

9-25-2013

Incidence and Management of Rhinosinusitis after Complex Orbitofacial Reconstruction

Wiliam Parkes, MD
Thomas Jefferson University

Follow this and additional works at: <https://jdc.jefferson.edu/otograndrounds>



Part of the [Otolaryngology Commons](#)

[Let us know how access to this document benefits you](#)

Recommended Citation

Parkes, MD, Wiliam, "Incidence and Management of Rhinosinusitis after Complex Orbitofacial Reconstruction" (2013). *Department of Otolaryngology - Head and Neck Surgery Presentations and Grand Rounds*. Presentation 20.

<https://jdc.jefferson.edu/otograndrounds/20>

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in Department of Otolaryngology - Head and Neck Surgery Presentations and Grand Rounds by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: JeffersonDigitalCommons@jefferson.edu.

Incidence and Management of Rhinosinusitis After Complex Orbitofacial Reconstruction

William Parkes, MD

Thomas Jefferson University Hospital

Dept. of Otolaryngology Head & Neck Surgery

Study Aim

- To retrospectively review the sinus sequelae of free tissue transfer for orbitofacial defects

Significance

- With potential intra-cranial communication & immunosuppressive adjuvant therapy, mild sinus disease may rapidly deteriorate
- Morbidity impacts quality of life
- Cost of managing chronic rhinosinusitis
 - Avg annual non-surgical management: \$2,000
 - Avg surgical management: \$7,000

Table 1. Patient Demographics

| | |
|-----------------------|----|
| Male | 40 |
| Female | 15 |
| Prior sinus surgery | 4 |
| Prior radiation | 18 |
| Prior chemotherapy | 3 |
| Adjuvant radiation | 28 |
| Adjuvant chemotherapy | 19 |
| Mean age (yrs) | 65 |
| Mean follow-up (mos) | 21 |

| Table 2. Pathology of 55 Patients | |
|---|---------------|
| Squamous cell carcinoma | |
| Cutaneous | 12 |
| Sinonasal | 7 |
| Mucosal | 3 |
| Basal cell carcinoma | 5 |
| Melanoma | |
| Cutaneous | 1 |
| Mucosal | 3 |
| Recurrent meningioma | 5 |
| Sinonasal adenocarcinoma | 3 |
| Basosquamous carcinoma | 3 |
| Frontal bone osteomyelitis | 3 |
| Lacrimal sac carcinoma | 2 |
| Adenoid cystic, esthesioneuroblastoma, hemangiopericytoma, lacrimal gland carcinoma, malignant peripheral nerve sheath tumor, osteosarcoma, poorly differentiated sinonasal carcinoma, SNUC | 8 (1 each) |

| Table 3. Defect Subsites | | | |
|---------------------------|-----------|----------------------|-----------|
| Skin/soft tissue:* | no | Bone:* | no |
| Lid | 41 | Skullbase | 29 |
| Brow | 32 | Frontal | 22 |
| Frontal | 27 | Lateral orbital rim | 17 |
| Temporal | 20 | Orbital floor | 29 |
| Malar | 29 | Inferior orbital rim | 30 |
| Nasal | 23 | Medial orbital wall | 32 |
| Lower cheek | 7 | Zygoma | 7 |
| Orbit | 42 | Maxilla | 31 |
| ***** | | Nasal | 26 |
| Sinuses:***** | | | |
| ethmoid | 40 | Single sinus | 17 |
| Maxillary | 8 | Multiple sinuses | 38 |
| frontal | 9 | | |
| sphenoid | 1 | | |
| | | | |

| Table 1. Free flap Selection (60 flaps in 58 patients) | |
|--|---------|
| | n (%) |
| Anterolateral thigh | 41 (68) |
| Soft tissue radial forearm (RF) | 13 (22) |
| Fibula | 1 (2) |
| Latissimus | 2 (3) |
| Osteocutaneous RF | 1 (2) |
| Lateral arm | 1 (2) |
| Rectus | 1 (2) |

| Table 5. Complications | n | % |
|--|----|----|
| Perioperative Mortality (within 30 mo) | 2 | 4 |
| Stroke | 2 | 4 |
| MI | 2 | 4 |
| CSF leak* | 3 | 11 |
| Intraoperative flap loss | 2 | 4 |
| Delayed flap loss | 1 | 2 |
| Hematoma | 4 | 7 |
| Wound infection | 3 | 5 |
| Epidermolysis or partial flap loss | 3 | 5 |
| Breakdown during RT† | 2 | 6 |
| Rhinosinusitis‡ | 21 | 43 |







