Advantages of Glove Finger-Coated Polyvinyl Acetate Pack in Partial Inferior Turbinectomy

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ABSTRACT

Objectives: Nasal packing is commonly used to control postoperative bleeding in patients undergoing inferior turbinate surgery. During packing removal, patients usually undergo severe pain and bleeding. The objective of this study was to investigate the efficacy and safety of glove finger-coated polyvinyl acetate (PA) pack on hemostasis, pain levels, and wound healing after partial inferior turbinate surgery.

Methods: A prospective, randomized, double-blinded controlled study was conducted on 30 patients undergoing partial bilateral inferior turbinate surgery using microdebrider for hypertrophic rhinitis. Fifteen patients (control group) had both nasal cavities packed with PA pack (IVALON®, Fabco, New London, CT) and another 15 subjects (experimental group) had their nasal cavities packed with PA in a glove finger. Pain levels were assessed by patients on a visual analog scale 12 hours after surgery and at the time of packing removal. The amount of bleeding on removal was quantified by weighing it after removal.

Results: Both nasal packs effectively prevented postoperative bleeding. However, bleeding on packing removal was statistically less frequent and less severe with PA pack in a glove finger (p = 0.001). In addition, pain during packing removal was statistically lower with PA pack in a glove finger than with PA pack alone (p = 0.018). There was no significant difference in the outcome measure of wound healing.

Conclusions: PA packing in a glove finger is a recommendable method in terms of pain, bleeding on packing removal, compared with PA pack only in microdebrider-assisted partial turbinate surgery.

INTRODUCTION

Surgeons have a various choice of nasal packing after turbinectomy surgery. Although nonabsorbable traditional packing is effective in the control of postoperative bleeding, it has been associated with significant pain and rebleeding on packing removal. In addition, one study reported that conventional packing induces a loss of 50–70% of the ciliated mucosal surface area. Therefore, absorbable materials have been substituted with the ultimate intent of improving patient comfort and decreasing the incidence of complications associated with nonabsorbable packing. However, absorbable packings, such as FloSeal gelatin sponge (Fusion Medical Technologies, Inc., Fremont, CA), and carboxymethylated cellulose can induce an inflammatory reaction that ultimately leads to incomplete wound healing and is inferior in bleeding control.

An ideal packing material should not damage nasal mucosa, should cause no pain when removed, should effectively control bleeding, promote rapid wound healing, and should be inexpensive. It has been reported the use of Merocel (Medtronic Xomed, Jacksonville, FL) in a glove finger provokes less degree of nasal mucosa in rabbits than Merocel only. The present study investigated the efficacy of glove finger–coated polyvinyl acetate (GFPA) pack on hemostasis, pain levels, and wound healing after turbinectomy surgery.

METHODS AND MATERIALS

A prospective, randomized, double-blinded, controlled trial was conducted on 30 patients (15 male and 15 female) who underwent bilateral partial inferior turbinate surgery using microdebrider because of bilateral hypertrophic rhinitis were enrolled. Exclusion criteria for the subjects included age of <18 years, paranasal sinusitis, septal deviation, combined endoscopic sinus surgery or septoplasty, ongoing systemic steroid therapy and abnormal blood coagulation. Presence of allergic rhinitis and eosinophil count were evaluated before surgery.

Topical vasoconstriction soaked pledges or bipolar cauterization were used for complete hemostasis during surgery. After completion of surgery, 15 patients (control group) had both nasal cavities filled with PA packing (Ivalon®) only (Fig. 1A), and 15 other subjects (experimental group) were packed with PA in a powder-free, latex glove finger (Fig. 1B). Each PA pack was expanded using 3 mL of sterile saline solution. Postoperative pain was controlled with analgesics (Acetaminophen). Nasal packing was removed 24 hours after surgery. Postoperative antibiotics were prescribed for 2 weeks. As needed, oral antihistamine were also used to control allergic rhinitis symptoms in the allergic rhinitis patient.

RESULTS

Both nasal packs effectively prevented postoperative bleeding. However, bleeding on packing removal was statistically less frequent and less severe with PA pack in a glove finger (p = 0.001). In addition, pain during packing removal was statistically lower with PA pack in a glove finger than with PA pack alone (p = 0.018). There was no significant difference in the outcome measure of wound healing.

DISCUSSION

The most common problem with this kind of nasal pack comes at the time of removal, which can be a very unpleasant experience and can precipitate rebleeding. Therefore some practitioners have used nasal packings in latex glove fingers to reduce the trauma of packing removal. Although some studies investigated the effect of glove finger–coated tampons in septoplasty, ESS or the management of epistaxis, there have been no well-designed studies addressing the advantages of glove finger–coated tampons in microdebrider assisted partial turbinate surgery.

This study conclusively determined that GFPA can induce less pain and bleeding when it is removed. These findings may be consistent with the results from earlier animal studies. Use of a rabbit model enabled the conclusion that the use of Merocel alone leads to a greater degree of damage, including shorter epithelium and loss of cilia in the lamina propria than glove finger in Merocel. In a sheep model, lower reciliation rate was also shown after removal of Merocel. In summary, glove finger–coated Ivalon® plays a role in avoiding the friction between Ivalon® and surgical wound on packing removal, which reduces degree of pain and bleeding amount.

CONCLUSIONS

PA packing in a glove finger is a recommendable method in terms of pain, bleeding on packing removal, compared with PA pack only in microdebrider-assisted partial turbinate surgery.

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REFERENCES