

Considerations in Oncologic Resection (mandible & maxilla)

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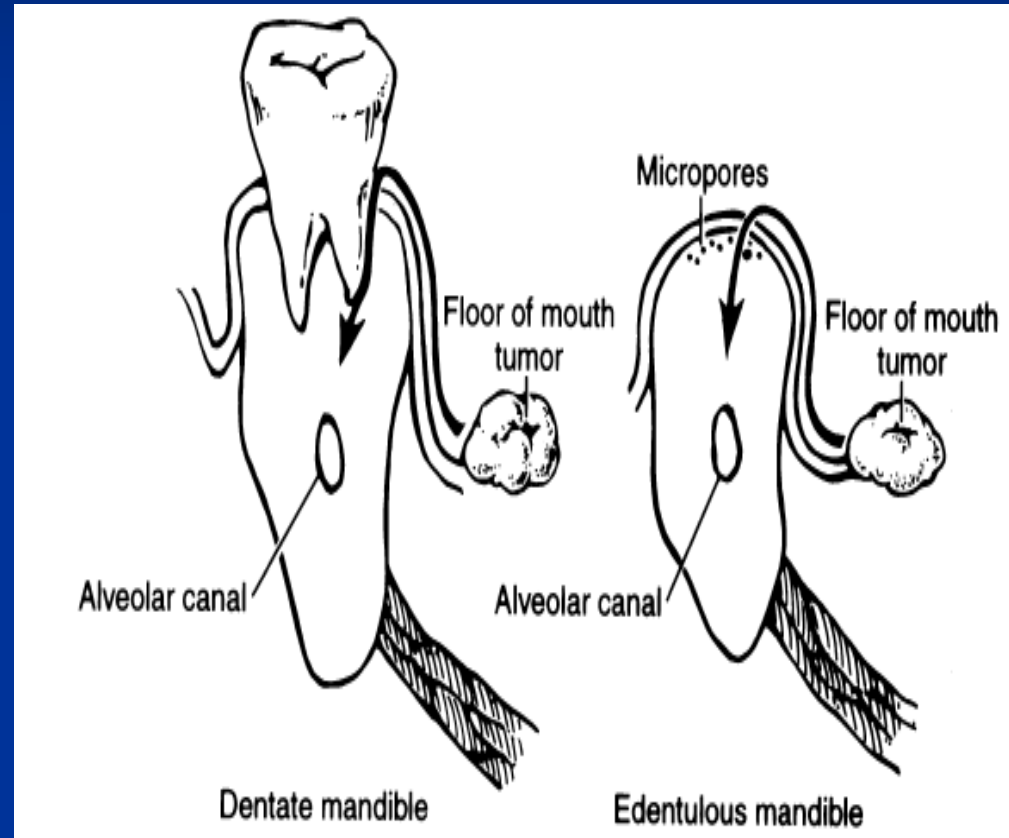
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Lee Kong Chian School of Medicine



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

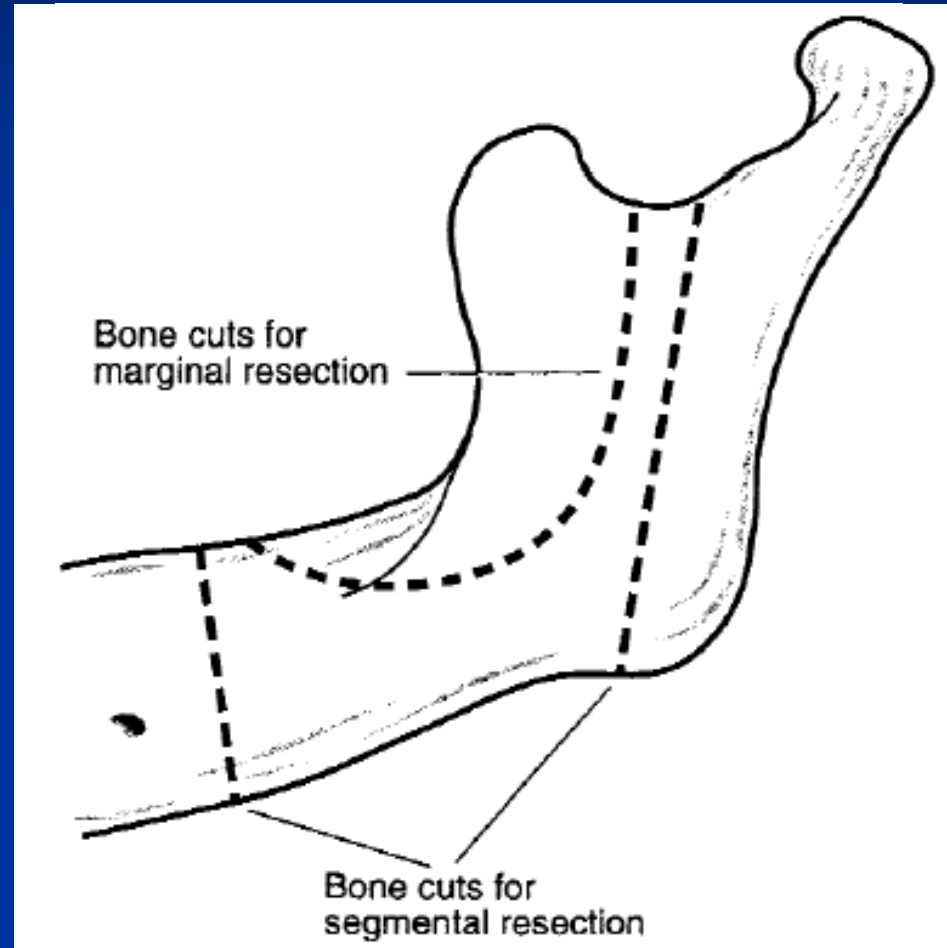
Table 10 Summary and comparison of the imaging techniques and clinical examination

Imaging technique	Number of reports	Specificity (mean)	Sensitivity (mean)
Clinical examination	9	61	82
Plain radiography	18	81	76
Bone scintigraphy	15	74	93
SPECT*	3	76	97
Computerized tomography	7	86	75
DentaScan	3	–	–
Magnetic resonance imaging	4	72	85
Ultrasound	2	88	86

*Single photon emission computerized tomography.

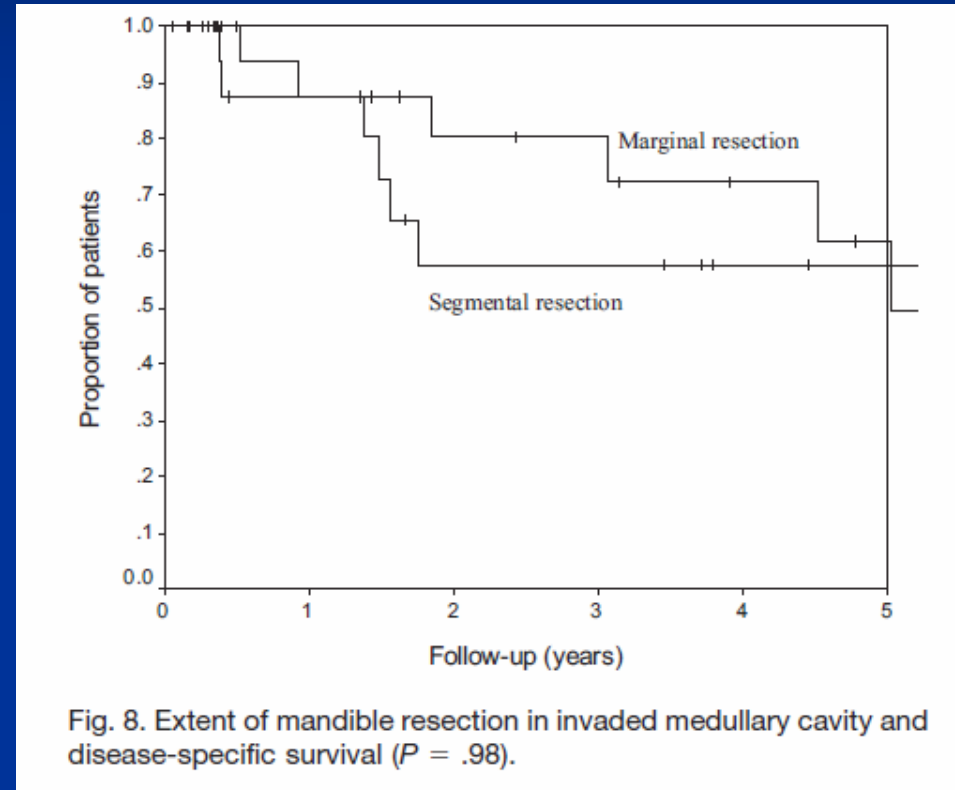
Marginal or Segmental

- 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

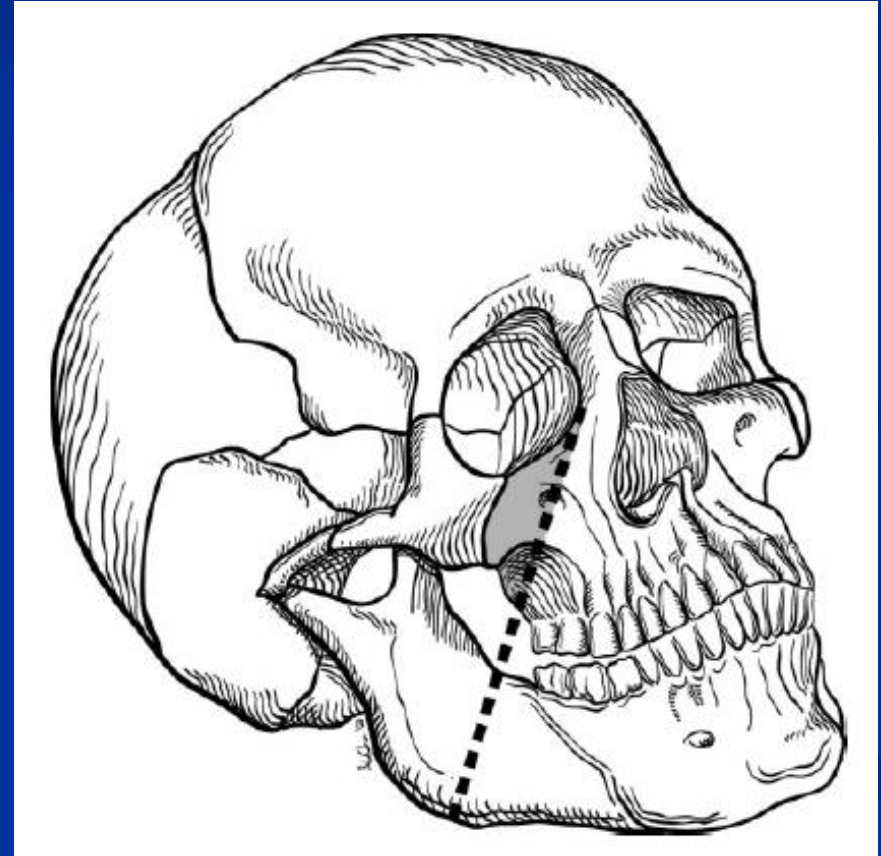
- Does the tumour invade the mandible

Mandibulectomy



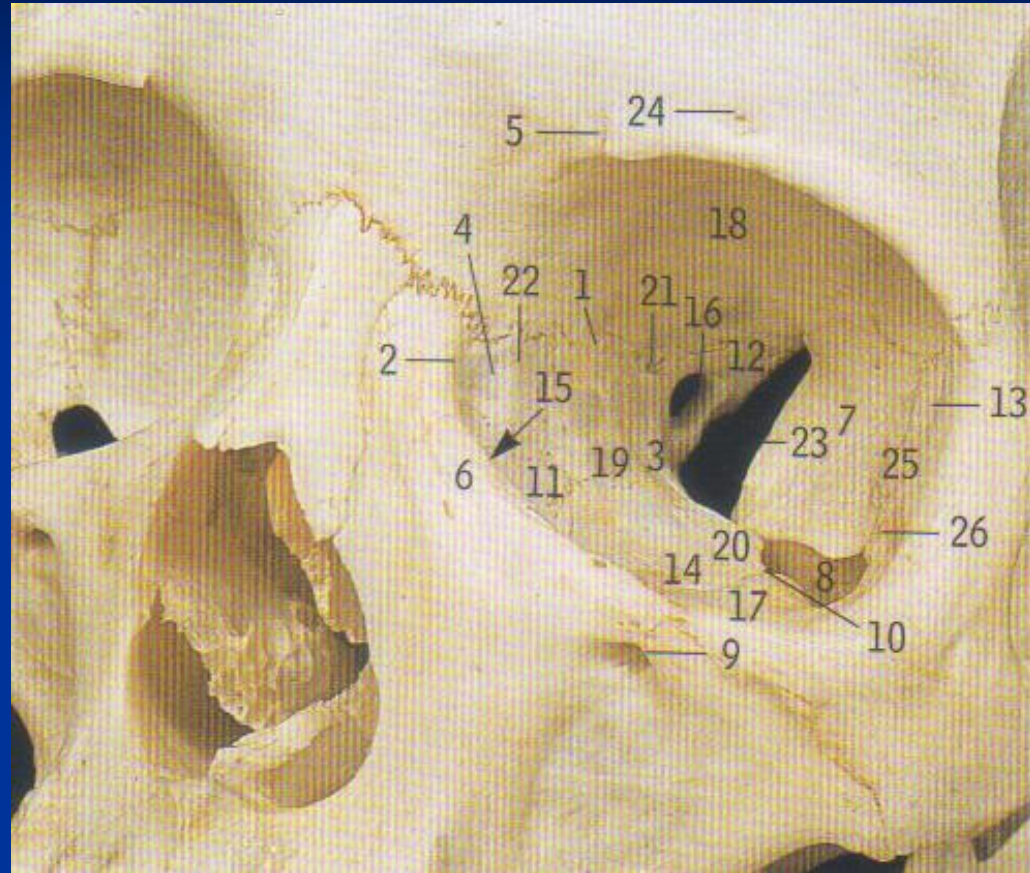
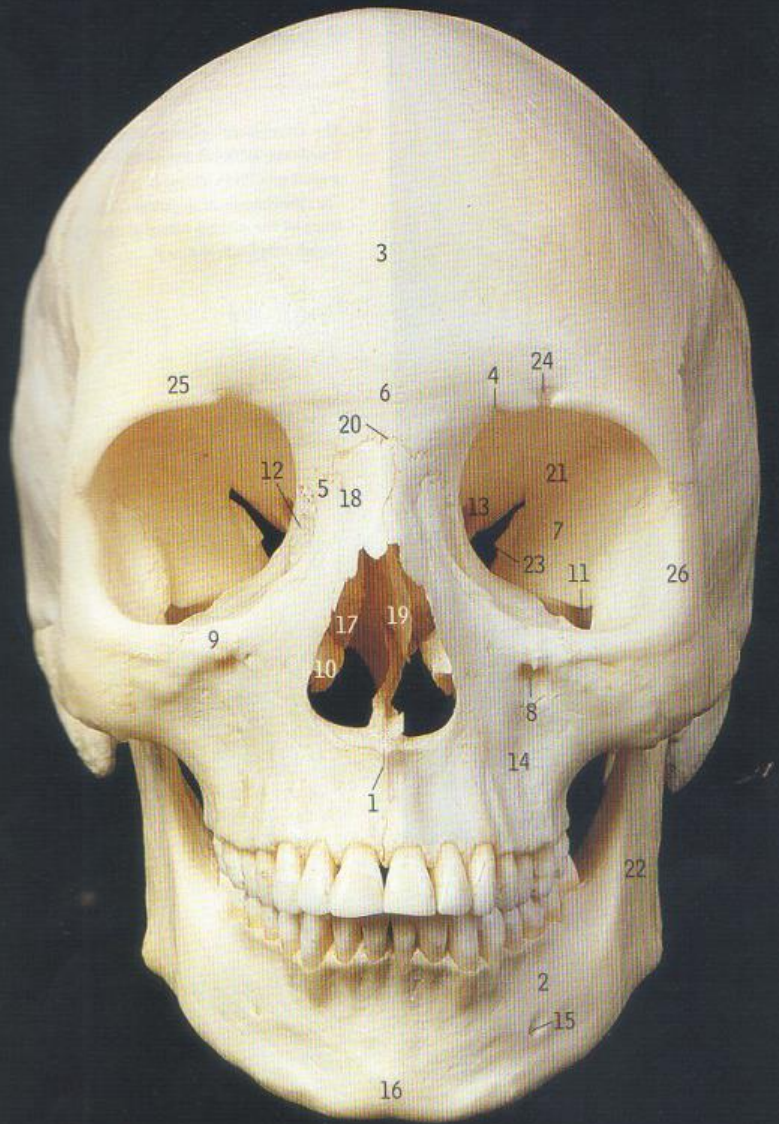
Oncological Resection of the Maxilla

