

A novel endonasal septal perforation repair: Free mucosal graft with Lyoplant® bioscaffold



Joon Don Lee, MD, Beom Sik Park, MD, Ji Yun Hong, MD, Jeong Hong Kim, MD
Department of Otorhinolaryngology, Jeju National University School of Medicine

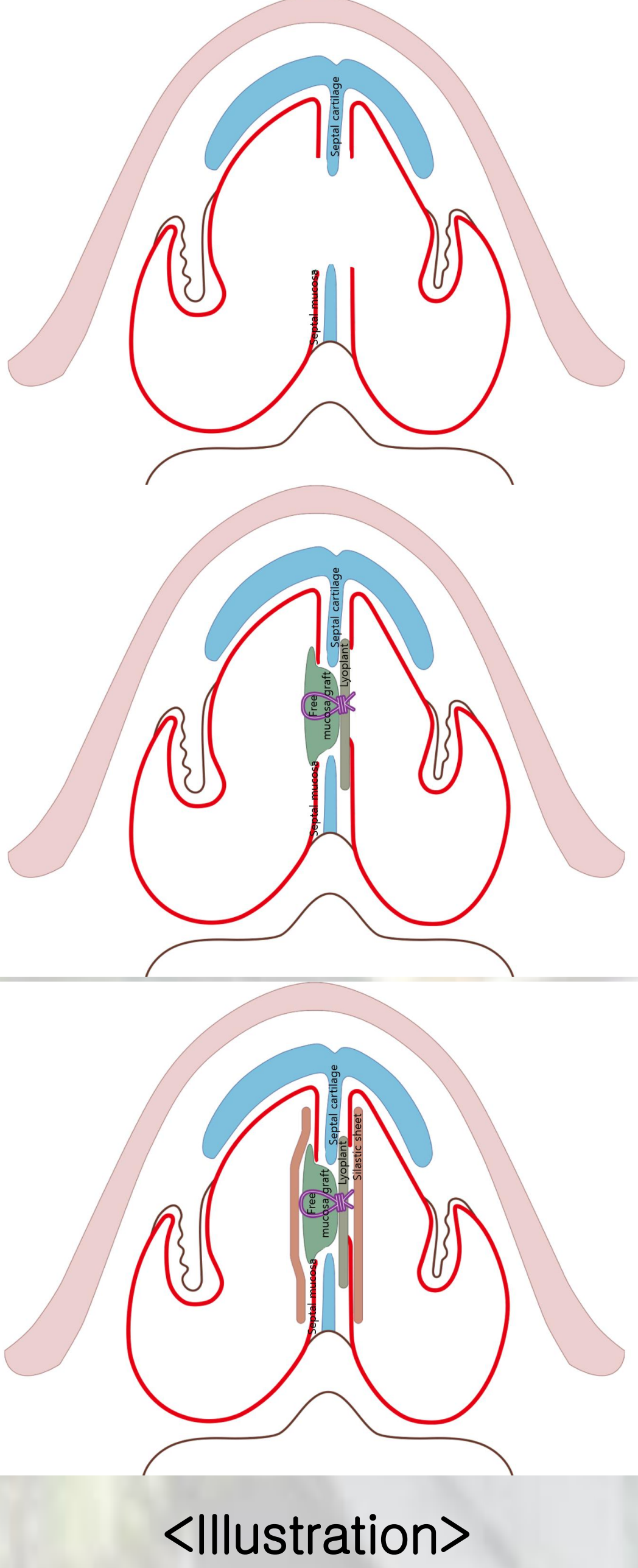
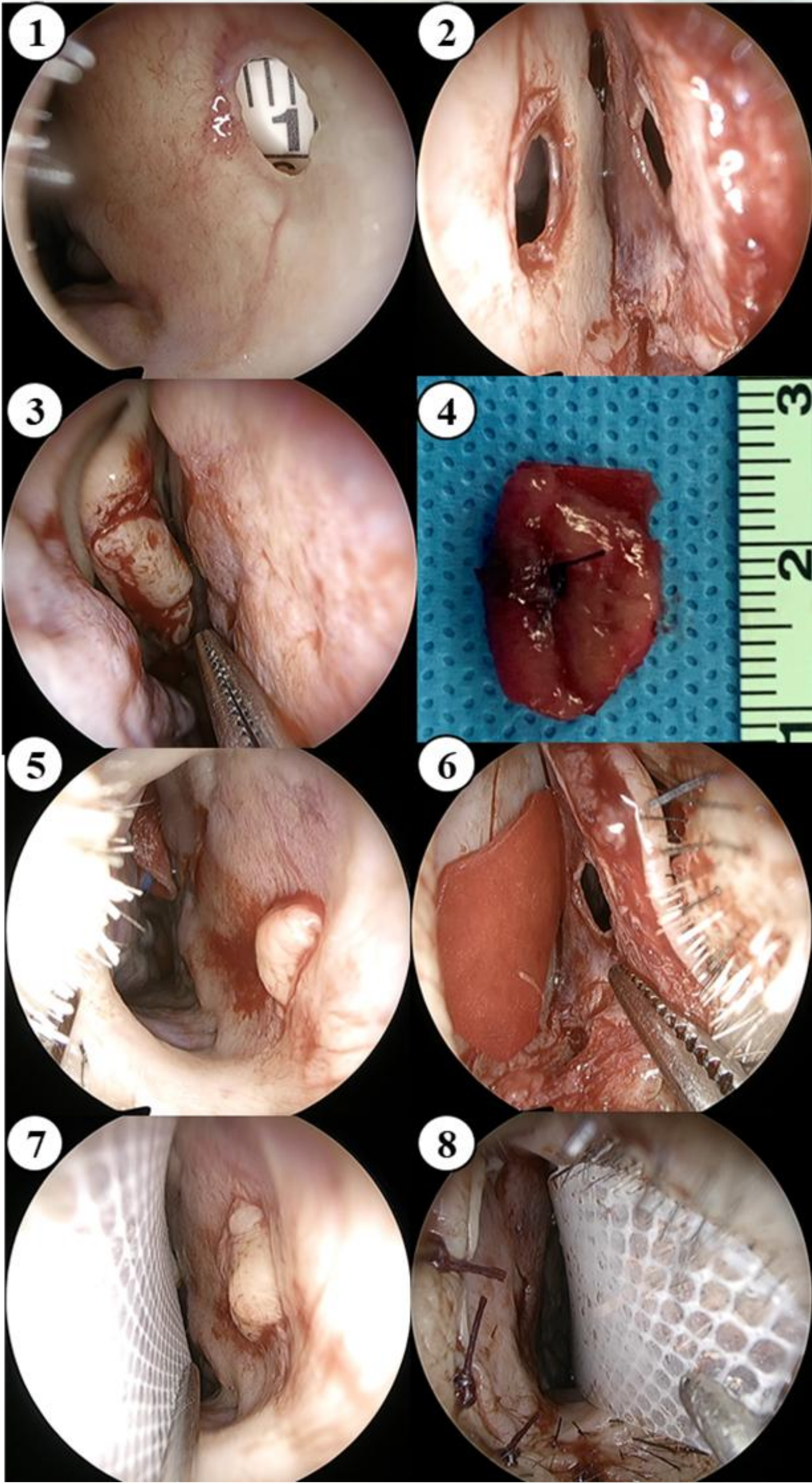


