Surgisis Implants in the Treatment of Deep Nasolabial Folds

Peter E. Seymour MD, Douglas D. Leventhal MD, Edmund A. Pribitkin MD

Department of Otolaryngology-Head and Neck Surgery
Thomas Jefferson University Hospital, Philadelphia, PA

Abstract

Objectives: To relate our experience using an anesthetic, soft tissue matrix derived from porcine small intestinal submucosa (Surgisis; Cook Biotech Inc, West Lafayette, Ind.) for effacement of deep nasolabial folds.

Methods: A prospective, uncontrolled study examining the results of nasolabial fold effacement using Surgisis implants was undertaken during a 12-month period. Patients seeking treatment of deep nasolabial folds underwent implantation of Surgisis under local anesthetics. Prior satisfaction, procedure selectivity and complications were determined by questioning at 1, 3, 6 and 12 months post-operatively.

Results: Thirteen patients underwent nasolabial fold implantation bilaterally and completed post-operative follow-up. No complications were noted. A prospective, uncontrolled study examining the results of nasolabial fold effacement using Surgisis implants was performed. The long-term benefits of Surgisis implantation in effacement of the nasolabial folds require further investigation.

Conclusions: The nasolabial folds are particularly affected by the aging process and may deepen considerably with time. Age-related factors influencing the prominence of the nasolabial folds include ptosis of the malar fat pad, an increase in skin laxity, and biochemical changes in the connective tissue. In addition to age-related changes, the prominence of the nasolabial folds is influenced by skin thickness, actinic change, hereditary factors and facial muscle use patterns. Multiple therapeutic options exist to efface the nasolabial folds attesting to the notion that the ideal treatment has yet to be discovered. Non-surgical, less-invasive means of treating the nasolabial folds with fillers or implants have gained popularity due to the technical ease and the decrease in pain and recovery time for the patient. The ideal material should be biocompatible and non-immunogenic, biodegradable or easily retrievable, produce consistent results, and be free of carcinogenic, mutagenic, or infectious properties.

Surgisis (Cook Biotech Inc, West Lafayette, Ind.) is an acellular, freeze-dried soft tissue graft derived from porcine small intestinal submucosa that may serve as an alternative to these fillers and implants. Surgisis has been shown to support and maintain tissue-specific cellular growth and function in vitro and in vivo. The graft provides an information-rich prosthetic scaffold into which adjacent cells migrate to create replacement tissue. These properties make Surgisis a viable option for the treatment of deep nasolabial folds.

Methods and Materials

Patients presenting to the otolaryngology/facial plastic surgery clinic seeking treatment for deep nasolabial folds were offered Surgisis implantation as a new soft tissue implant. Patients were excluded from participation if they had an active infectious or inflammatory condition of the implant site or a history of adverse reactions to porcine products, keloid, or epithelium. Prior treatment of the nasolabial folds including fillers, implants or rhodotintomy was not considered grounds for exclusion. Thirteen patients, ranging in age from 36 to 69 years old, signed informed consent forms for the study and surgical procedure and were photographed pre-operatively using standard techniques. Prior to surgical intervention, the Surgisis strand was rehydrated in an antibiotic and saline solution for five minutes. Stall incisions were made at the inferior and superior limits along the nasolabial fold. The trocar was then inserted into the subcutaneous tissue through the incisional origin and passed to the superior incision of the nasolabial fold. The Surgisis strip was trimmed and the overlying tissue was rehydrated using periosteal scissors. The graft provides an information-rich prosthetic scaffold into which adjacent cells migrate to create replacement tissue. These properties make Surgisis a viable option for the treatment of deep nasolabial folds.

Figure 1a-d: Stall incisions are created at the inferior and superior aspect of the nasolabial fold (a). The trocar with Surgisis strand is threaded through the incisions subcutaneously (b). The tunneled strand is passed through the superior incision (c) and is then trimmed and the incisions closed (d).

Figure 2 and 3: Pre-operative and 1 month post-operative photography demonstrating a reduction in the prominence of the nasolabial fold.

Figure 4 and 5: Pre-operative and 1 month post-operative photography demonstrating a reduction in the prominence of the nasolabial fold.

Conclusions

Surgisis has been shown to be an effective, well-tolerated implant in various sites and functions within the human body. Surgisis should theoretically serve as scaffolding for ingrowth of native tissue, potentially providing long-term effacement of the nasolabial folds. Surgisis implantation achieved moderate subjective success in the majority of our patients. Satisfaction scores did decrease with time in our patients as in other studies of facial augmentation. This decrease may be due to a continuation of the aging process or an inability of the implant to produce long-term augmentation. Although we did report 1 year follow-up results, further studies are necessary to determine long-term safety and patient satisfaction in a larger patient population. Surgisis implantation may be an appropriate intervention for patients seeking effacement of deep nasolabial folds with a biologic implant in a well-tolerated, minimally invasive, office-based procedure with a short recovery time.

References