- 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

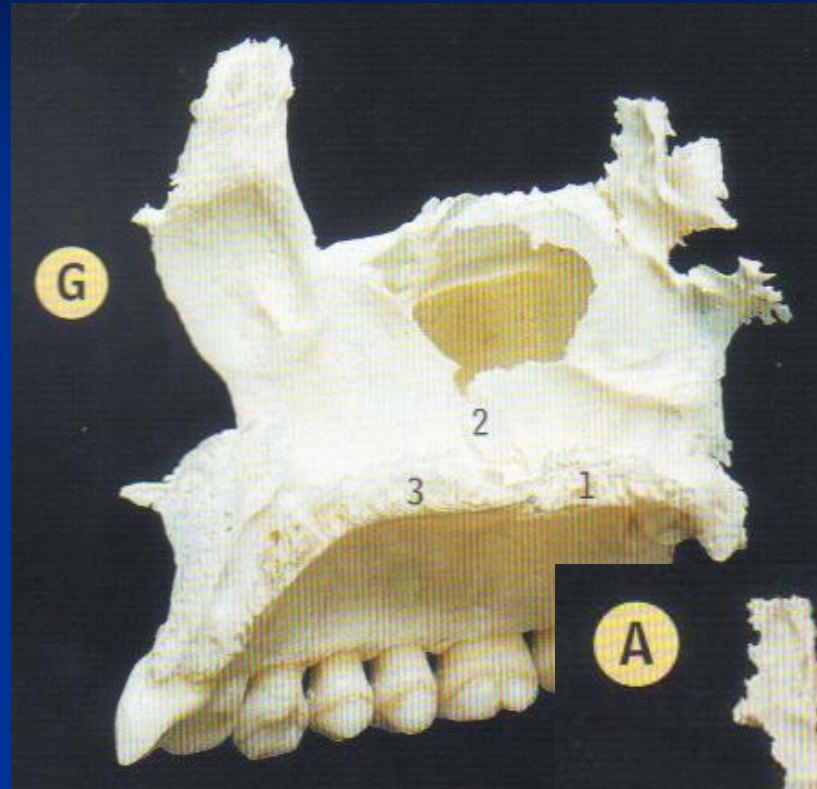
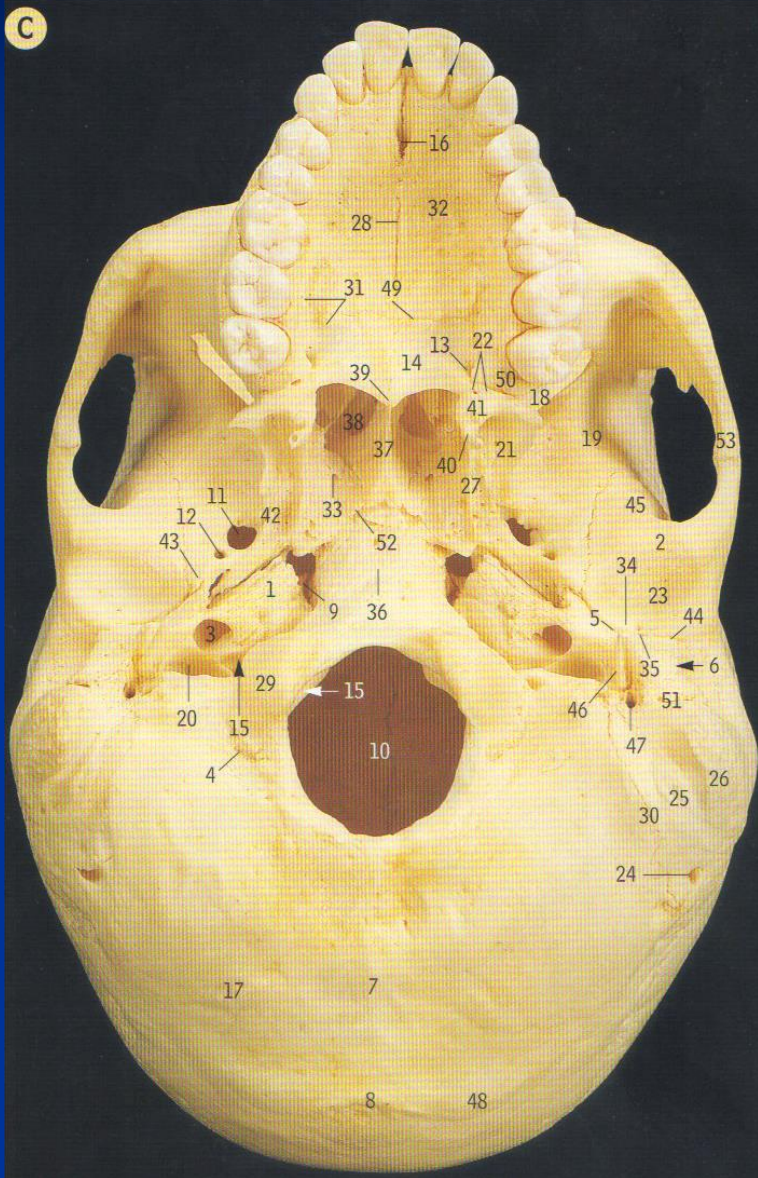


Ohngren's Line

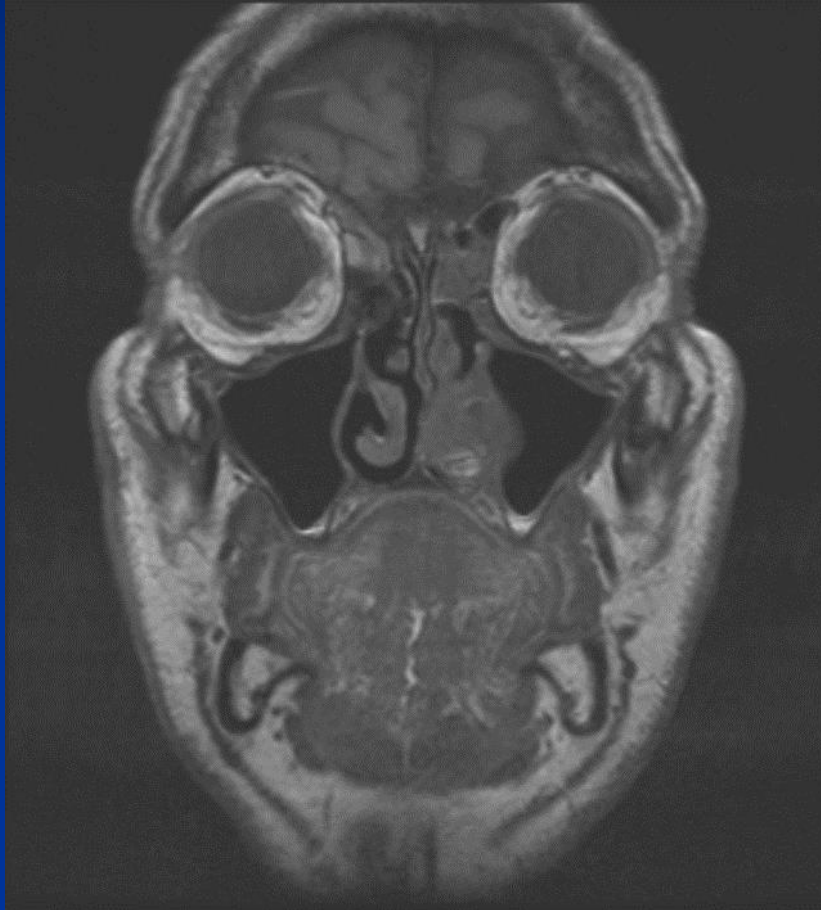
Anatomy



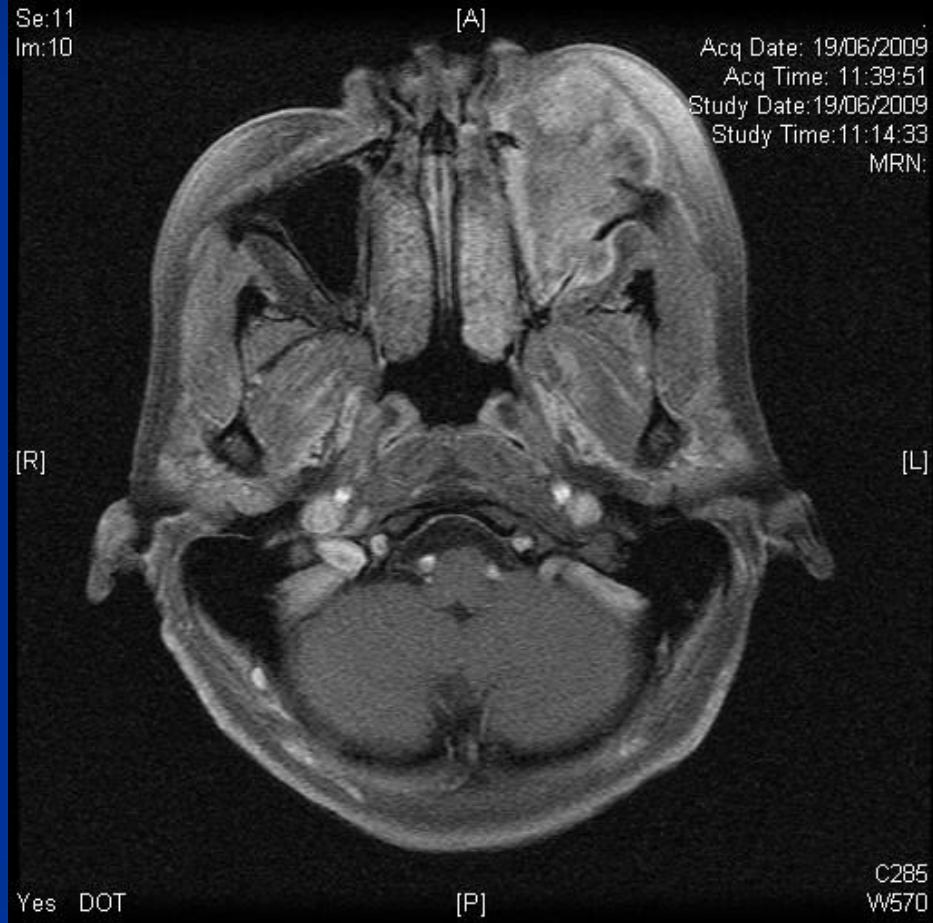
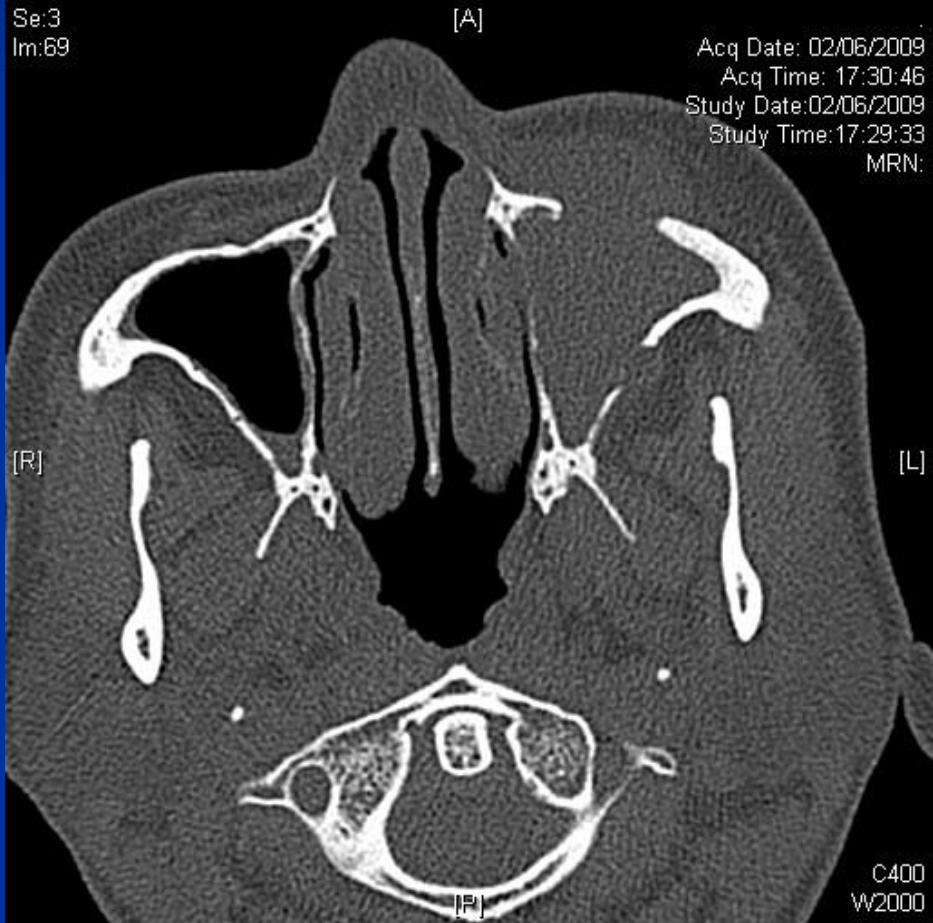
Anatomy



Imaging



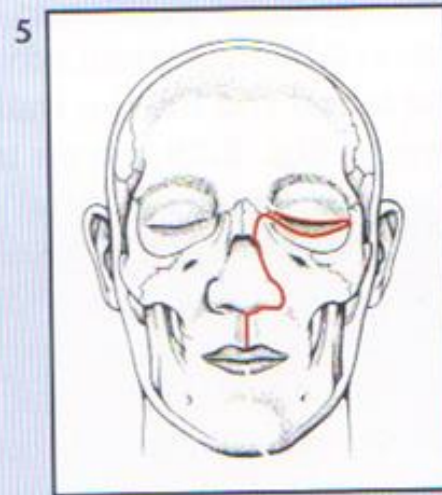
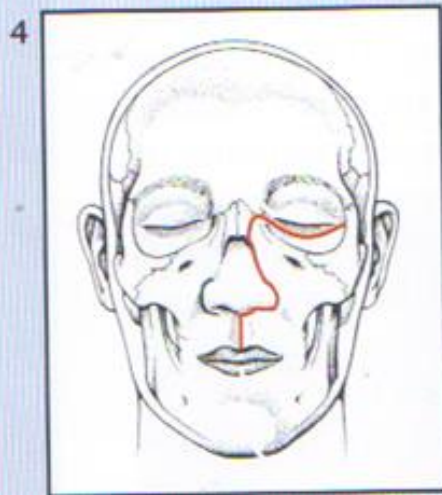
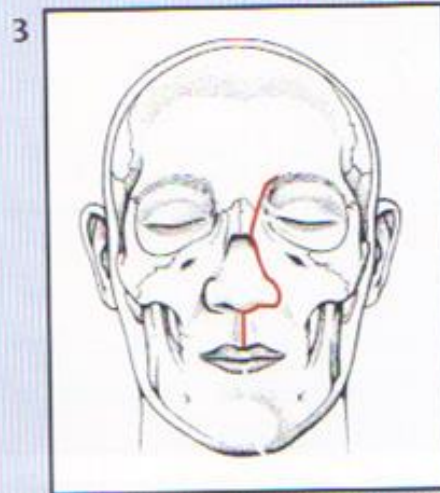
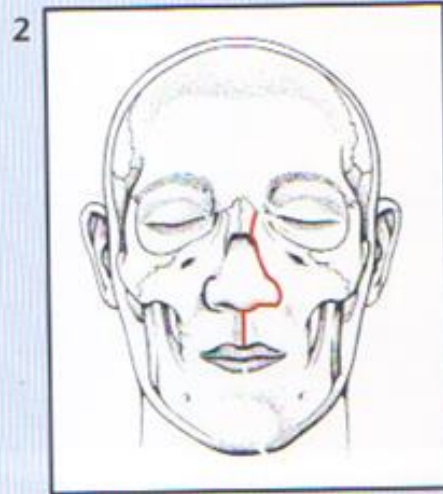
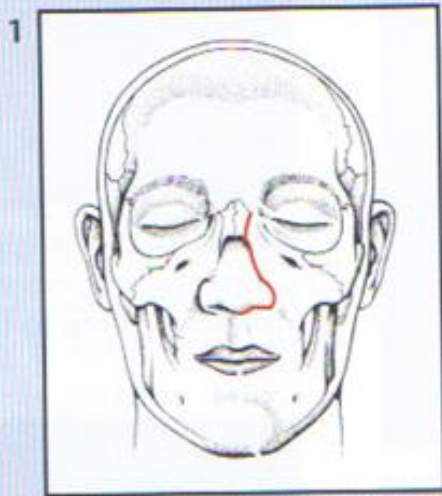
Imaging



