Revision Endoscopic Orbital Decompression

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Abstract

Objective: Endoscopic orbital decompressions have proven to be a safe and effective method for the treatment of several orbital processes, particularly thyroid-related eye disease. However, outcomes for revision surgery are scantily reported in the current literature. The objective of this study was to report outcomes for revision endoscopic trans orbital decompressions performed at a single institution.

Study Design: Case series

Methods: Retrospective review

Results: Records were searched for endoscopic orbital decompressions from 1999 to 2012. Of 213 patients, 5 (2.4%) patients underwent revision surgery on 8 orbits. None experienced post-operative complications. Reasons for revision surgery included persistent proptosis with progressive visual loss in 2 of 5 patients (2 of 8 orbits). The average time period between primary and revision surgeries was 9 months. All revision surgeries were performed in the standard endoscopic fashion. At a mean of 10 months follow up, there were no complications and complete resolution of symptoms was reported.

Conclusion: Although rarely described in the current literature, revision endoscopic orbital decompressions can be accomplished safely and effectively for relief of persistent orbital symptoms after primary endoscopic orbital decompression for thyroid eye disease.

Introduction

The endoscopic orbital decompression procedure described by Kennedy et al.1 has been shown to be both safe and effective for patients with symptomatic Graves’ orbitopathy. The goal of the procedure is to decrease proptosis, and visual loss caused by Graves’ orbitopathy. Although the primary endoscopic orbital decompression procedure has been well described, literature regarding revision procedures is sparse. This may be due to both the success of primary procedures as well as questions regarding the safety and efficacy of revision procedures.

The primary study regarding revision orbital decompression procedures was published by Leung et al.2 This was a case-control study involving 10 patients who underwent 13 revision procedures for persistent symptoms of Graves’ orbitopathy at a single institution. This preliminary study demonstrated a modest improvement in proptosis, exposure keratopathy, and visual acuity. This improvement, however, did not reach statistical significance. The complication rate of the patients receiving revision procedures was equal to that of the controls. This was the first study to demonstrate the efficacy and safety of revision orbital decompression. The objective of our study is to contribute the experience of our institution to the literature.

Indications for revision procedure include persistent or recurrent visual loss, proptosis, progressive thyroid eye disease and exposure keratopathy. Persistent symptoms are usually due to inadequate primary decompression. On the other hand, recurrent visual symptoms after an asymptomatic period are more likely to be secondary to progression of Graves disease. Surgical technique for the revision surgery is comparable to that of the primary procedure. In endoscopic revision procedures, additional medial orbital wall bone or scar tissue may be removed in order to further decompress orbital contents.

Methods

Medical records of 213 patients undergoing endoscopic orbital decompression at our institution from 1999-2012 were reviewed retrospectively. Complete intraoperative and outpatient records were available for all patients. One patient requiring decompression for orbital neoplasia was excluded from the study. This study was approved by the TJUH institutional review board.

Results

Of 213 patients undergoing endoscopic orbital decompression, 5 (2.4%) underwent revision surgery. Each patient had previously undergone an endoscopic medial and transconjunctival floor decompression (1 of 5), transantral inferior orbital decompression (2 of 5), or lateral orbital wall decompression (1 of 5). The technique of primary decompression was unknown in 1 of 5 patients. Indications for all patients included proptosis and exposure keratopathy. Two patients experienced unilateral progressive visual loss (Table 1). The average time period between primary and revision surgeries was 13.8 months. All revision surgeries were performed in the standard endoscopic fashion. Each revision involved further decompression at the orbital apex. At a mean of 10 months follow up, there were no complications and complete resolution of symptoms was achieved.

Table 1

<table>
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<th>Pt</th>
<th>Age/sex</th>
<th>Pathology</th>
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<th>Revision Side</th>
<th>Indication</th>
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Discussion

At our institution, a small percentage of patients failed primary orbital decompression surgery. Indications for revision in these patients included persistent or recurrent visual loss, proptosis, progressive thyroid eye disease and exposure keratopathy.

Following revision surgery, patients were followed on an outpatient basis for an average of 10 months post-operatively, and no patient showed symptoms of recurrence following revision procedure. There were no post-operative complications associated with revision endoscopic orbital decompression in this patient cohort.

The technique for revision endoscopic medial orbital decompression utilized for the patients in this cohort was anatomically similar to that initially described by Kennedy et al. Two major pathologies were found to be responsible for failure of the primary procedure. First, incomplete removal of the lamina papyracea during the primary procedure led to persistence of symptoms. Secondly, scar tissue formation along the medial orbital wall formed as a result of the primary procedure and prevented full decompression of the orbital contents. Revision surgery allowed for a more complete removal of retained lamina papyracea as well as release of any scar tissue present.

Since the introduction of the endoscopic technique for orbital decompression, failure of primary surgery has become rare. Case series are generally limited to a small subset of patients. More extensive research on this topic is necessary in order to fully define the safety and efficacy of the procedure. The experience at our institution has demonstrated that patients may benefit from revision endoscopic orbital decompression.

Conclusions

- A small percentage of patients will fail primary orbital decompression.
- Failure of the primary orbital decompression may be due to inadequate removal of medial orbital wall or interval growth of scar tissue.
- Indications for revision in these patients included persistent or recurrent visual loss, proptosis, progressive thyroid eye disease and exposure keratopathy.
- Persistent symptoms may include exposure keratopathy, proptosis, and visual loss.
- Revision endoscopic medial orbital decompression can be a safe and effective treatment for patients failing primary decompression.
- Successful revision surgery can lead to prolonged symptom resolution.

References