INTRODUCTION

Many surgical methods have been introduced for the repair of nasal septal perforation (NSP) in the literature, among which advanced mucosal flaps or artificial dermis application have been widely used for closure of septal mucosal defect. However, mucosal advancement or rotational flap requires a wide extent of septal mucosal dissection, and can cause nasal obstruction due to its bulkiness. Moreover, allograft dermis is not easy to fix at the perforation site. We introduce a novel surgical technique using free mucosal graft combined with a heterologous implant, Lyoplant® (lyophilized bovine pericardium) bioscaffold material to improve these problems.

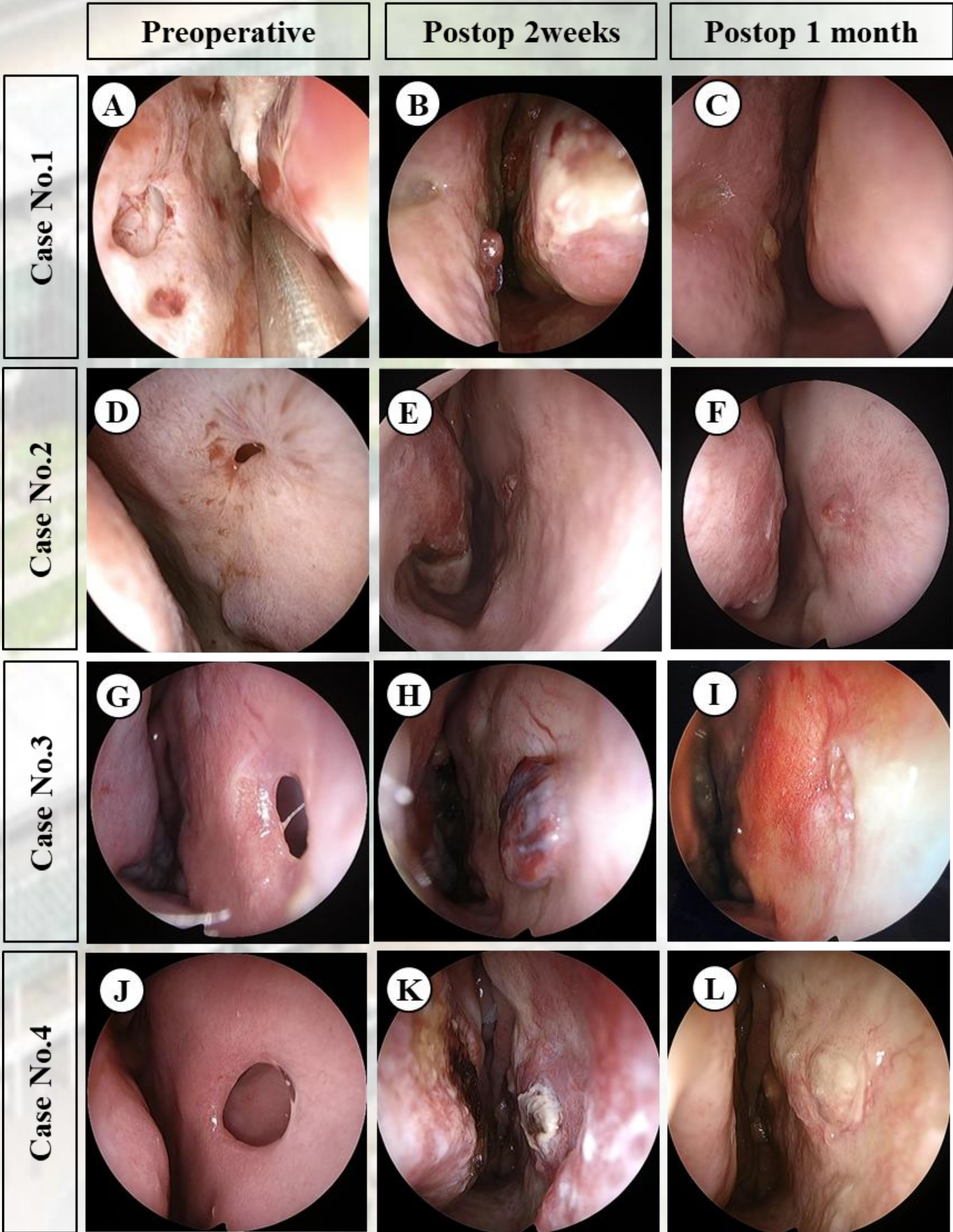
SURGICAL TECHNIQUE

The surgical procedures were performed under general anesthesia through endonasal approach. Unilateral or bilateral mucoperichondrial flap was elevated using modified Killian incision at the caudal end of nasal septum. Mucosal margin at the perforation site was dissected with #15 blade. The inferior or middle turbinate mucosa were harvested 1.5 times greater than perforation size. The biocompatible collagen mesh Lyoplant® was tailored 3mm larger than the defect size in all directions, and the harvested turbinate mucosa was fixed on the Lyoplant® with 2 sutures of Vicryl 5-0. When fixing the harvested mucosa to the Lyoplant®, we unfolded the mucosa on the Lyoplant® as flat as possible to contract the bulkiness. The free mucosal graft which tied with Lyoplant® was placed between both side of septal mucosal defect. The mucoperichondrial incisions were reapproximated with Vicryl 4-0, and thin silastic sheets were sutured to protect the septum from desiccation and inadvertent trauma from suctioning. Soft nasal packing was kept during 2 days and silastic splints were removed 2 weeks postoperatively.



CASE SERIES RESULTS

We retrospectively analyzed 4 patients with nasal septal perforation who were repaired using turbinate free mucosal graft fixed with Lyoplant bioscaffold®. Three patients had less than 1 cm-sized septal perforation and one patient less than 1.5 cm. Perforation site was observed every 2 weeks through transparent silastic sheets. The complete closure and epithelization on both sides of septal mucosa were successfully achieved 4 weeks after surgery without donor site complications. Nasal discomfort symptoms were relieved and re-perforation did not develop until 3 months postoperatively.



CONCLUSIONS

Nasal septal perforation repair technique using free mucosal graft combined with Lyoplant® bioscaffold has the advantages as follows. It is easy to harvest the mucosal graft and effective for the repair of small to medium sized septal perforation. It has less morbidity of the donor site and provides an excellent surgical outcome regardless of perforation location. Also, even less experienced surgeons can achieve the result of high rate of success through this technique.