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

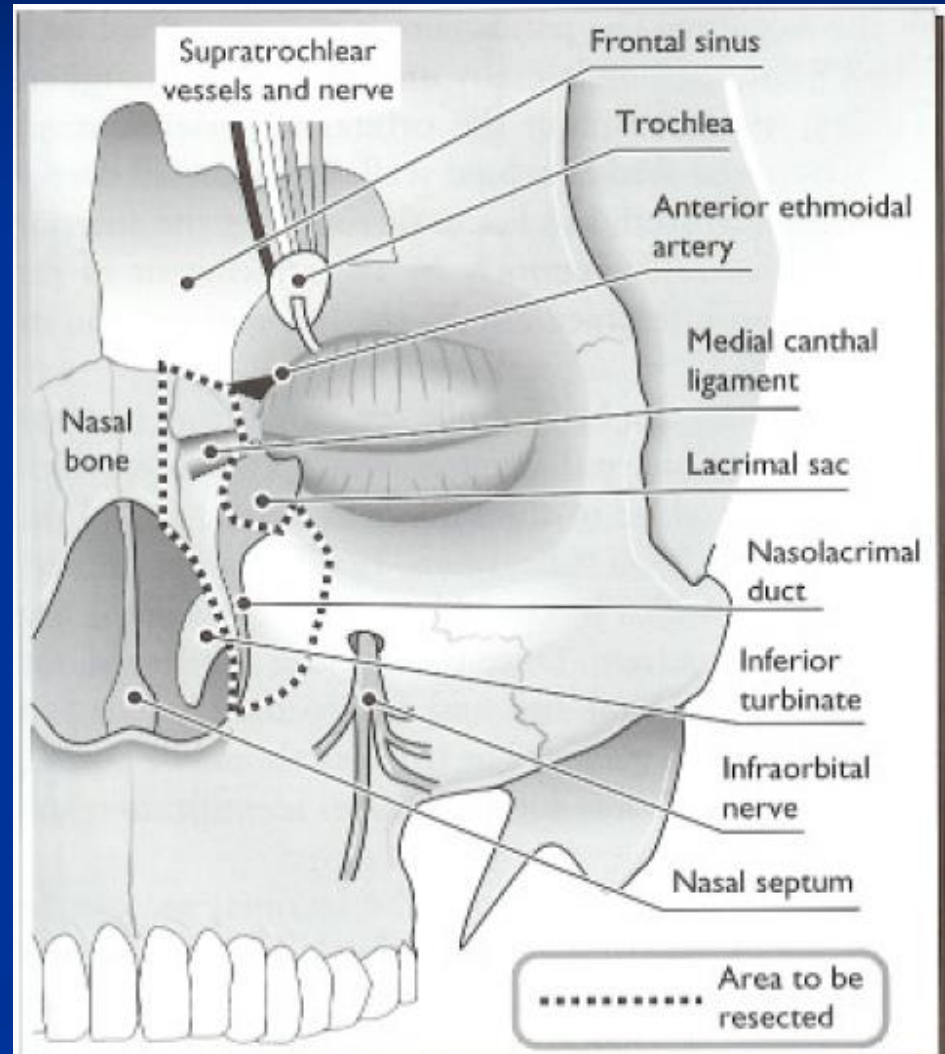
- Medial maxillectomy
- Subtotal maxillectomy
- Infrastructure maxillectomy
- Total maxillectomy
- Caldwell-Luc
- Maxillary swing

Lateral rhinotomy

(Moure's incision)

Relevant anatomy

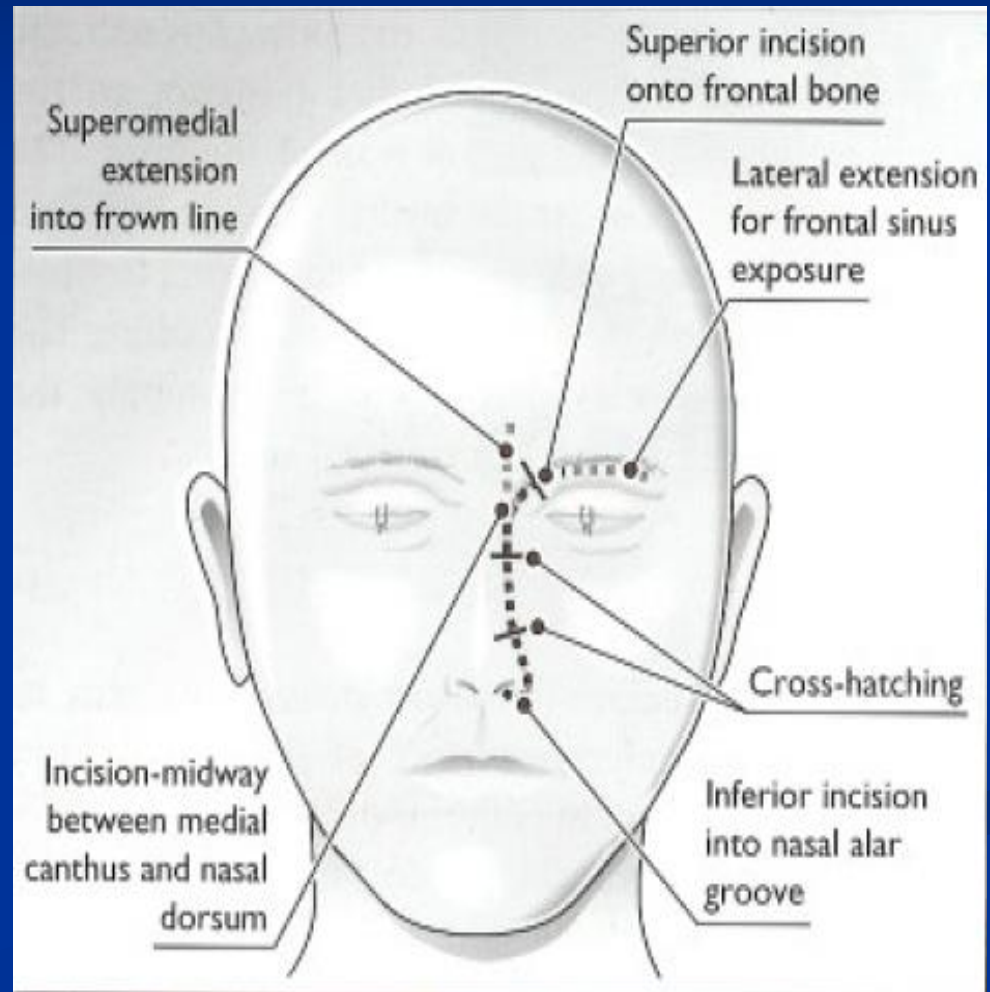
- Angular vein
- Medial canthal ligament
- Lacrimal sac and nasolacrimal duct
- Trochlea for the tendon of the superior oblique
- Ethmoidal vessels
- 24, 12 and 6 rule
- Inferior orbital nerve



Lateral rhinotomy

(Moure's incision)

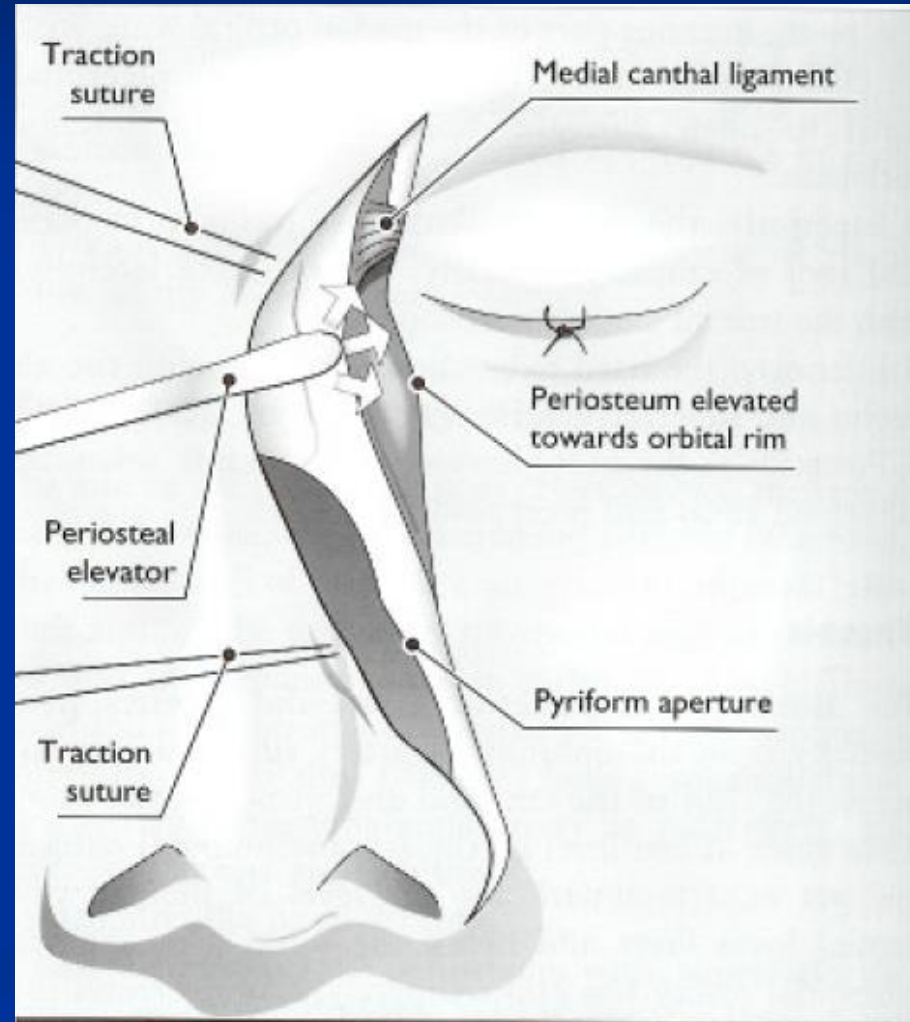
- Headlight!
- Tarsorrhaphy
- Infiltration and nasal decongestant
- Plan incision carefully
- Cut down to bone avoiding angular vein
- Elevate periosteum with freers and blade



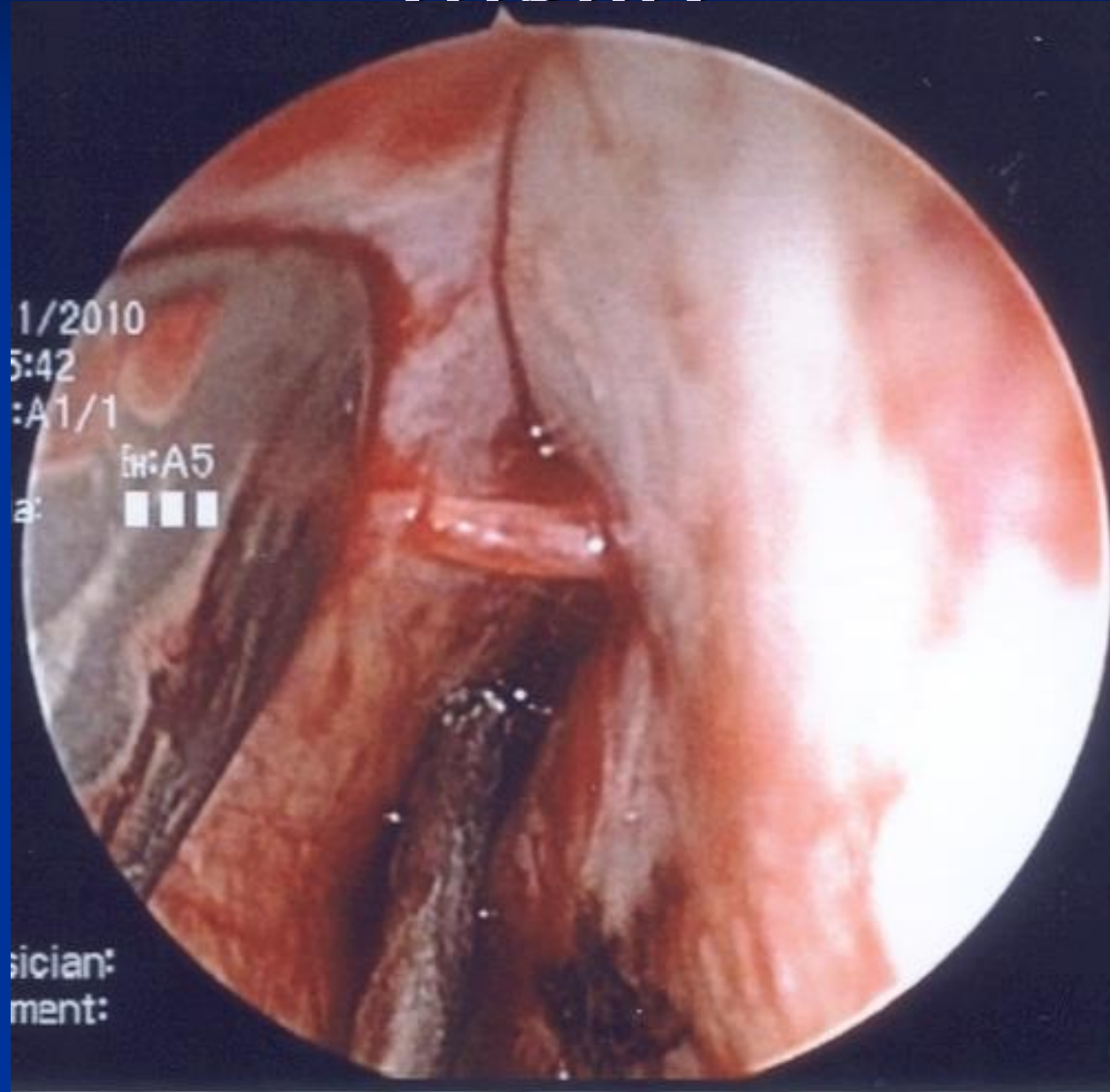
Lateral rhinotomy

(Moure's incision)

