### Abstract

Endonasal transsphenoidal approaches have been around for decades. Since its innovation, one of the main challenges has been resultant CSF leaks. During its earlier stages, a CSF leak rate upwards of 20% was encountered. Throughout the years, multiple methods have been employed in attempts to decrease this leak rate such as fat grafts, mucosal grafts, allografts, and more recently, vascularized flaps. Since the use of vascularized flaps, the CSF leak rates have dropped significantly. However, vascularized flaps may not always be available due to previous surgery or malignancy, or an extra layer is needed due to limited coverage by the vascularized flap. An alternative autologous graft could be a dermal-fat graft which provides more support than the traditional fat graft.

### Introduction

The dermal-fat graft is a technique historically used in TMJ surgery and ophthalmological surgery. Gaynor et al, demonstrated that use of Alloderm (a commercially available dermal matrix) can be used during transsphenoidal surgery to repair the dura of a low-flow CSF leak with similar, if not improved, rates of CSF leak. The benefit of an autologous dermal-fat graft would be that it is native tissue to the patient and may be more robust thereby providing more support for high-flow CSF leaks. Also, it would be more cost effective compared to an allograft. To our knowledge, there have been no reports of dermal-fat graft use in transsphenoidal surgeries at this time.

### Technique

A biconvex incision is made just inferior to the umbilicus (~30 degree angle at each corner for cosmesis). The epidermis is separated from the underlying dermis with a scalpel. The dermis is then inspected to ensure no residual epidermal tissue is seen. The dermis is then incised and the underlying fat is removed en bloc with the dermis. The fat graft is then trimmed to the appropriate size and placed in the dural defect with dermis facing the nasal cavity. This technique can be used independently with nasal packing or in conjunction with a nasoseptal flap.

### Conclusions

This technique is a slight variation in comparison to the standard fat graft. The dermal attachment gives the graft a more controlled structure and adds strength. This seems to be well tolerated and can be used to repair low or high-flow intraoperative CSF leaks. We have utilized this more in circumstances where we needed to change a 3-dimensional defect to a 2-dimensional one to allow better coverage by our nasoseptal flap. We have used this technique more recently and early results seem promising, especially in the high-flow CSF leak population.

### References