialization of the middle turbinate, an uncinectomy was performed. Enlargement of the natural ostium was performed if it was obliterated or mucosal pathology existed in the maxillary sinus. The bulla ethmoidalis was opened, with the lesion typically localized in the ostiomeatal complex, bulla ethmoidalis, and/or maxillary sinus. Whether surgeons performed posterior ethmoidectomy, frontal sinus clearance, or sphenoidotomy, depended upon the relative extent of sinus disease. Never was any region of nasal or sinus mucosa stripped exposing bare bone, and no turbinates were removed. Resection of the lateral wall of concha bullosa was performed in 19 patients (29 sides). The procedure was bilateral in 10 patients, performed on the right side only in 4 patients, and the left side only in 5 patients. All patients had a piece of Meropack (Medtronic Xomed, Jacksonville, Florida) placed randomly in the right or left middle meatus upon completion of FESS, while the opposite middle meatus was not packed and acted as the control.

Patients were administered antibiotics intraoperatively, which were continued for 1 week postoperatively. Postoperatively, patients were instructed to begin nasal irrigation with normal saline using a bulb syringe twice daily.

Blood loss, measured independently, was recorded from onset of surgery to the point after the insertion of the Meropack dressing. The severity of sinusitis was evaluated according to the modification of Tom et al. [12]. The findings were divided into four categories: 0 (none), 1 (mild), 2 (moderate), and 3 (severe). Mild adhesions were limited to