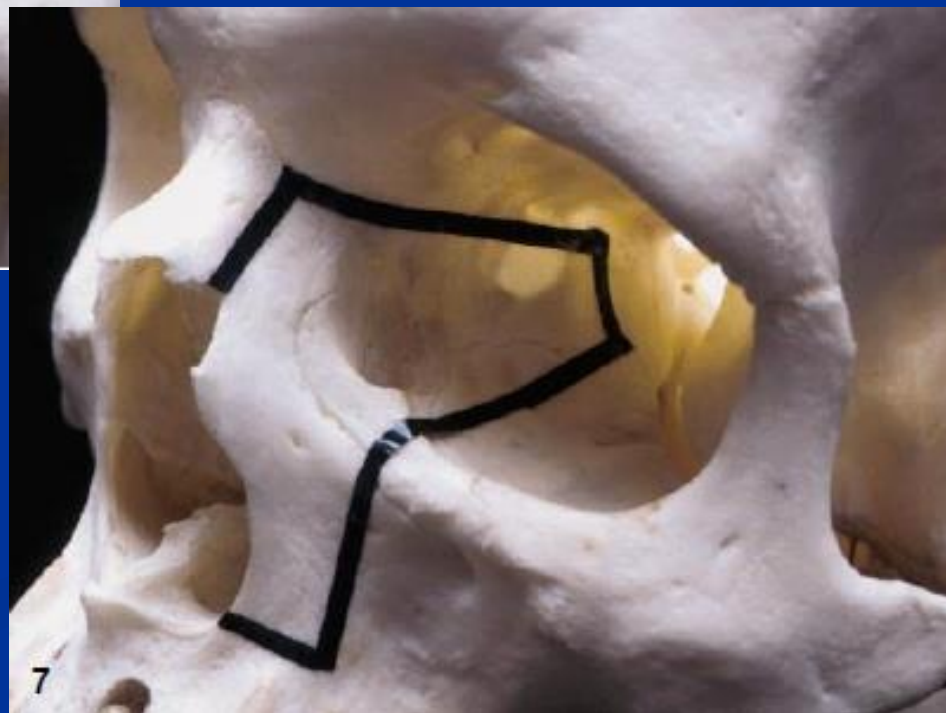
- If incision is extended along superior orbital rim, divide trochlea
- Retract and protect orbit with malleable retractors
- Work towards vessels, divide and ligate/cauterise
- Divide nasolacrimal duct tangentially
- Raise skin on face of maxilla to infraorbital nerve



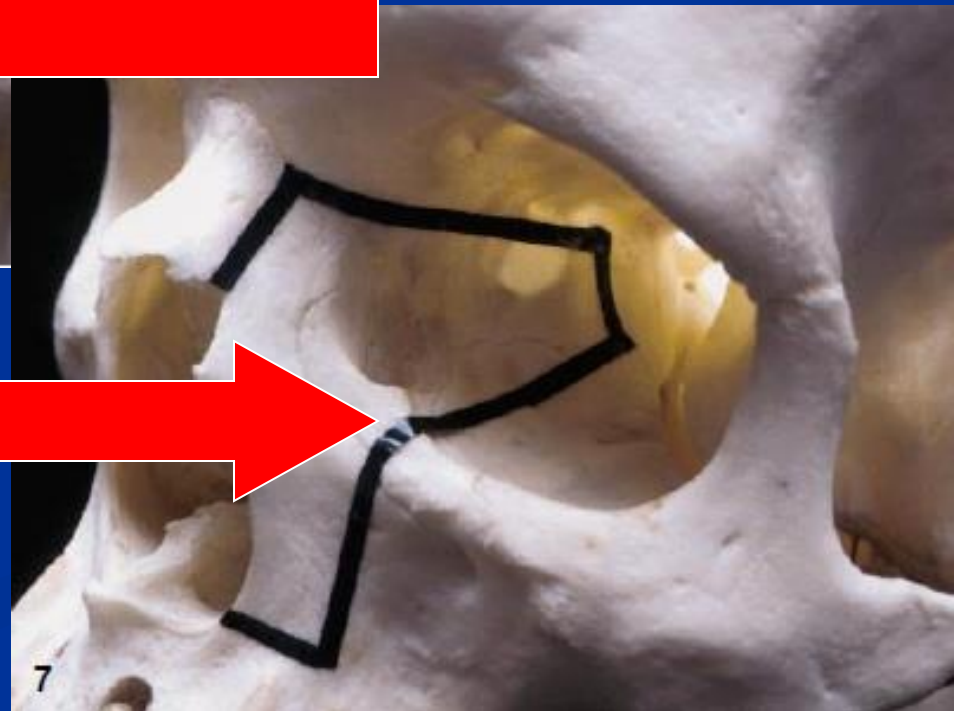
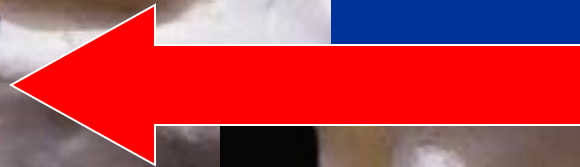
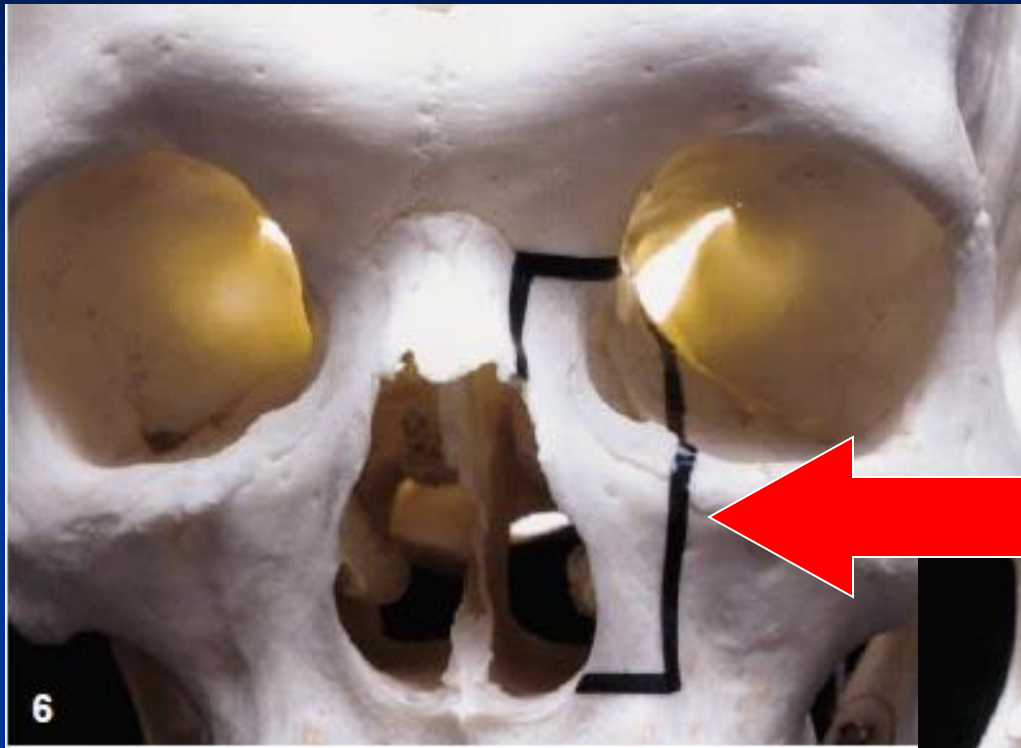
Anterior ethmoidal artery (right)



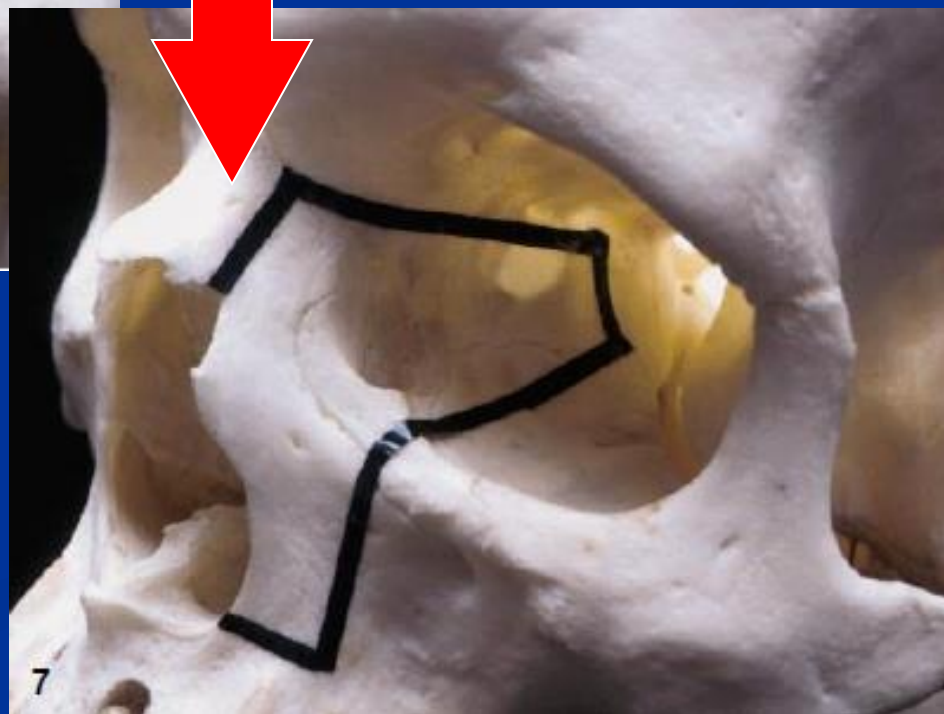
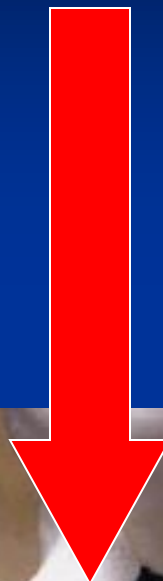
Medial Maxillectomy



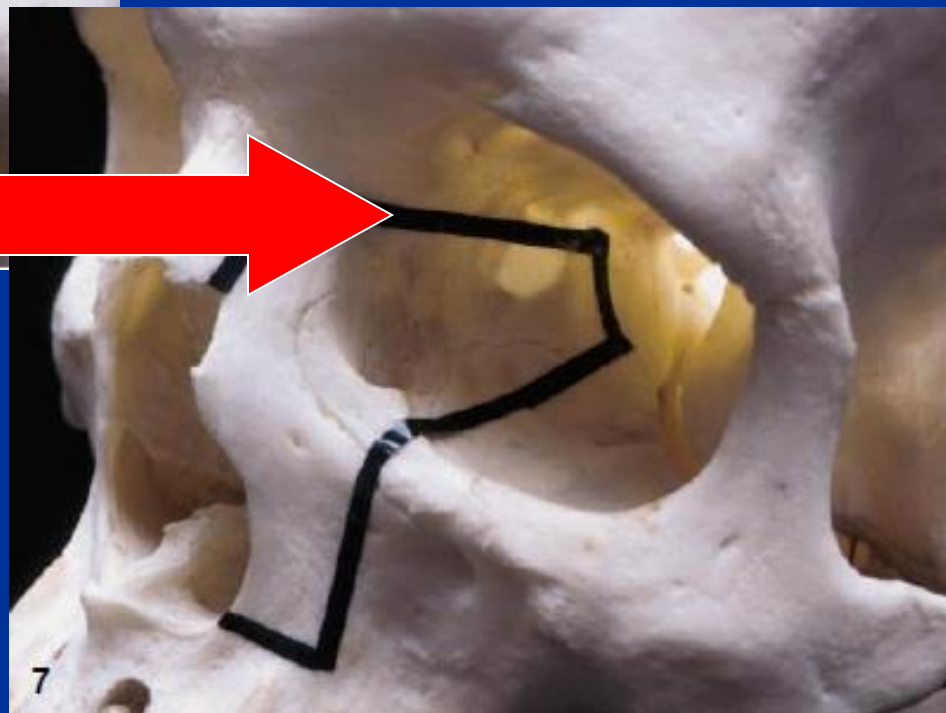
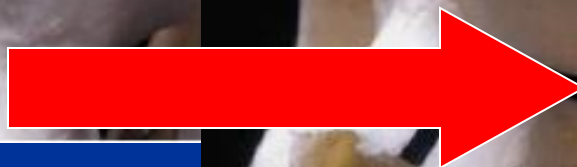
Medial Maxillectomy



