Endoscopic forehead mass removal: a series of 9 cases

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ABSTRACT

Background: Masses and tumors localized in the craniomaxillofacial area cause undesirable aesthetic malformations. For many years, endoscopic surgery has been utilized in this area to hide incisional scars in an aesthetic manner. However, endoscopic forehead mass removal has only recently been described within the last 15 years in several case series.

Methods: Patient charts and operative reports of cases of endoscopic forehead mass removal were reviewed and surgical technique was described.

Results: 3 patients with forehead osteomas, 1 patient with a forehead lipoma, 1 patient with a forehead schwannoma, 1 patient with a forehead hemangioma, 1 patient with a forehead chondroma and a neuroma received endoscopic excisions by the chief of facial plastic surgery at our institution. All nine patients had good cosmetic outcomes, with no post-operative complications.

Discussion: Endoscopic surgery has revolutionized facial aesthetic surgery. Endoscopic excision of forehead masses is a safe, feasible, and reliable method of removing forehead masses while hiding the incision in the hairline.

SURGICAL TECHNIQUE

After general endotracheal anesthesia was administered, the patient was prepped and draped in a sterile fashion. A vertical incision was made behind the hairline, deep through the galea and down through the periosteum. A subperiosteal plane is elevated up to the mass under endoscopic visualization. If the mass was deep to the periosteum, as in the cases of osteomas, the mass would be dissected out and removed in the subperiosteal plane. If the mass was located superficial to the periosteum, then dissection would proceed anteriorly through the periosteum and possibly the frontalis muscle depending on the location of the mass.

INSTRUMENTATION

Figure 4: Standard instruments include an elevator, endoscope, and endoscopic dissector.

Figure 1: Schematic of forehead excision utilizing endoscopic resection. Courtesy of Mary H. Tang

CASE STUDY 1: TRICHOBLASTOMA/NEUROMA

An 66 year old African-American patient presents to the clinic with two separate protruding forehead masses. Both of the masses were approximately 1 cm in size. The patient worked in the performing arts and desired the removal of the masses. However, scarring was a major concern, and he decided to proceed with the endoscopic approach.

Figure 2: Surgical removal of forehead trichoblastoma. (A) Before removal, periosteum incised. (B) Frontalis incised, mass exposed. (C) Mass delivered, pathology shows trichoblastoma.

Both the trichoblastoma and the neuroma were bluntly dissected and removed. The same forehead incision was used to remove both masses. There was minimal bleeding, and no complications were documented. Scarring was minimal, and a cosmetic appearance was obtained.

Figure 3: Surgical removal of forehead neuroma. (D) Mass exposed after dissecting through the periosteum and frontalis. (E) Mass dissected out. (F) Mass delivered and removed, pathology shows neuroma.

CASE STUDY 2: OSTEOMA

A 37 year-old African American male patient presents with a 1 cm osteoma located at the midline of the forehead. The patient indicated increasing pain and growth in size of the tumor within the last month. CT scans reveal a 6 x 4 x 7 mm osteoma extending anteriorly from the frontal bone, slightly right of the midline.

Endoscopic resection was utilized with a 1 cm horizontal incision placed behind the hairline, followed by subperiosteal dissection. The tumor was removed with a curved osteotome, and retrieved using endoscopic forceps. No complications were documented in the procedure.

Figure 5: Surgical removal of frontal osteoma by endoscopic resection. (A) Endoscopic view of mass prior to removal, (B) removal of mass with endoscopic forceps, (C) calvarium status post removal, (D) forehead osteoma.

All 12 publications have documented cases with few complications from the procedure and satisfactory results. Cozzi et al. 2007 has commented on the risk of facial nerve damage in removing frontozygomatic tumors using the endoscopic approach, recommending a direct excision from the brow for tumors localized in that specific area.

CONCLUSION

The endoscopic approach to forehead mass excision is a safe and efficacious technique that minimizes visible scarring. This approach can be used for both bony and subcutaneous soft tissue masses and may be an option for those who want to minimize any scarring in the forehead.

Preop/Postop

Table 1: Current Publications on Endoscopic Resection of Forehead Masses

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Mass Type</th>
<th>Age</th>
<th>Number of Patients</th>
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</thead>
<tbody>
<tr>
<td>Chater et al.</td>
<td>2011</td>
<td>Dermoid Cyst</td>
<td>5-33 months</td>
<td>6</td>
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<tr>
<td>Minabe et al.</td>
<td>2008</td>
<td>Lipoma</td>
<td>30-60 years</td>
<td>5</td>
</tr>
<tr>
<td>Meningaud et al.</td>
<td>2008</td>
<td>Osteoma</td>
<td>30-55 years</td>
<td>8</td>
</tr>
<tr>
<td>Pyon et al.</td>
<td>2006</td>
<td>Cheek Lipoma</td>
<td>22-54 years</td>
<td>10</td>
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<tr>
<td>Li H TQ et al.</td>
<td>2006</td>
<td>Lipoma, Dermoid cyst, pilomatrixomas</td>
<td>26-54 years</td>
<td>9</td>
</tr>
<tr>
<td>Datta et al.</td>
<td>2006</td>
<td>Lipoma</td>
<td>5 mo-13 yo</td>
<td>9</td>
</tr>
<tr>
<td>Meningaud et al.</td>
<td>2006</td>
<td>Lipoma</td>
<td>28 years</td>
<td>1</td>
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<tr>
<td>Chen et al.</td>
<td>2004</td>
<td>Dermoid cysts, osteomas, lipomas</td>
<td>2-40 years</td>
<td>7</td>
</tr>
<tr>
<td>Cozzi et al.</td>
<td>2007</td>
<td>Lipoma, sebaceous cyst</td>
<td>26-57 years</td>
<td>4</td>
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<tr>
<td>Kokoska et al.</td>
<td>1997</td>
<td>Soft tissue mass</td>
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