Considerations in Oncologic Resection (mandible & maxilla)

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Oncological Resection of the Mandible

Routes of spread

- Via dental sockets / pits (preferential)
- Direct invasion through periosteum
- Via mental and mandibular canals
Predicting mandibular invasion

- All modalities of imaging have their limitations
- A combination of scans e.g. OPG / Panorex and MRI may give a better yield
- Mental numbness is a very useful clinical sign

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*Single photon emission computerized tomography.

Marginal or Segmental

- **Marginal mandibulectomy** — when tumour is abutting but not invading the mandible
- **Segmental mandibulectomy** — when tumour invades the mandible
Does it matter?

- Retrospective study of 111 patients undergoing either segmental or marginal mandibulectomy
- Marginal if cortex involved or to achieve clear soft tissue margins
- Segmental if deeply invaded mandible

Decision tree for mandibulectomy?

- **Patient factors**
  - Height of mandible – the aged and the edentulous
  - Previous radiotherapy

- **Technical factors**
  - Does tumour wrap around mandible making it difficult to achieve clear soft tissue margins?
  - Will a marginal mandibulectomy leave sufficiently strong bone?

- **Tumour factors**
  - Does the tumour invade the mandible
Mandibulectomy
Oncological Resection of the Maxilla

- Understand the anatomy of the maxilla and associated structures
- Understand the extent of the tumour and its behaviour
- Decide on the extent of maxillary resection
- Decide on the surgical approach

Ohngren’s Line
Anatomy
Imaging
Imaging
Approaches to the maxilla

- Endoscopic
- Per-oral
- Combined

- Lateral rhinotomy (Moure’s)
- Mid-facial degloving
- Weber-Ferguson (WF)
- WF with lynch extension
- WF with Dieffenbach extension
- WF with supra and sub-ciliary extension
Common facial incision
Resection of the maxilla

- Medial maxillectomy
- Subtotal maxillectomy
- Infrastructure maxillectomy
- Total maxillectomy
- Caldwell-Luc
- Maxillary swing
Lateral rhinotomy
(Moure’s incision)

Relevant anatomy

- Angular vein
- Medial canthal ligament
- Lacrimal sac and nasolacrimal duct
- Trochlea for the tendon of the superior oblique
- Ethmoidal vessels
- 24, 12 and 6 rule
- Inferior orbital nerve
Lateral rhinotomy
(Moure’s incision)

- Headlight!
- Tarsorrhaphy
- Infiltration and nasal decongestant
- Plan incision carefully
- Cut down to bone avoiding angular vein
- Elevate periosteum with freers and blade
Lateral rhinotomy
(Moure’s incision)

- If incision is extended along superior orbital rim, divide trochlea
- Retract and protect orbit with malleable retractor
- Work towards vessels, divide and ligate/cauterise
- Divide nasolacrimal duct tangentially
- Raise skin on face of maxilla to infraorbital nerve

Operative Otolaryngology. Bleach N et. al.
Anterior ethmoidal artery (right)
Medial Maxillectomy
Medial Maxillectomy
Medial Maxillectomy
Medial Maxillectomy
Medial Maxillectomy
Medial Maxillectomy
Medial Maxillectomy – post op
Medial Maxillectomy – post op
Midfacial Degloving

- Cannot reach tumours with extension above the level of the medial canthus
- Can be combined with bicoronal flap
- Suitable for young children

Operative Otolaryngology. Bleach N et. al.
Midfacial Degloving

4 incision

1. Sublabial from one maxillary tuberosity to the other
2. Intercartilaginous incisions
3. Full transfixion incision
4. Vestibular incision (stepped to avoid stenosis)
Midfacial Degloving

Operative Otolaryngology. Bleach N et. al.
Midfacial Degloving Approach for Malignant Maxillary Tumors
ASHRAF S. ZAGHLOUL, M.D*; M. AKRAM NOUH, M. and HISHAM ABD EL FATAH, M.D
Cairo University
Infrastructure Maxillectomy

- Tumours of the upper alveolus
- Often oral cavity SCCs so are aggressive
Subtotal Maxillectomy

- Removal of most of the maxilla
- Leaving some suprastructure for orbital support
- Best performed via a Weber-Ferguson incision with Dieffenbach extension
Subtotal Maxillectomy
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Subtotal Maxillectomy
Subtotal Maxillectomy
Maxillary Swing

- For access to the nasopharynx in salvage nasopharyngectomy
- Allow for enbloc resection of paranasopharyngeal tissue
Sir Bobby Robson
(18 February 1933 – 31 July 2009)