

Combined Endoscopic Transorbital And Endonasal Repair Of High Flow Orbital Apex/Middle Fossa Cerebrospinal Fluid Leak with a Nasoseptal Flap: A Novel Approach to Complications of Orbital Exenteration and Literature Review

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Introduction

High flow Cerebrospinal fluid (CSF) leaks secondary to orbital apex and middle fossa leaks are life threatening and complex to repair. The most common etiologies are trauma and complications after orbital exenteration. Most reports conclude conservative management results in resolution. Those associated with large dural defects are most commonly repaired with open temporalis muscle or free flaps. We describe a unique endoscopic technique for repair of a life threatening high flow orbital apex/middle fossa csf leak.

Methods

Literature review using Ovid Medline, with focus on key words: orbital exenteration, oculorrhea, orbital CSF leak and repair. Results of the search consisted of case reports and case series, identifying orbital CSF leaks in the context of trauma, and tumor excision from the orbit.

Retrospective review of a patient 2 years after orbital exenteration and radiation for squamous cell carcinoma who developed multi-organism meningitis secondary to a large high-flow orbital apex/middle fossa csf leak.. Repair technique: combined endoscopic transorbital/endonasal approach, pedicled nasospetal flap and dermis fat graft.

Results

Cisternogram post-operatively and clinical exam confirmed resolution. Stages of healing (as seen in figures 1-4) illustrate effectiveness of the flap. A critically ill patient ,modified rankin score (MRS) 5 upon admission ,was able to discharge home on continued IV antibiotic therapy with a MRS of 3.



Axial View of the bone defect of the Medial Orbital Wall and Ethmoids

Sagittal View of Nasoseptal Flap



Wide Pedicled Nasoseptal Flap



Axial View of Pedicled Nasoseptal Flap-

Pedicled Nasoseptal Flap for High Flow CSF Leak Repair

Learning Objectives

Literature review: etiology and repair techniques of orbital/middle fossa CSF leaks

Describe the principles of successful repair of large high flow csf leaks

Describe the combined endoscopic transorbital/endonasal repair technique

Conclusions

This Is the first case to describe a combined endoscopic transorbital and endonasal repair of high flow orbital apex/middle fossa CSF leak with a nasoseptal flap. These techniques can be utilized during initial reconstruction after orbital exenteration or as a salvage flap. The principles and technique





Pedicled Nasoseptal Flap for High Flow Orbial Apex CSF Leak Repair

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