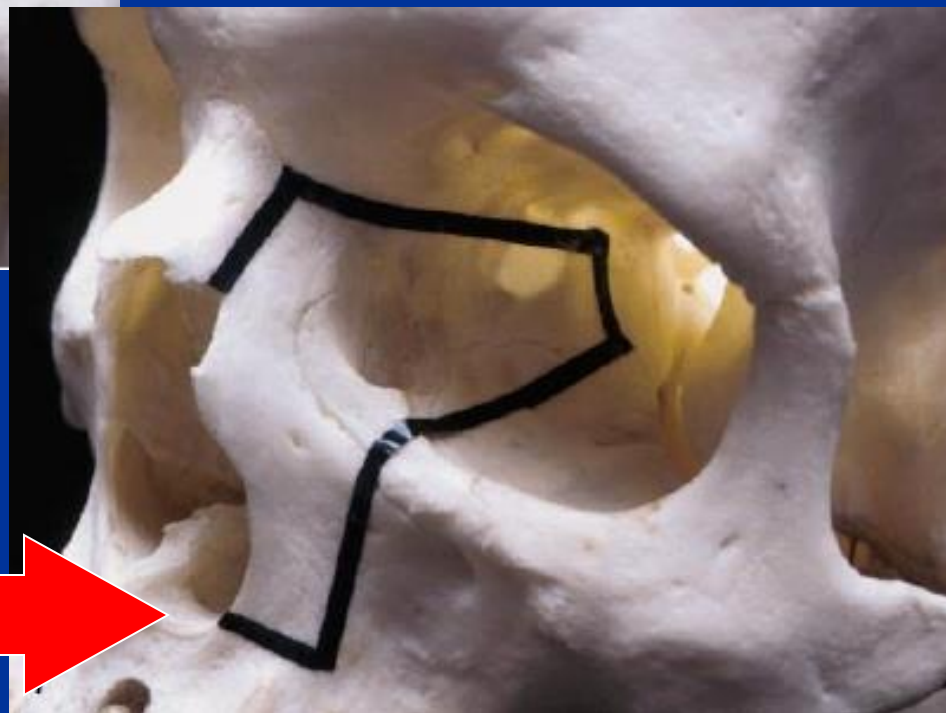
Medial Maxillectomy



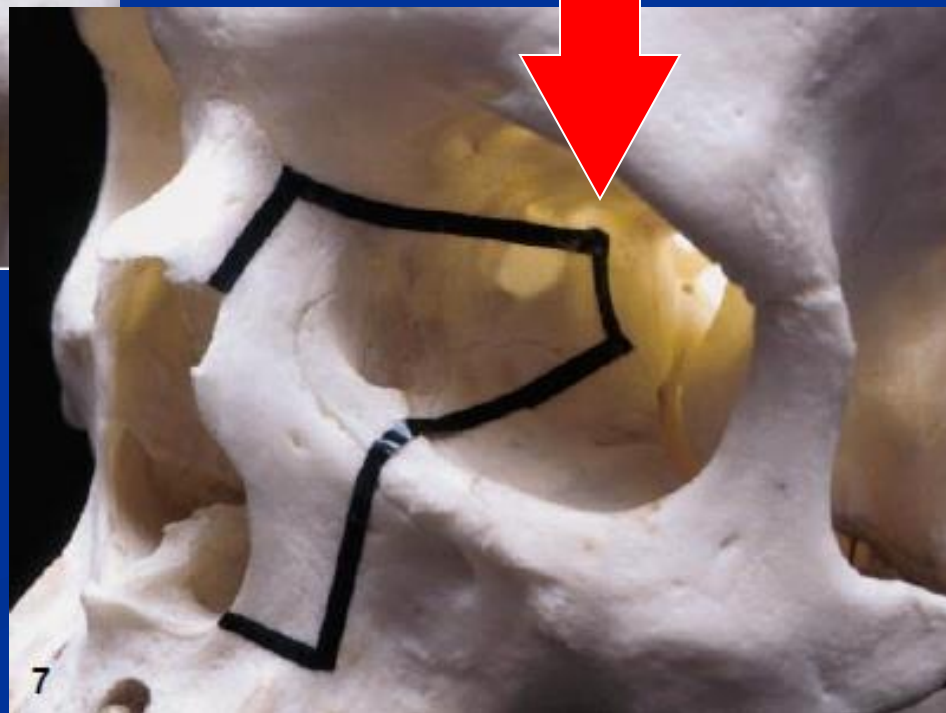
Medial Maxillectomy



Medial Maxillectomy



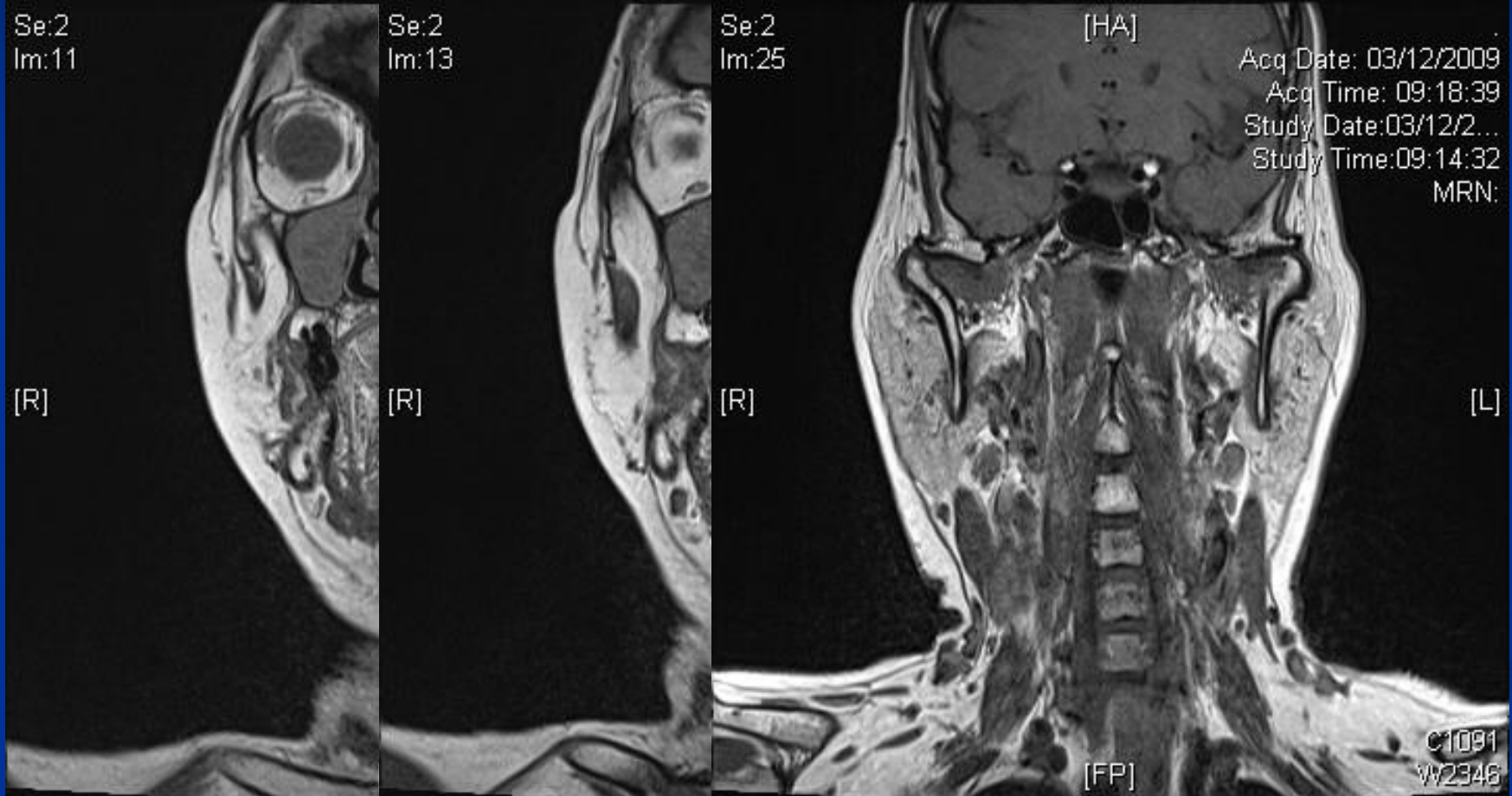
Medial Maxillectomy



Medial Maxillectomy – post op

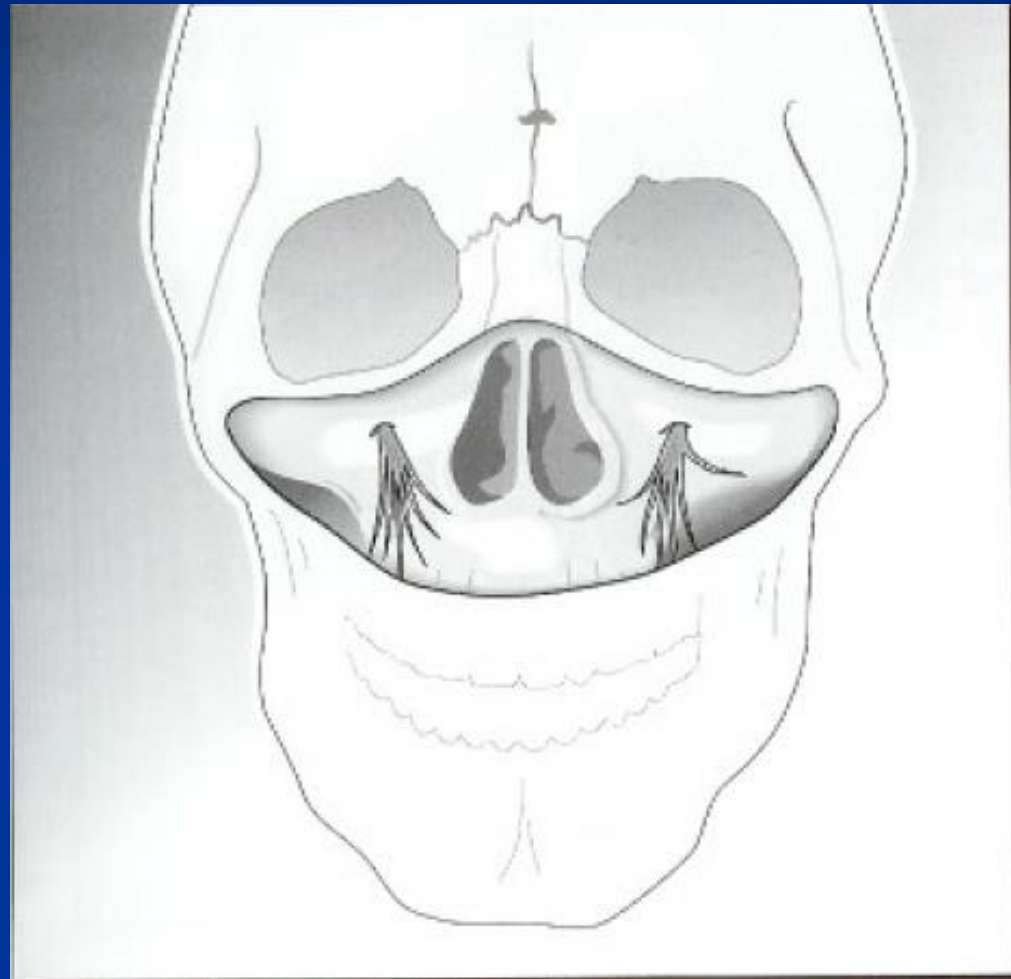


Medial Maxillectomy – post op



Midfacial Degloving

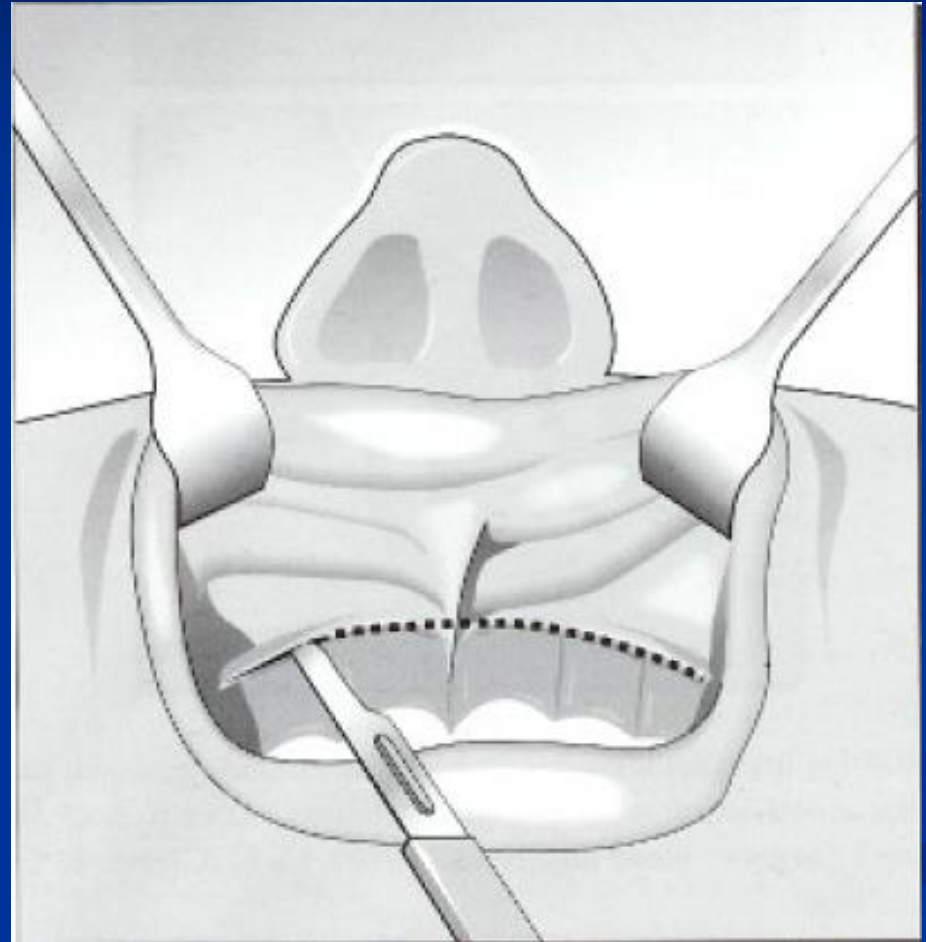
- Cannot reach tumours with extension above the level of the medial canthus
- Can be combined with bicoronal flap
- Suitable for young children



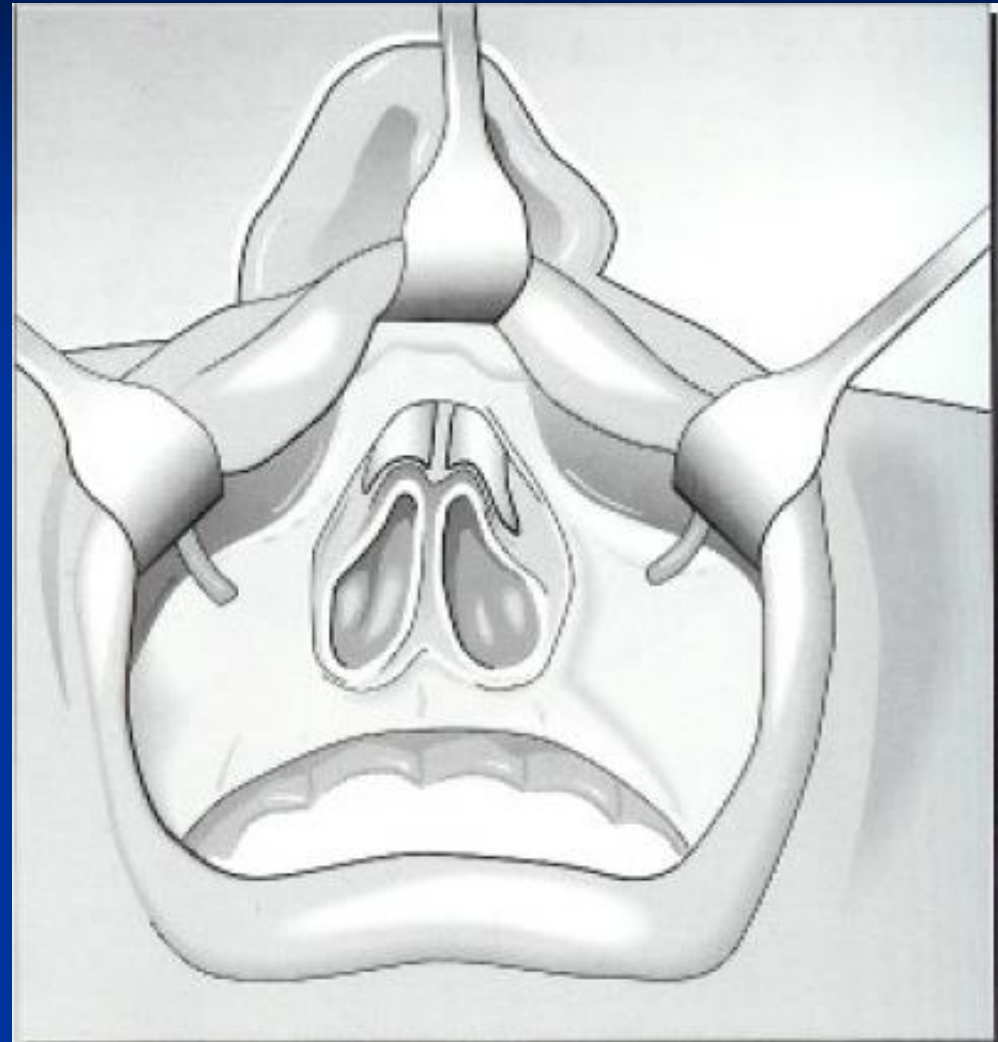
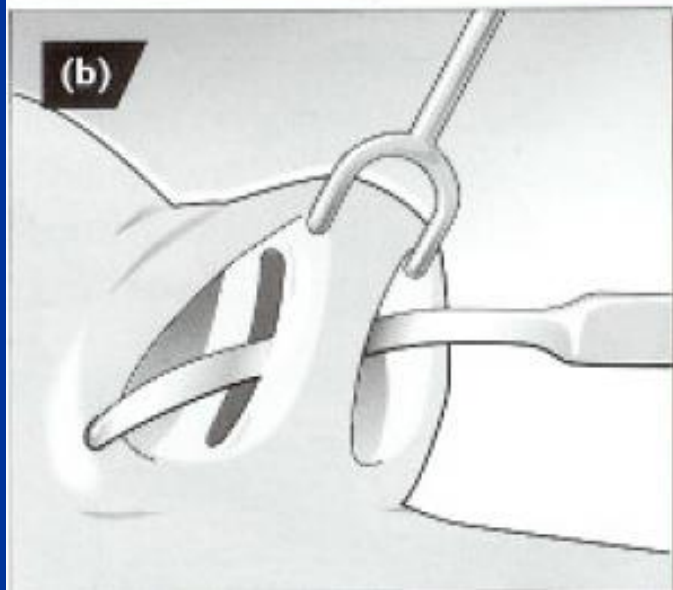
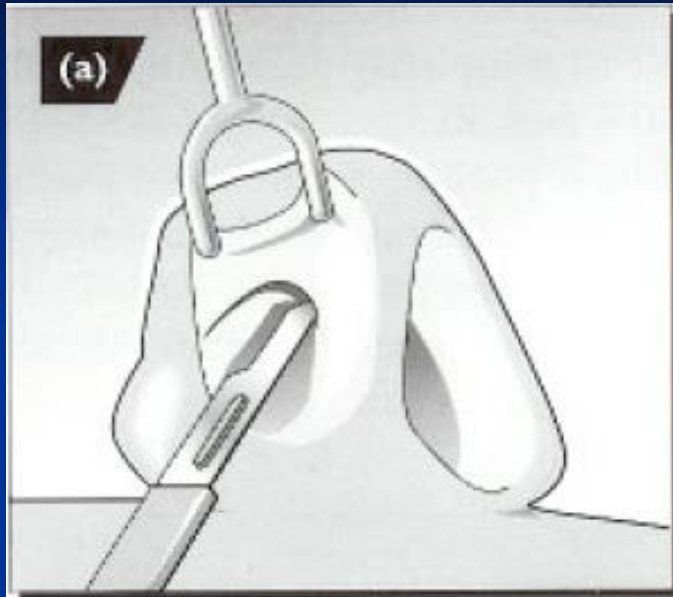
Midfacial Degloving

