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Effectiveness of hemostatic gelatin sponge as a packing material after septoplasty: A prospective, randomized, multicenter study

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ABSTRACT

Objective: Although hemostatic gelatin sponge is a gelatin-based packing material with a powerful hemostatic effect, there were no studies in regard to its efficacy for packing material after septoplasty. The purpose of this study was to investigate the efficacy of hemostatic gelatin sponge nasal packing on patient's subjective symptoms, hemostasis, and wound healing following septoplasty.

Subjects and methods: Seventy six adult patients with nasal septum deviation requiring septoplasty were included. Following surgery, one nasal cavity was packed with hemostatic gelatin sponge and the other one with polyvinyl acetate. Patients' subjective symptoms while the packing was in situ, hemostatic properties, patients' pain on removal, degree of bleeding on removal of the packing, time for hemostasis after removal, postoperative wound healing, and the cost of the pack were evaluated.

Results: Both packs were equally effective in the control of postoperative bleeding following septoplasty. However, hemostatic gelatin sponge packing was significantly more comfortable while in situ and less painful on removal of the pack. The polyvinyl acetate packing was associated with significantly more bleeding on removal, therefore much time was needed to control hemorrhage. There was no significant difference in the cost of the pack used and outcome of wound healing.

Conclusion: The use of hemostatic gelatin sponge after septoplasty results in significantly less discomfort and greater patient satisfaction with no adverse reactions when compared with polyvinyl acetate packing. Therefore, hemostatic gelatin sponge may be a useful packing material after septoplasty.

1. Introduction

Septoplasty is commonly performed for the surgical correction of symptomatic septal deviation. Nasal packing is performed as a routine by many otolaryngologists following septoplasty to arrest hemorrhage, to prevent septal hematoma formation and postoperative early adhesion formation, to

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support septal flap apposition, and to close dead space between cartilage and subperichondrial flaps [1]. However, removable nasal packing can increase patient discomfort, local pain, and pressure. Furthermore, the removal of nasal packing has been described as the most uncomfortable and distressing features linked with septoplasty [2–4]. Therefore, various absorbable materials have been used to overcome the disadvantage of removable nasal packing. Absorbable materials do not require subsequent removal postoperatively, giving the patient increased comfort while still having positive effects on hemostasis.

The hemostatic gelatin sponge (Cutanplast; Mascia Brunelli S.p.A., Milan, Italy) is a gelatin-based packing material with a powerful hemostatic effect [5,6]. Although several gelatin-based packing materials have been used, they are different in the chemical composition, porosity, and pore size [7,8]. Furthermore, gelatin-based packing materials have different physical forms such as rectangle, cylinder, and sheet form. Previous study showed that the Cutanplast packing showed distinct advantage over Spongostan packing in terms of efficacy and cost-benefit after endoscopic sinus surgery (ESS) [8]. However, there were no studies in regard to the effectiveness of Cutanplast for packing material after septoplasty.

The purpose of this study was to investigate the efficacy of Cutanplast nasal packing on patient's subjective symptoms, hemostasis, and wound healing following septoplasty.

2. Subjects and methods

2.1. Subjects

Six institutions were included in this prospective study involving 76 patients from a total of 80 enrolled patients had undergone septoplasty between March 2014 and August 2015. The institutional review board (IRB) of Pusan National University Hospital (H-1503-001-027) approved this study at each location.

Patients included in the study were 18 years or older and underwent septoplasty due to clinically significant nasal septal deviation. Exclusion criteria included a simultaneously performed ESS, turbinate surgery, other nasal surgery that would make a comparison impossible, and the additional use of a different nasal packing material. Additional exclusion criteria were patients with a history of previous septoplasty surgery, bleeding disorders or anticoagulant therapy, pregnancy, and the presence of a severe medical or neuropsychiatric disorder.

2.2. Surgical procedure and nasal packing

All patients were operated under general anesthesia using the same technique. Preoperatively topical vasoconstriction was applied using cotton pledgets impregnated in 1:100,000 epinephrine. Local vascular hemostasis was performed to all patients by injection of 1% lidocaine with 1:200,000 epinephrine. Septoplasty was then preformed using conventional techniques. After completion of the surgery, while the patient was still under general anesthesia, one side of the nose was packed with a Cutanplast Anal, and the other side was packed with the polyvinyl acetate (Merocel). The side and order of packing were randomized. The Cutanplast Anal was soaked with normal saline and inserted gently along the floor of the nasal cavity (Fig. 1A). The 10-cm-sized Merocel was lubricated with gentamicin sulfate cream prior to insertion. Once in position, the Merocel pack was activated by 10 mL of normal saline (Fig. 1B). All patients were treated postoperatively with antibiotics (third generation cephalosporin) for 10 days and analgesics as required.

All nasal packs were removed in the morning following surgery. When Merocel was removed, a dissolving Cutanplast Anal could be gently removed by a suction device. The patients were not informed of which nasal packing was placed on each side. Furthermore, the investigator who had patients check the discomfort or pain of packing material was also unaware of which pack was placed on each side. All patients were discharged 2 days after surgery without acute complications.

2.3. Outcomes assessment

The difference in outcomes between Cutanplast Anal and Merocel packing after septoplasty are mentioned below.

1. Patients' discomfort and subjective nasal obstruction while the packing was in situ. The patients were asked to choose their level of discomfort and nasal obstruction in each side of

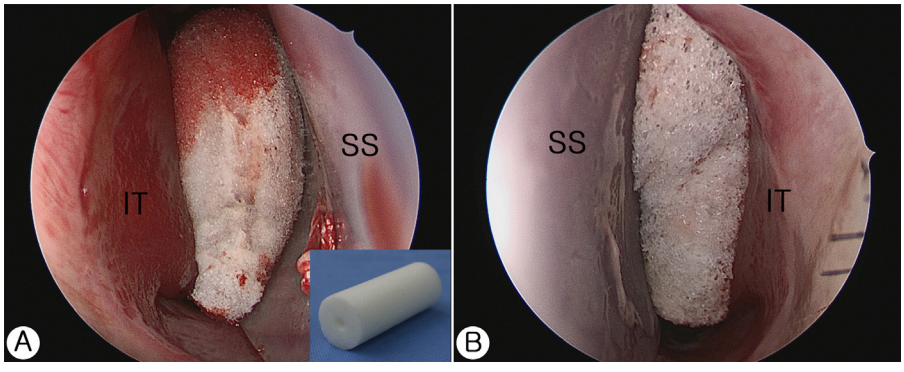

Fig. 1. Endoscopic findings of nasal cavity after packing at the conclusion of septoplasty. A silastic septal splint was inserted in both sides of the nasal cavity at the end of septoplasty. In this patient, the right nasal cavity was packed with Cutanplast Anal (A) and the left side was packed with Merocel (B). The rectangle inserted into the figure shows Cutanplast Anal. IT: inferior turbinate, SS: silastic splint.

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