INTRODUCTION

The Riedel procedure has been criticized for its poor aesthetic results. We report our modern experience with this technique and demonstrate that the Riedel procedure still has a place, albeit rare, in complicated frontal sinus surgery. Acceptable aesthetic results are possible in patients with attention to final appearance, sometimes without additional reconstructive techniques.

METHODS AND MATERIALS

All patients who underwent a Riedel procedure at University of Utah Medical Center over the last eight years were identified. All information and photos were collected retrospectively from the medical record. Institutional Review Board approval and informed consent were obtained. In our patients, the modified Riedel procedure was initially performed as described by Raghavan.

RESULTS

Six patients were performed out of 300 frontal sinus cases. An average of 4.5 surgeries had been performed prior to undergoing the Riedel procedure. Five of the six patients had undergone at least one previous attempt at obliteration surgery. Two of the six did not require additional reconstruction. Soft tissue reconstruction was used in all final reconstructive procedures. Average follow-up was 48 months (range 12-90) after the original Riedel procedure and 30 months (range 0-82) after the final reconstruction.

CONCLUSIONS

The Riedel procedure is highly effective in resolving frontal sinus disease in rare cases when the anterior table must be sacrificed. Surgical planning and reconstruction at the time of ablation can minimize contour deformities and lead to aesthetically acceptable results.

DISCUSSION

- Indications: Defects in the anterior plate, extra-sinus mucoceles, mucoceles with extension anteriorly, extensive osteoneogenesis, and inadequate anterior bone flap.
- Contraindications: Coronal incision, raising separate pericranial flap.
- Steepest defect margins, sparing a supraorbital rim of bone.
- Use pericranial flap to create a cranial bone flap.
- Avoid hydroxyapatite reconstruction.
- Additional general considerations: Avoided coronal forehead contour.

Figure 1. Upper left: Prior to abdominal dermal fat graft (ADFG). Upper right: Eight weeks post-operative. Center: ADFG overlying defect. Lower left: ADFG overlying defect. Lower right: Immediately post-operative with PTFE polymer pledgets.

Table 1

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<th>Dermal Fat Graft</th>
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<th>Bone Cement</th>
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Case 1 - Frontal sinus obliteration revision with inadequate anterior table bone flap

Case 2 - Extensive neo-osteogenesis and removal of osteoneogenic bone and soft tissue elements. The subperiosteal dura was preserved and the bone in the region was weakest. Reconstruction was performed during multiple operations; one was associated with a sinocutaneous fistula. The last patient had too small of a bone flap after obliteration to reconstruct her defect and was converted to a Riedel procedure.

REFERENCES


Figure 2. Upper left: Prior to abdominal dermal fat graft (ADFG). Upper right: Eight weeks post-operative. Center: ADFG overlying defect. Lower left: ADFG overlying defect. Lower right: Immediately post-operative with PTFE polymer pledgets.

Figure 3. Table 1