4 incision

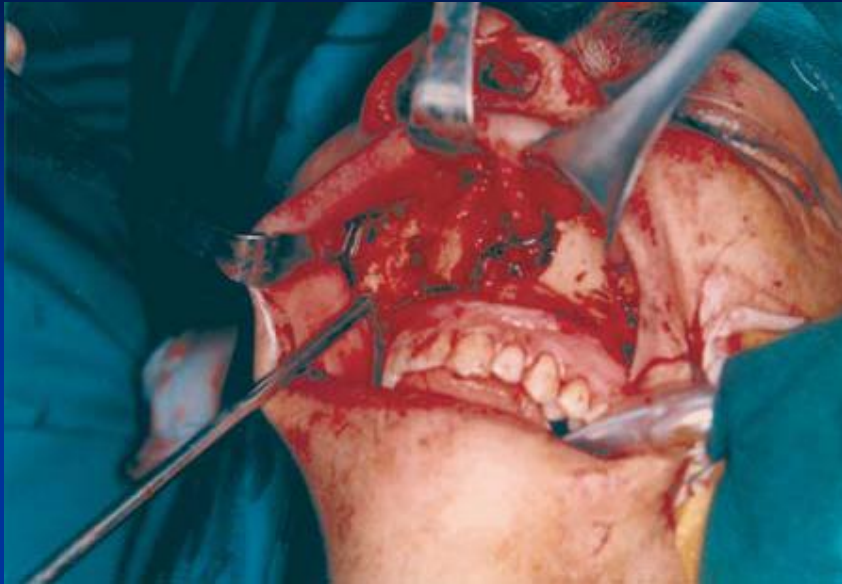
1. Sublabial from one maxillary tuberosity to the other
2. Intercartilaginous incisions
3. Full transfixion incision
4. Vestibular incision (stepped to avoid stenosis)



Midfacial Degloving

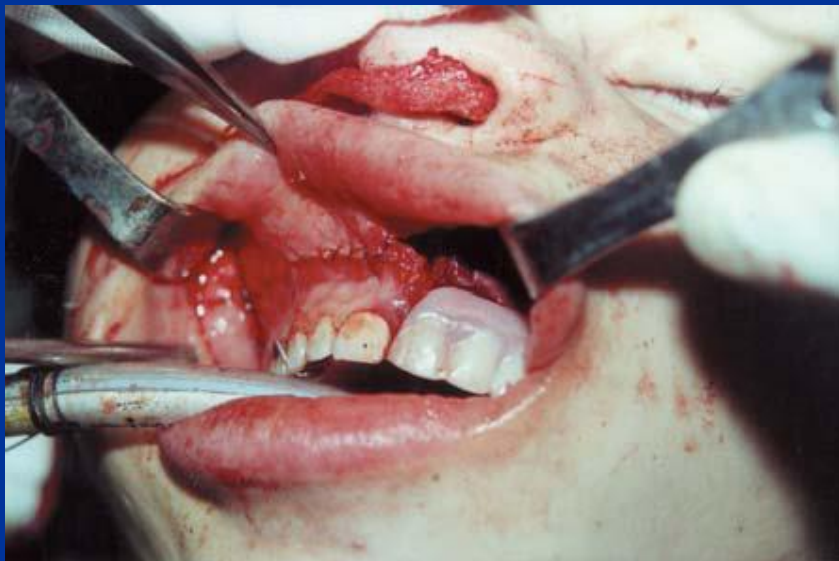


Midfacial Degloving



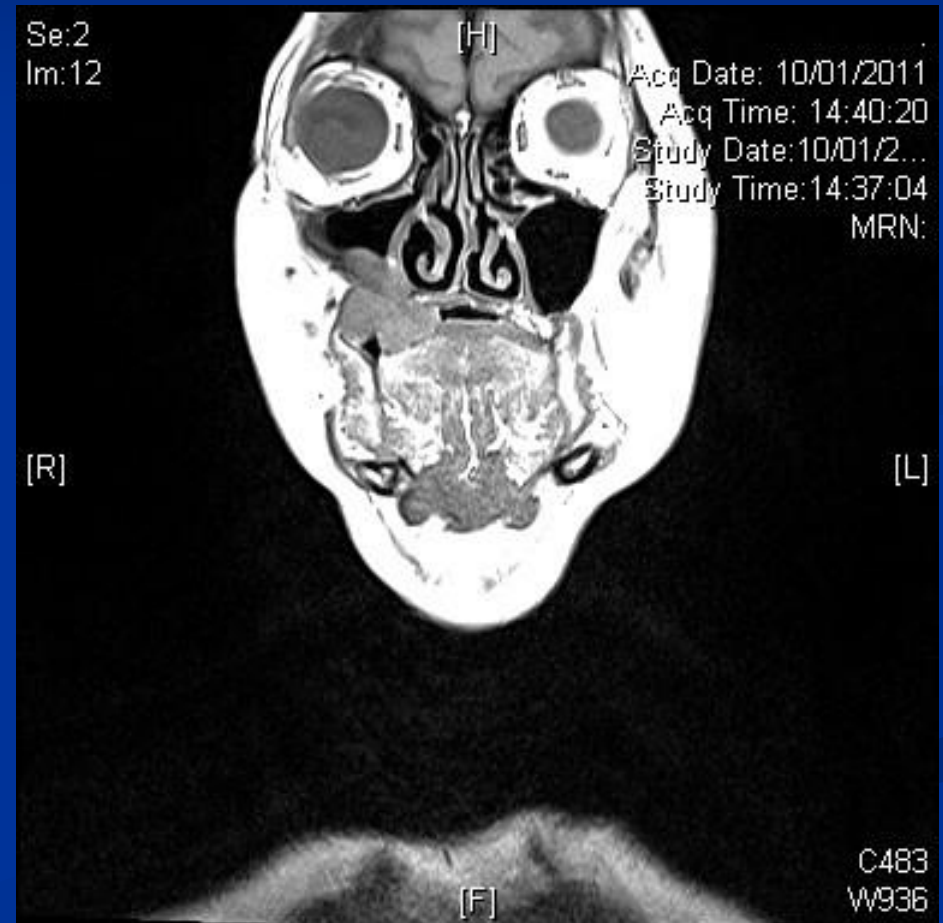
Midfacial Degloving Approach for Malignant Maxillary Tumors

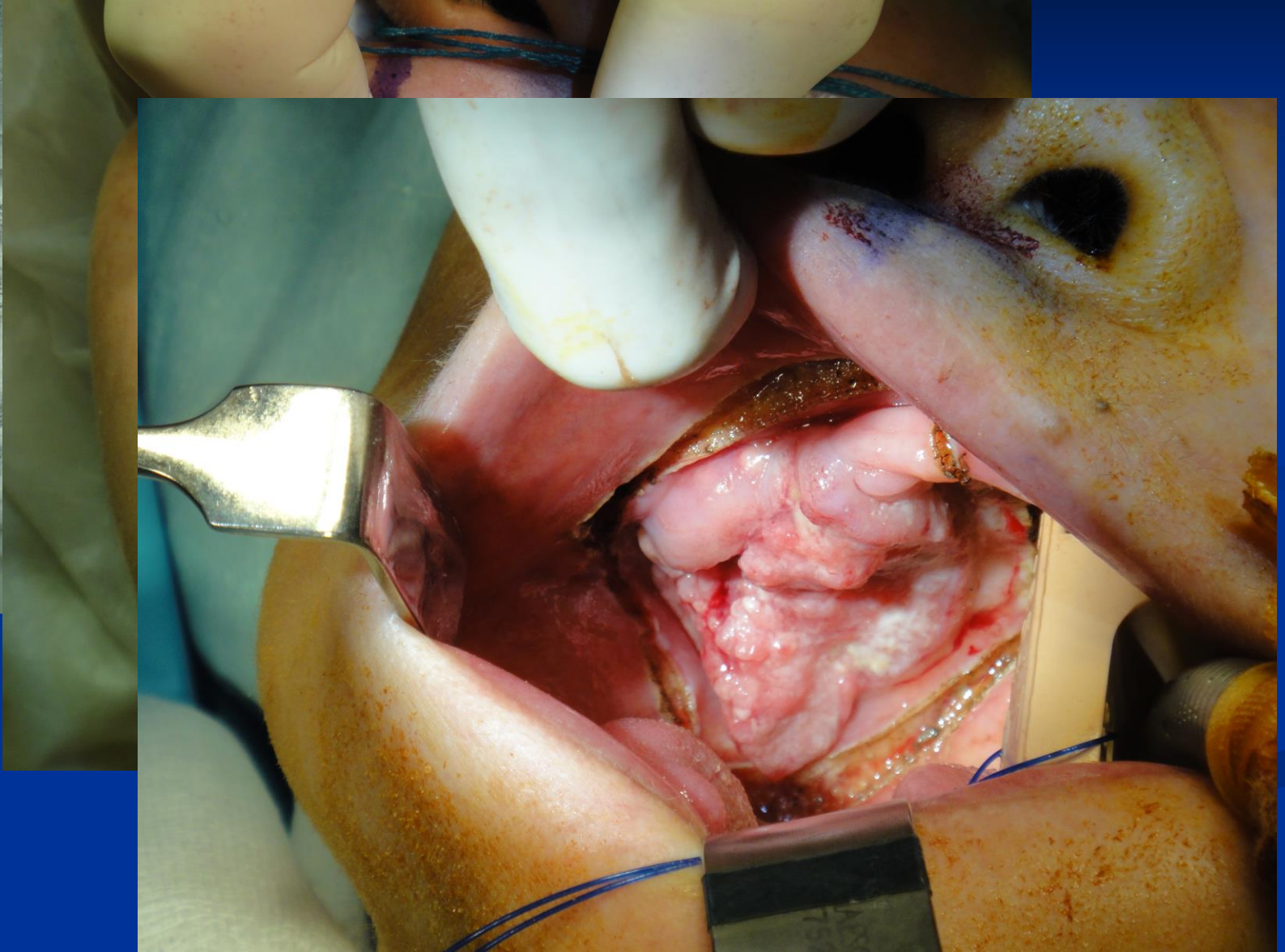
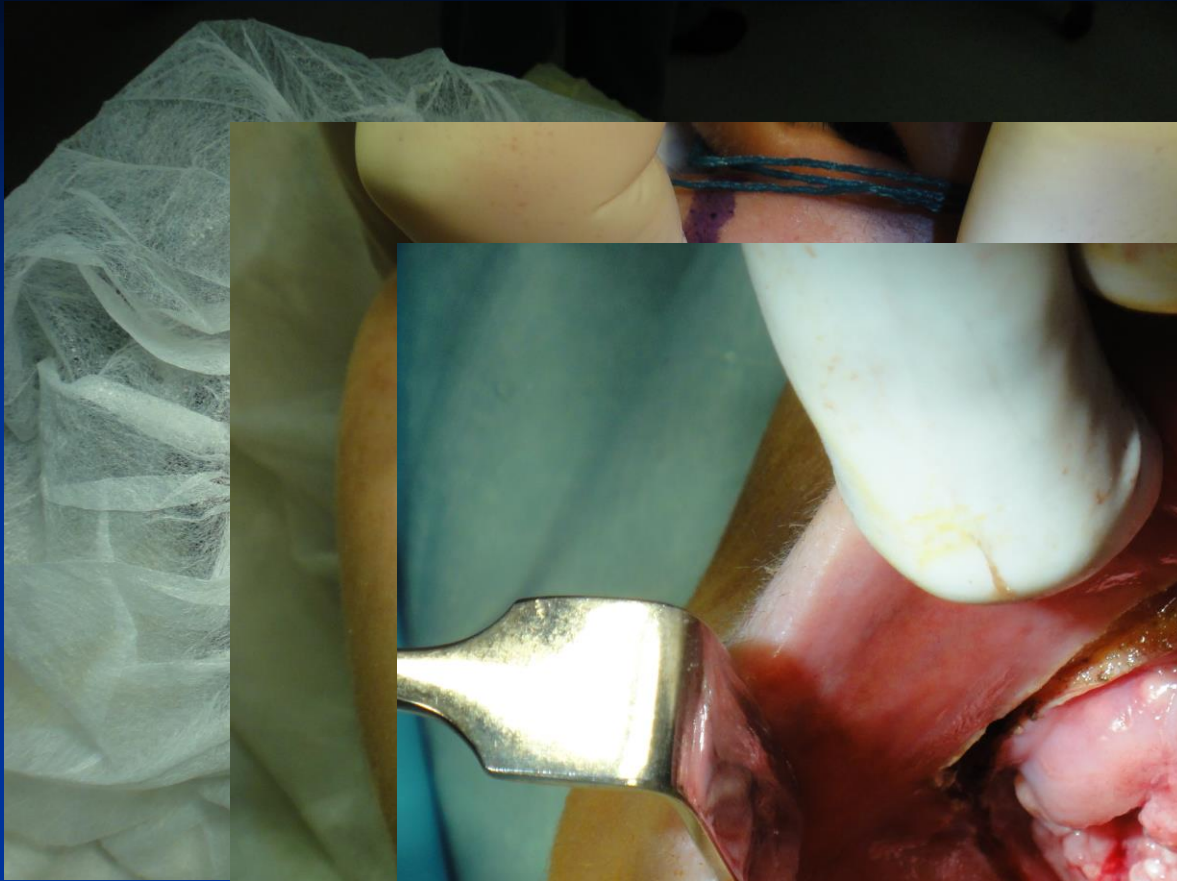
ASHRAF S. ZAGHLOUL, M.D*; M. AKRAM
NOUH, M. and HISHAM ABD EL FATAH, M.D
Cairo University

