Management of Complex Facial Fractures

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- Nothing to disclose
- All patients have provided written consent

34 year old male involved in HSMVC
Fence post vs face
ED tell you he is ‘intubated through his eye and left face is missing’
PMH – healthy male
PSH- No prior surgeries
SH – non smoker, social ETOH, no drugs
Just returned from second tour in Afghanistan
Married – NICU nurse

Panfacial fractures
Complex set of fractures involving 2 or more regions
4 facial subunits

Initial Assessment
Trauma team – ABCDE’s
Care with nasal tubes
Imaging – CT
Associated injuries
Cervical Spine
Intracranial
Ocular
Other visceral
Examination

- Severe edema
- Ecchymoses – raccoon eyes
- Battle’s sign
- Round face
- Malocclusion
- Mobility of face
- Mobility of jaws
- Soft tissue injuries

Classification of Injuries

Timing of Surgical Repair

- C-Spine clearance
- Neurology clearance
- Ophthalmology clearance
- Trauma Surgery clearance
Facial Buttresses
• Resist the forces of trauma
• Best bone quality for fixation
• Critical for re-establishing facial projection, height and width

Goals of Reconstruction
• Restore facial angularity and shape
• Restore vertical height
• Restore horizontal width
• Restore anterior projection
• Restore esthetics
• Restore occlusion

Sequencing of Panfacial Fractures
• ‘Inside-out, bottom-to-top’
• ‘Out-to-in, top-to-bottom’
• ‘Bottom-to-top-to-middle’
‘Inside-out, bottom-to-top’

- Pan Facials may be divided into two facial halves separated at the Le Fort I level
  - Upper half is the frontal and midface unit
  - Lower half is the occlusal and basal unit

‘Out-to-in, top-to-bottom’

- Merville 1974 and Gruss 1986
- Outer frame – zygomatic arch, zygoma, frontal bar
- Inner frame – NOE, orbits
- Maxilla at Le Fort I
- Maxillomandibular fixation
- Mandible

‘Bottom-to-top-to-middle’

- Manson and Kelly et al 1990
- Reconstruction of the mandible including subcondylar fx’s
- Reconstruction of the sagittal maxillary fx’s 1st if present
- Maxillomandibular fixation
- Frontal and temporal regions
- Outer facial frame – root of ZMA, progressing to the orbits
- Last reduction and stabilization of Le Fort I
Soft Tissue Resuspension

• Reposition the Detached Soft Tissues to their Proper Position on the Bone

Operative Plan

- Tracheostomy
- ORIF of fractures
  - Bottom to top to middle
  - Mandible -> Zygomatic arch -> Maxilla/ZMC -> Orbit
- Fabrication of palatal splint (dental impressions)
- Closure of complex lacerations
- Ophthalmology consult
- Otolaryngology consult
• 32 y/o M, struck in face and chest with pressurized round metal object “8”x1” at work
• Significant facial injury and bleeding —> Intubated in the field
• PMhx: Healthy
• Meds: None
• NKDA
• Soc Hx: Machinist/Pipefitter helper. Married. No EtOH/T/IVD

Assessment and Plan

• Fx right parasymphysis of mandible
• Anterior mandible dentoalveolar fracture
• Combination Le Fort I, II, III fractures
• Palatal fracture
• ZOMC
• Left NOE fracture
• Missing and loose teeth
• Complex facial lacerations
• Stage I: Tracheotomy + ORIF Mandible fx
• Stage II: Repair of Midface fx
Summary

- Get premorbid photographs
- Reestablish facial width, height and A-P projection
- Go from known to unknown
- Try to find key landmarks
  - The greater wing of sphenoid provides a good guide to zygomatic width and inadequate anterior projection when uninjured
- Aline teeth and occlusion
- Re suspend soft tissues
- Prepare pts and family that several surgeries may be required

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Thank you

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