Table 6. Clinical Characteristics of Patients Requiring Delayed Operative Sinonasal Intervention*

| Case | Sinuses Involved in Initial Defect | Prophylactic Sinus Intervention | Free Flap Used | Interval from Flap to Pertinent Imaging (days) | Radiographic Findings | Interval from Flap to Sinonasal Surgery (days) | Sinonasal Operative Intervention [†] |
|----------------|--|--|----------------|--|---|--|--|
| 1 | Anterior table L FS, L AE | Obliteration of L FS | ALT | 116 | R FS mucocoele (CT & MRI) | 182 | R total ethmoidectomy, MS antrostomy, frontal drillout (Draf II) |
| 2 | R MS, b/l FS (including R outflow tract) | FS cranialization, obliteration of L outflow tract | ALT | 70 | B/L MS thickening, R SS thickening complete L SS opacification (CT & MRI) | 73 | B/L sphenoidotomy & posterior septectomy, B/L inferior windows |
| 3 | L FS, MS | None | RF | 52 | Soft tissue obstruction L OMC (CT) | 56 | L total ethmoidectomy, MS antrostomy |
| 4 | R AE, PE, MS | None | ALT | 196 | Frothy secretions R MS, opacification of all sinuses & OMC on L w/ septal spur (CT) | 199 | Extensive sinonasal debridement, resection L septal spur |
| 5 | R AE, MS | None | RF | 150 | Air-fluid level R MS, opacification R AE, PE (CT) | 241 | R MS antrostomy |
| 6 | L AE, PE, MS | L MS antrostomy | RF | 770 | Opacification L MS, AE, FS, & frontal recess (CT) | 808 | Revision L MS antrostomy |
| 7 [†] | L AE, PE, MS | None | ALT | 1) 588 2) 862 | 1) L FS mucocoele 2) Thickening L FS, AE (CT) | 1) 588 2) 875 | 1) L frontal drillout (Draf II), septoplasty 2) Frontal drillout (Draf III) |
| 8 | L FS, AE, PE, MS | L frontal sinusotomy (external) | ALT | 70 | B/L OMC obstruction (CT) | 70 | L MS antrostomy, partial ethmoidectomy, frontal sinusotomy |
| 9 | B/L FS | L frontal obliteration | ALT | 99 | B/L ethmoid sinusitis (CT) | 266 | B/L total ethmoidectomy, MS antrostomy |
| 10 | L FS, AE, PE, MS | L frontal obliteration, L MS antrostomy | ALT | 281 | Opacity L SS, MS (CT) | 294 | L sphenoidotomy |

Table 7. Risk Factor Analysis

| Clinical &/or Radiographic Rhinosinusitis | | |
|--|-----|----|
| Adjuvant Radiotherapy | Yes | No |
| Yes | 16 | 13 |
| No | 5 | 15 |
| p=0.045 | | |
| Adjuvant Chemo-Radiotherapy | Yes | No |
| Yes | 12 | 6 |
| No | 9 | 22 |
| p=0.016 | | |
| Need for Subsequent Sinus Surgery | | |
| Sinus Involvement in Initial Orbitofacial Defect | Yes | No |
| Single sinus | 0 | 17 |
| Multiple sinuses | 10 | 22 |
| p=0.009 | | |

Maxillary Sinus

- Wide maxillary antrostomy with uncinectomy with medial orbital floor defects
- Inferior windows when the bulk of the flap is expected to abut the natural ostium
- Obliteration when a significant portion of the maxilla is resected and preservation of function is unlikely

Ethmoid Sinus

- Total ethmoidectomy if any tumor involvement or when lamina is resected

Frontal Sinus

- Sinusotomy +/- stent with limited frontal sinus resection and a naturally wide A-P diameter
- Consideration of Draf 2 or 3 procedures with bulky flaps and narrow outflow tracts
- Obliteration (with the flap) or cranialization with extensive resections

Sphenoid Sinus

- Sphenoidotomy +/- posterior septectomy for involvement or bulk in the ethmoid vault

Conclusions

- High incidence of rhinosinusitis in this patient population adds morbidity and cost
- Upfront Rhinologic assessment and involvement is critical to improving care of these patients