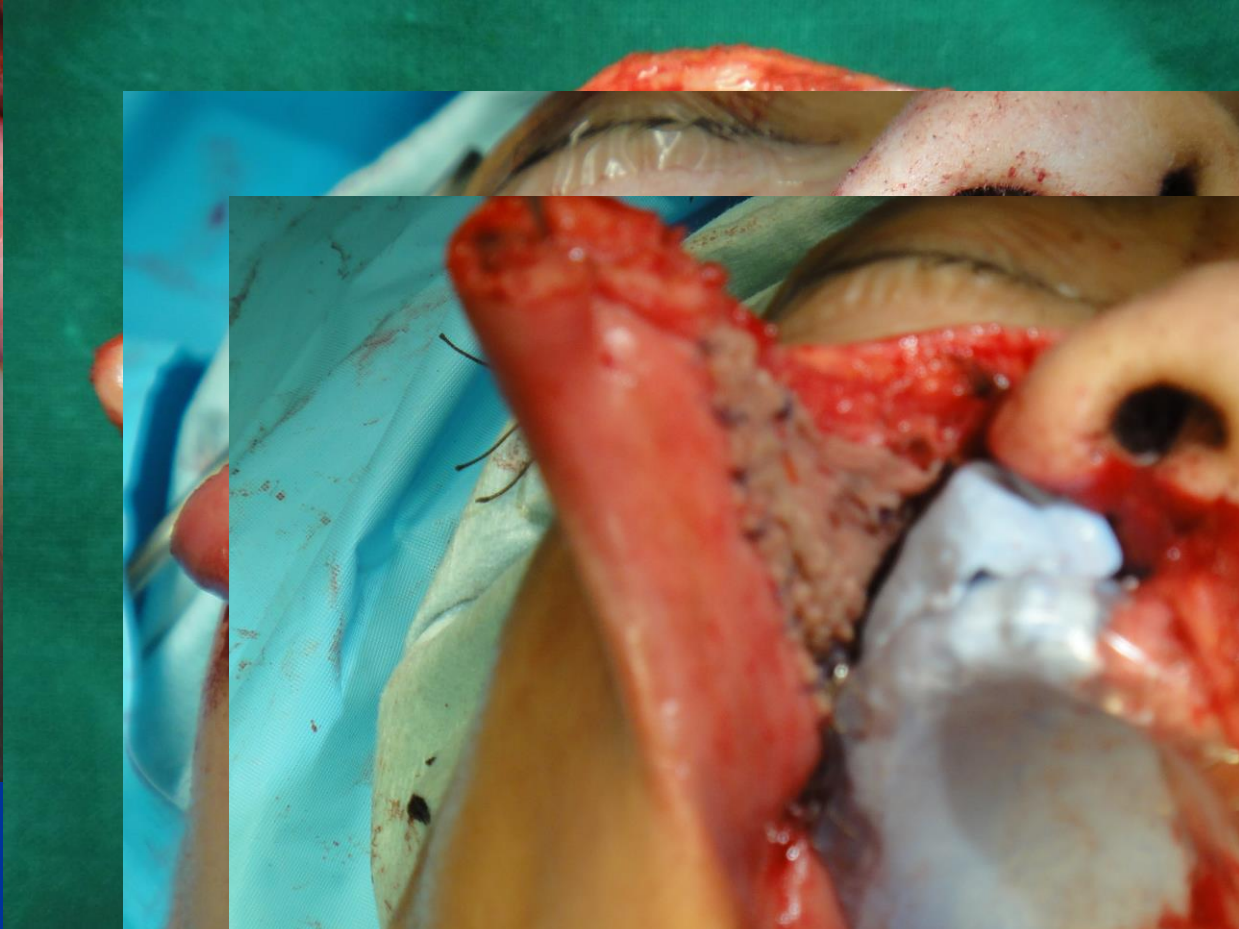


Infrastructure Maxillectomy

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



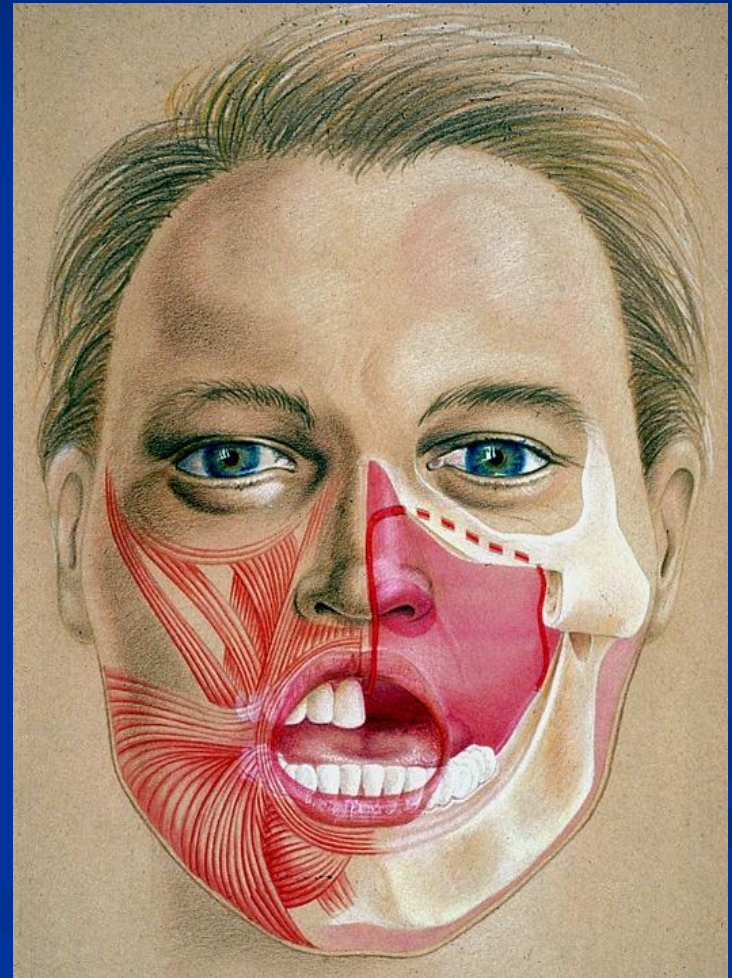




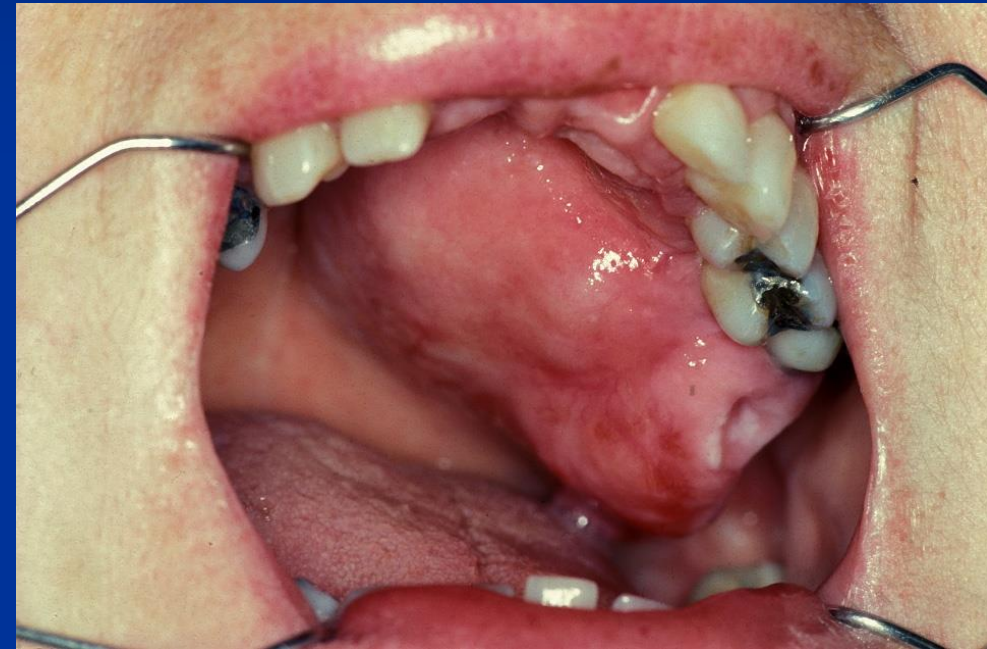


Subtotal Maxillectomy

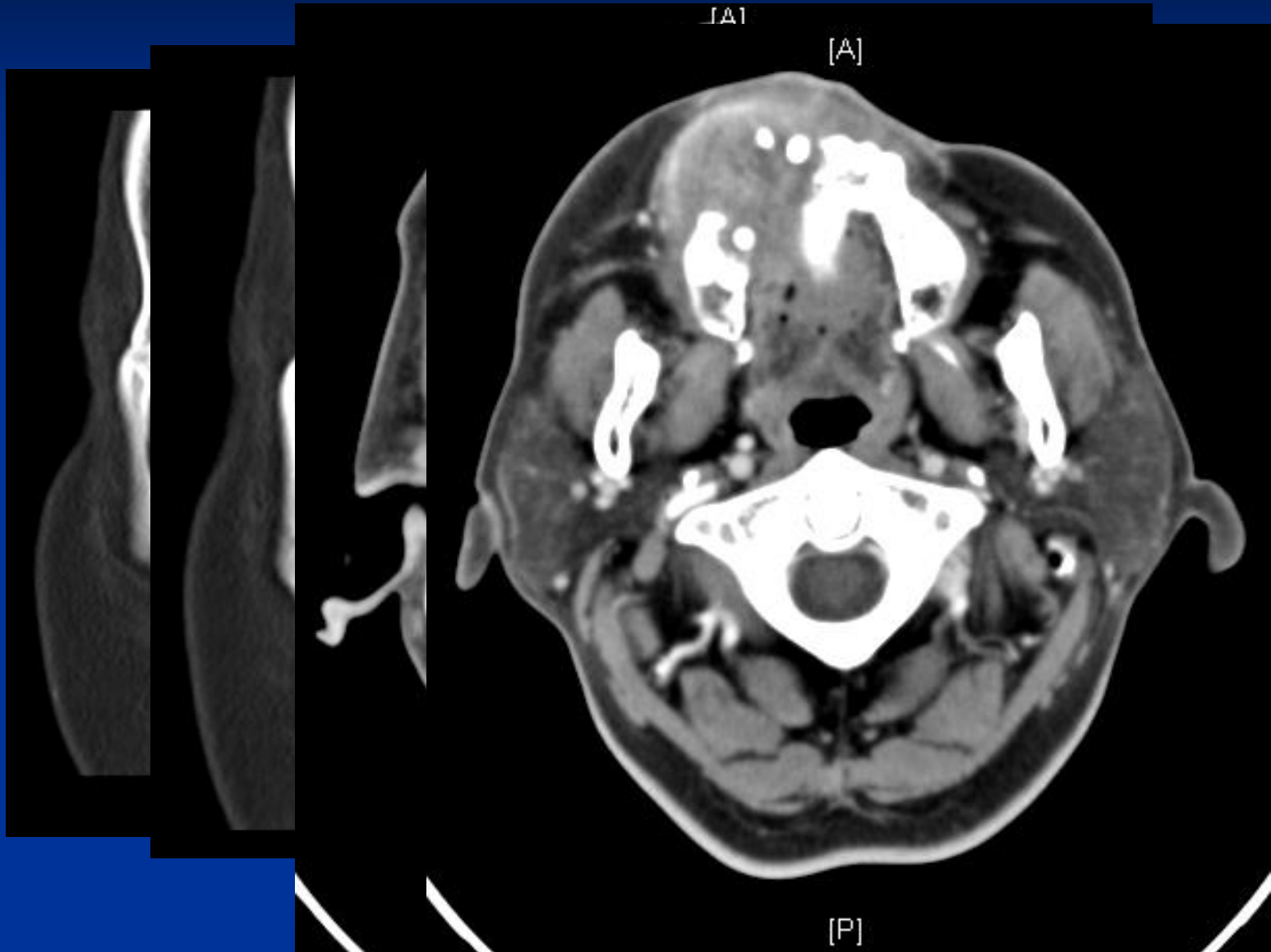
- Removal of most of the maxilla
- Leaving some suprastructure for orbital support
- Best performed via a Weber-Ferguson incision with Dieffenbach extension



