Oral Cavity Reconstruction

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Goals of oromandibular reconstruction

- Restore mandibular continuity
- Restore lower facial contour
- Maintain mobility of residual tongue
- Reconstruct sulcicular anatomy
- Rehabilitate with a functional lower denture
- Improve mastication, deglutition, and speech
- Restore sensation to denervated lower lip
- Restore sensation to resurfaced portions of oral cavity
FIG. 165-12. The pectoralis major (PM) myocutaneous flap in oromandibular reconstruction.
Pectoralis myocutaneous flap

- First described by Ariyan in 1979 for head and neck reconstruction
- Conceived for orbital and paranasal defects
- Staged procedure primarily

Ariyan, PRS, 1979
Pectoralis myocutaneous flap

Ariyan, PRS, 1979
Radial forearm free flap (RFFF)

• Developed in China at Senyang Military Hospital in 1978 by Dr. Yang Guofan, et al
• Early use primarily for burn contractures
• First used for intraoral defects in 1983
Radial forearm free flap to restore sensation

**FIGURE 2.** Reconstruction of the oral cavity following partial glossectomy. A radial forearm flap is used to resurface the cut portion of the tongue and the floor of mouth. Sensory restoration to this flap is achieved through anastomosis of the antebrachial nerve to the lingual nerve.

**FIGURE 3.** Reconstruction of a pharyngeal mucosal defect with a sensate radial forearm flap.
Ideal qualities for the soft-tissue component of a composite free flap

- Well vascularized
- Thin and pliable
- Mobile relative to bone
- Sensate
- Lubricated
- Minimal morbidity
- Accessible for two-team approach
Donor sites for vascularized bony free flaps

<table>
<thead>
<tr>
<th>Bone</th>
<th>Vascular pedicle</th>
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</thead>
<tbody>
<tr>
<td>Ilium</td>
<td>Deep circumflex iliac artery</td>
</tr>
<tr>
<td>Scapula</td>
<td>Subscapular artery</td>
</tr>
<tr>
<td>Fibula</td>
<td>Peroneal artery</td>
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<tr>
<td>Radius</td>
<td>Radial artery</td>
</tr>
<tr>
<td>Ulna</td>
<td>Ulnar artery</td>
</tr>
<tr>
<td>Humerus</td>
<td>Profunda brachii artery</td>
</tr>
<tr>
<td>Metatarsus</td>
<td>Dorsalis pedis artery</td>
</tr>
<tr>
<td>Rib</td>
<td>Intercostal artery</td>
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</tbody>
</table>
Donor sites for vascularized bone grafts
Fibular osseocutaneous free flap
Iliac crest osseocutaneous flap

**FIGURE 4**
- Internal oblique muscle
- Bone
- Deep circumflex iliac pedicle
- Skin paddle

**FIGURE 5**
- Skin graft
- Internal oblique muscle
- Neomandible
- Skin paddle
Combination Fibular & RFFF - sensation
Combination Iliac crest & RFFF - sensation

FIG. 165-20. Combination iliac crest–radial forearm flap used to provide sensory reinnervation of the oropharyngeal defects.
Dental implants and prostheses

**FIGURE 6.** Surgical technique: A composite representation of the implant surgery: from the left, bone preparation, implant insertion, tissue suture, surface exposure 4 months later, and abutment connection.
FIGURE 1. Diagrammatic representation of a threaded, commercially pure titanium implant (Nobelpharma Canada Inc, Willowdale, Ont). The artificial crown (tooth) is seated on the transmucosal abutment that, in turn, is seated on the osseointegrated endosseous implant. The crown may be removed by unscrewing the central slotted screw gaining access to abutment, the implant, and the underlying mucosal and bone tissue.
Functions of the oral cavity

- Deglutition
- Mastication
- Oral competence
- Taste
- Articulation
- Oral hygiene
- Respiration
- Airway protection
Functional assessment following oromandibular reconstruction

- Deglutition
- Cosmesis
- Oral competence
- Speech
- Dental rehabilitation

- Mastication
- Interincisal opening
- Bite force
- Chewing performance