Subtotal Maxillectomy



Subtotal Maxillectomy



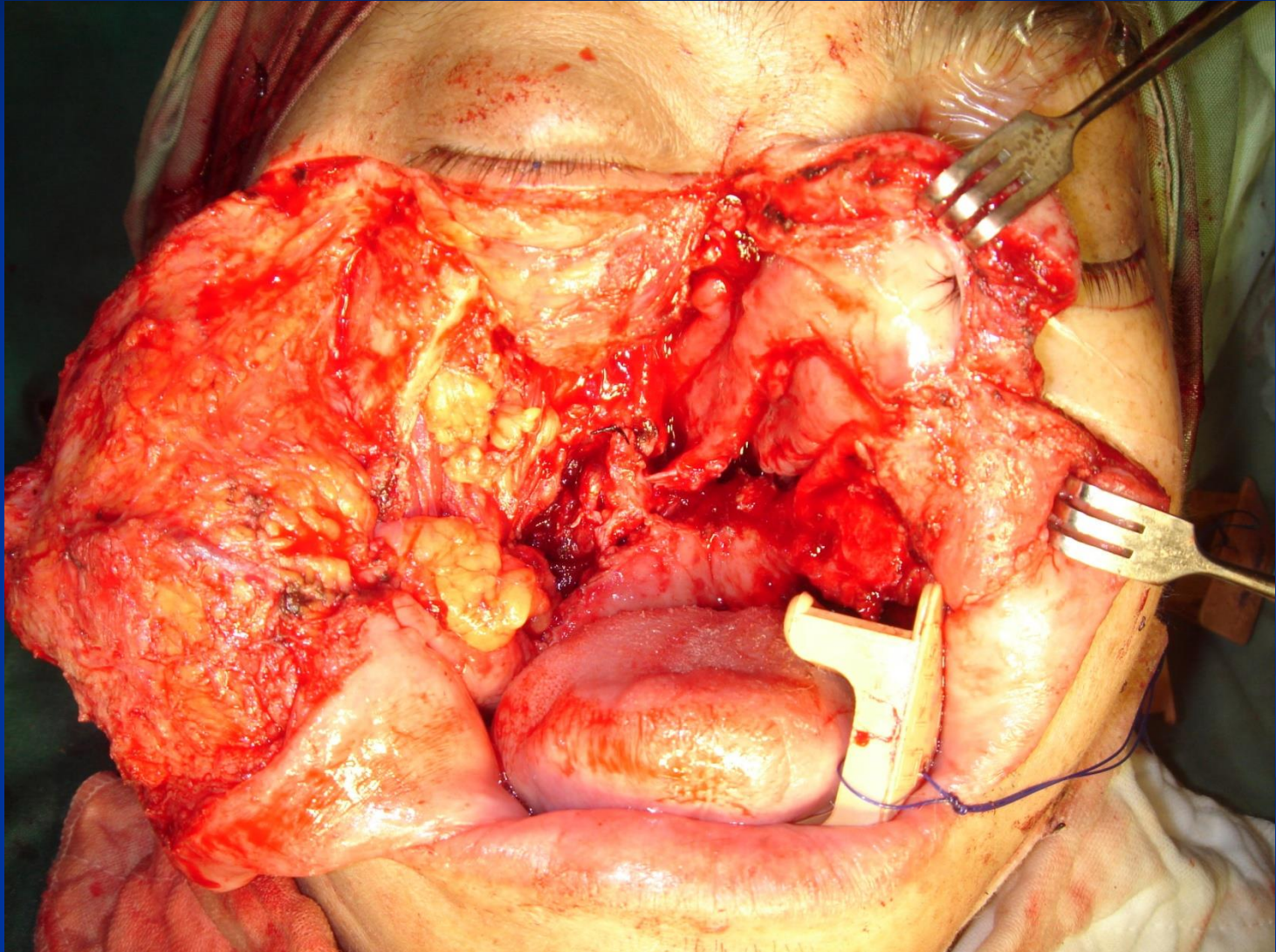
Subtotal Maxillectomy



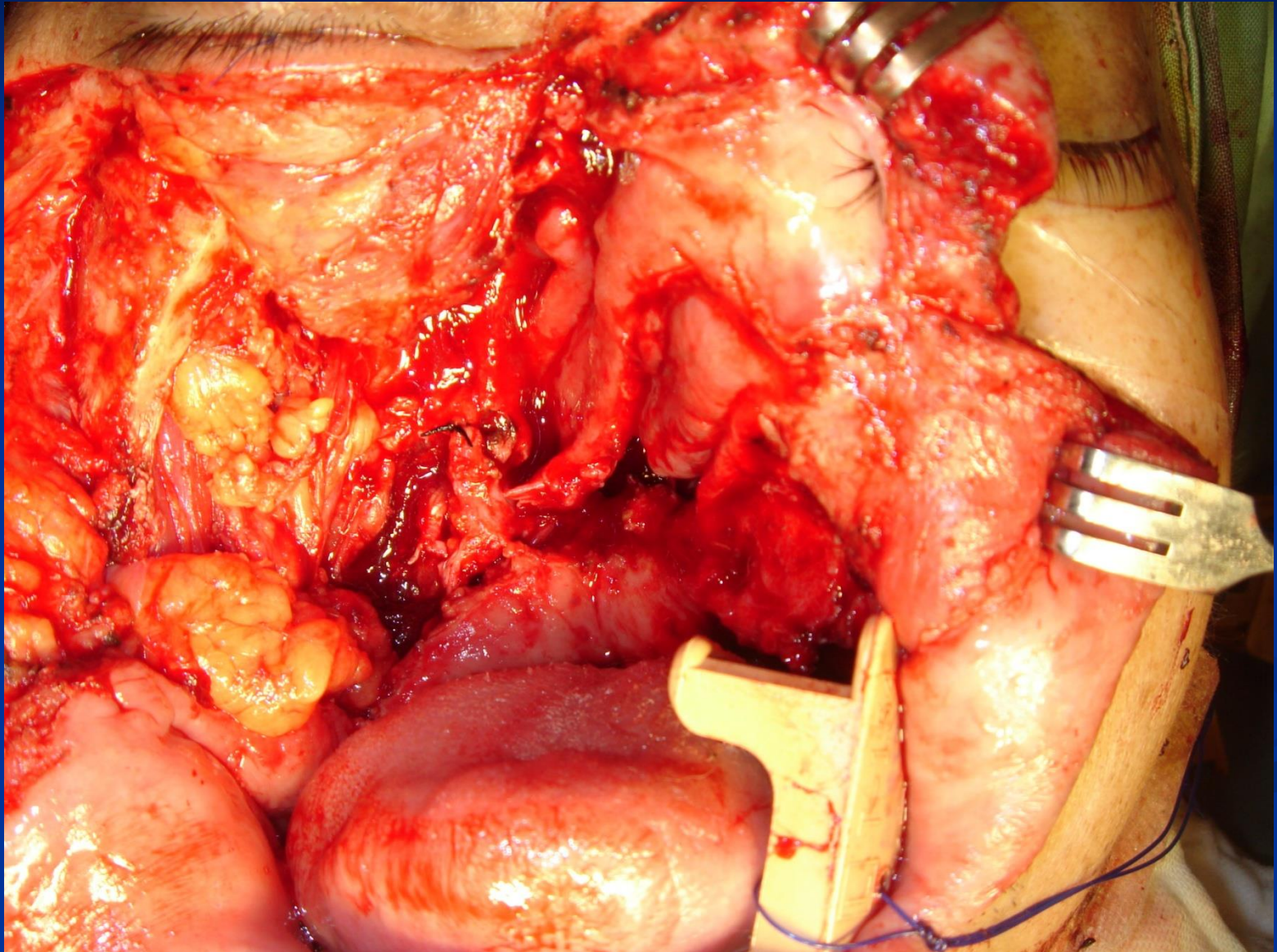
Subtotal Maxillectomy



Subtotal Maxillectomy



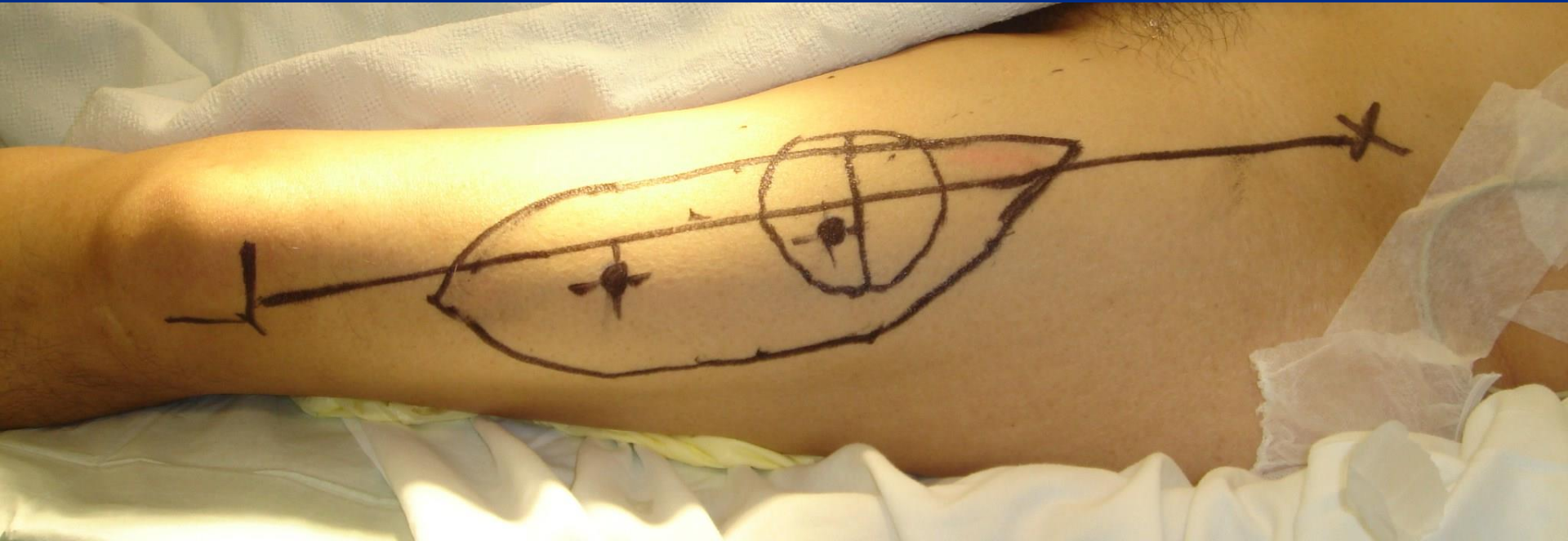
Subtotal Maxillectomy



Subtotal Maxillectomy



Subtotal Maxillectomy



Subtotal Maxillectomy



Subtotal Maxillectomy

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[A]

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Study Date:06/10/2009
Study Time:15:17:55



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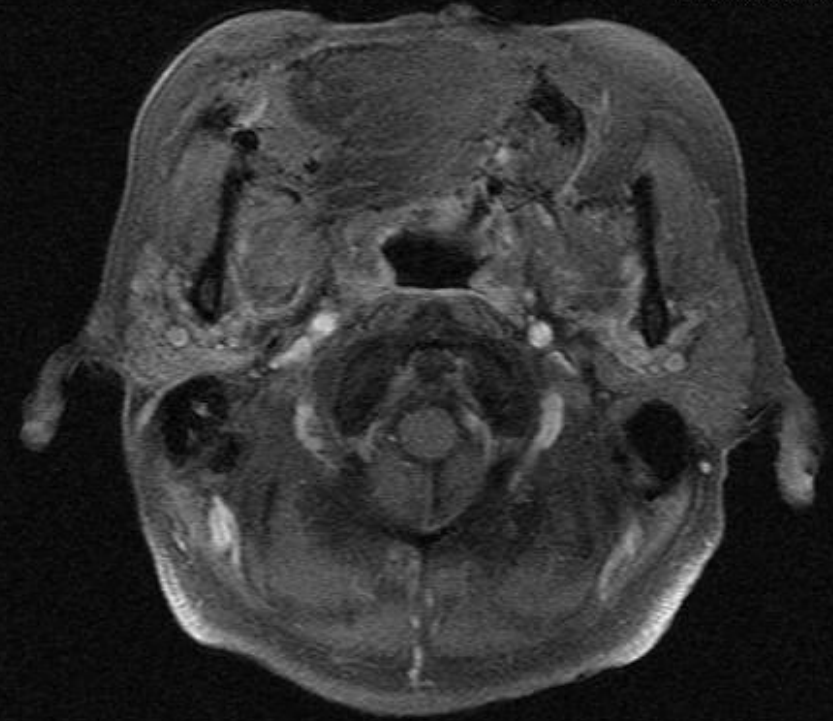
Yes DOT

[P]

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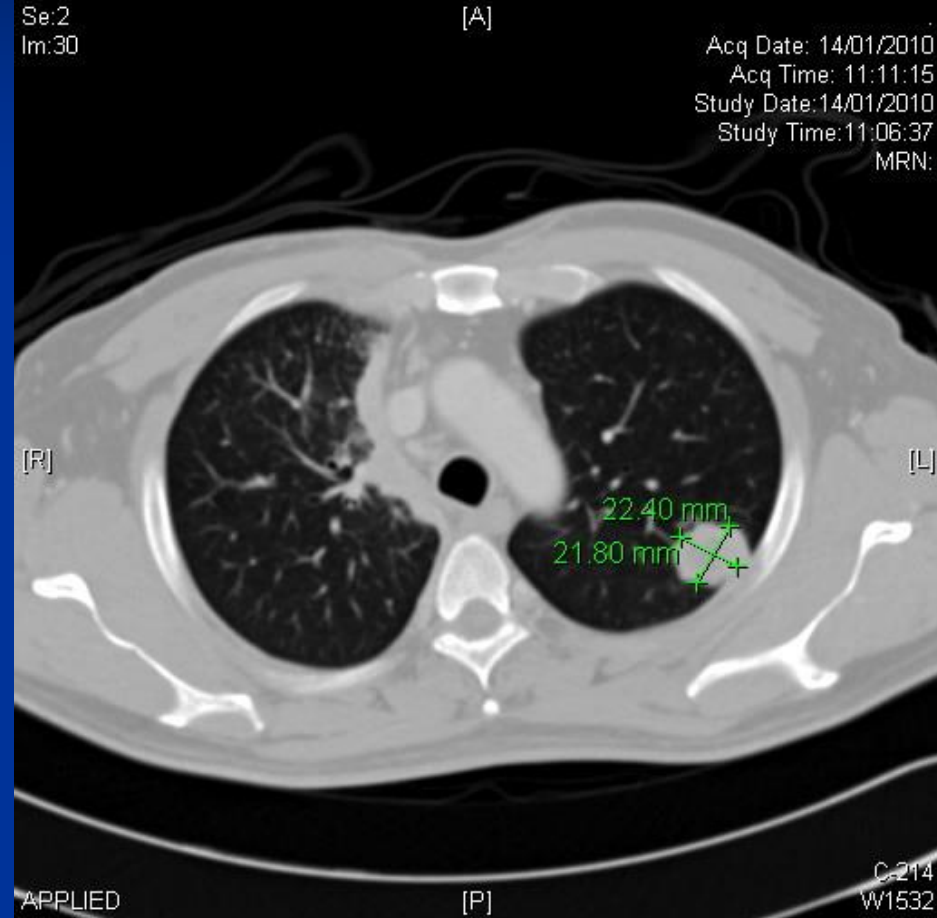
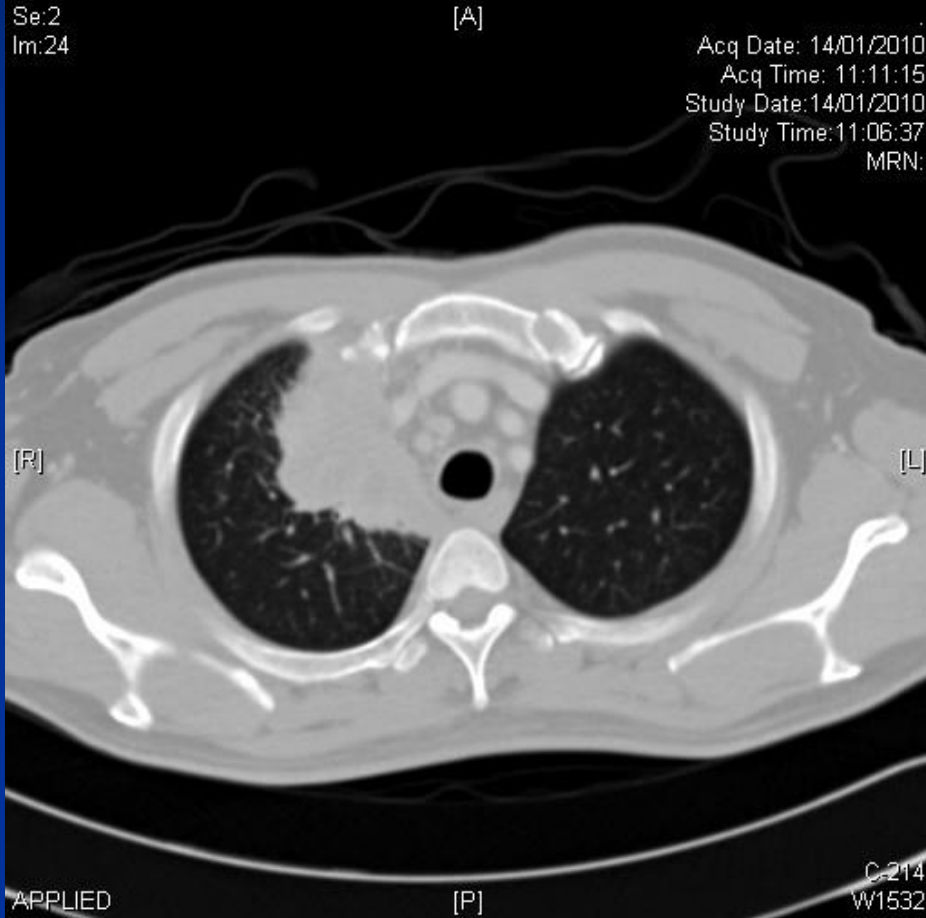
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Yes DOT

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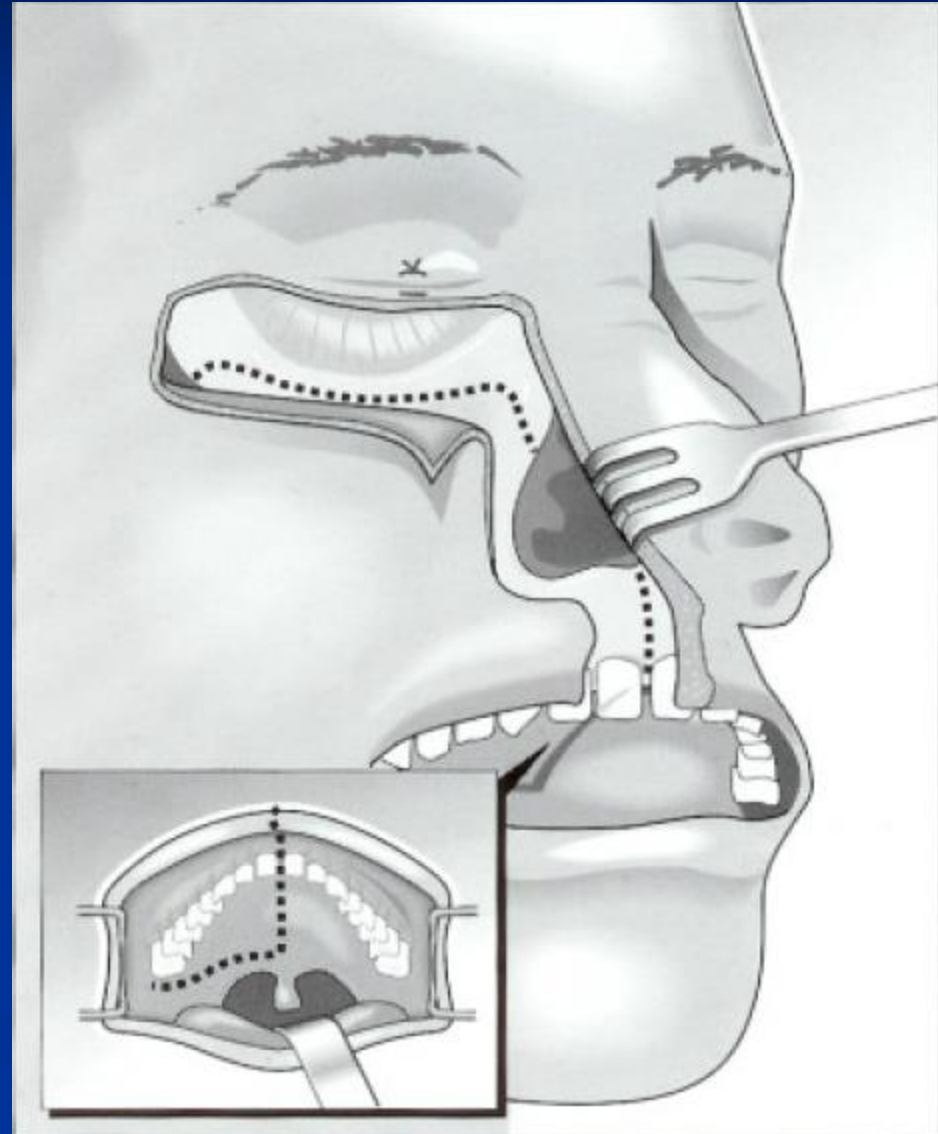
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Subtotal Maxillectomy



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)

