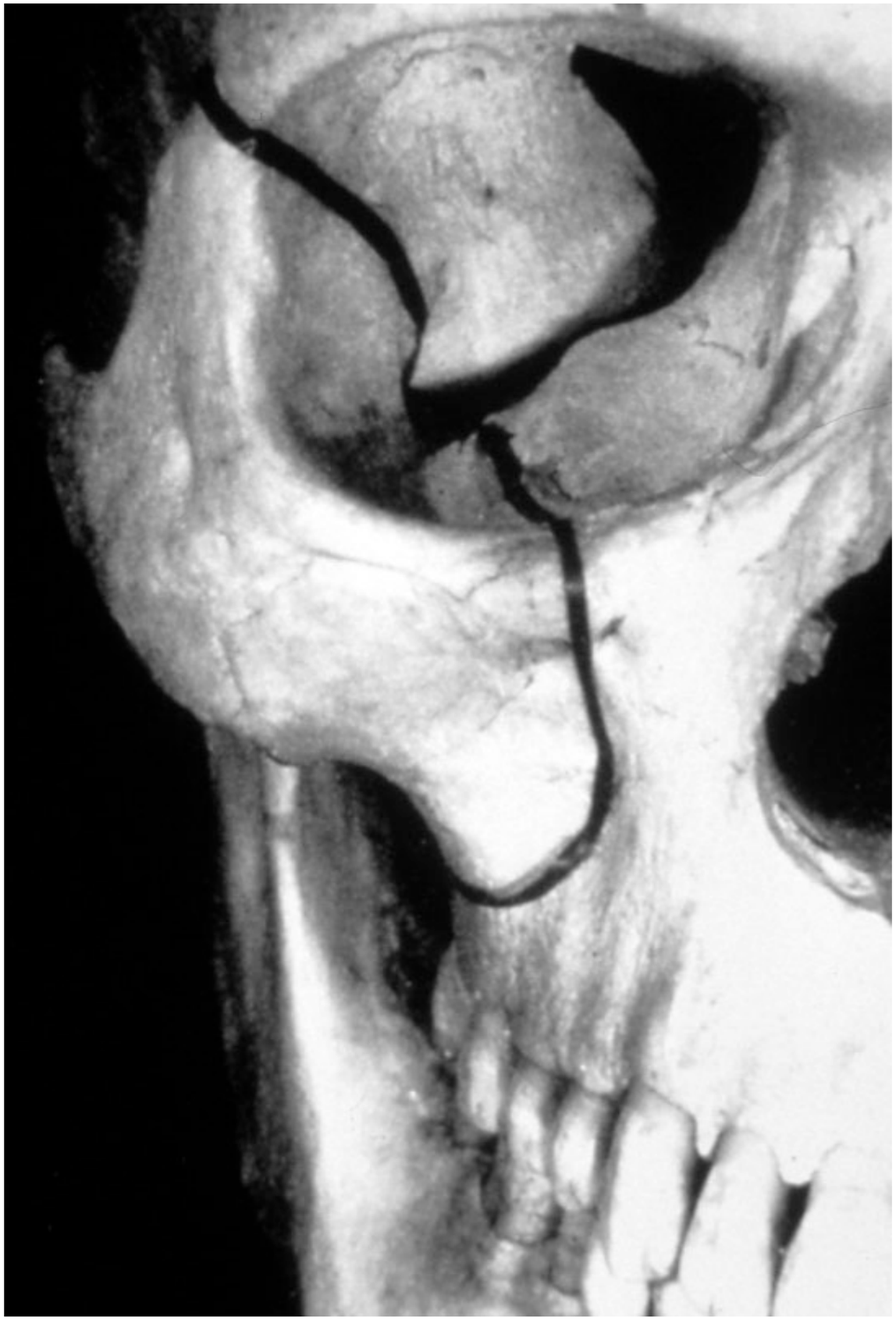
Maxillo-facial Conditions in the Emergency Department

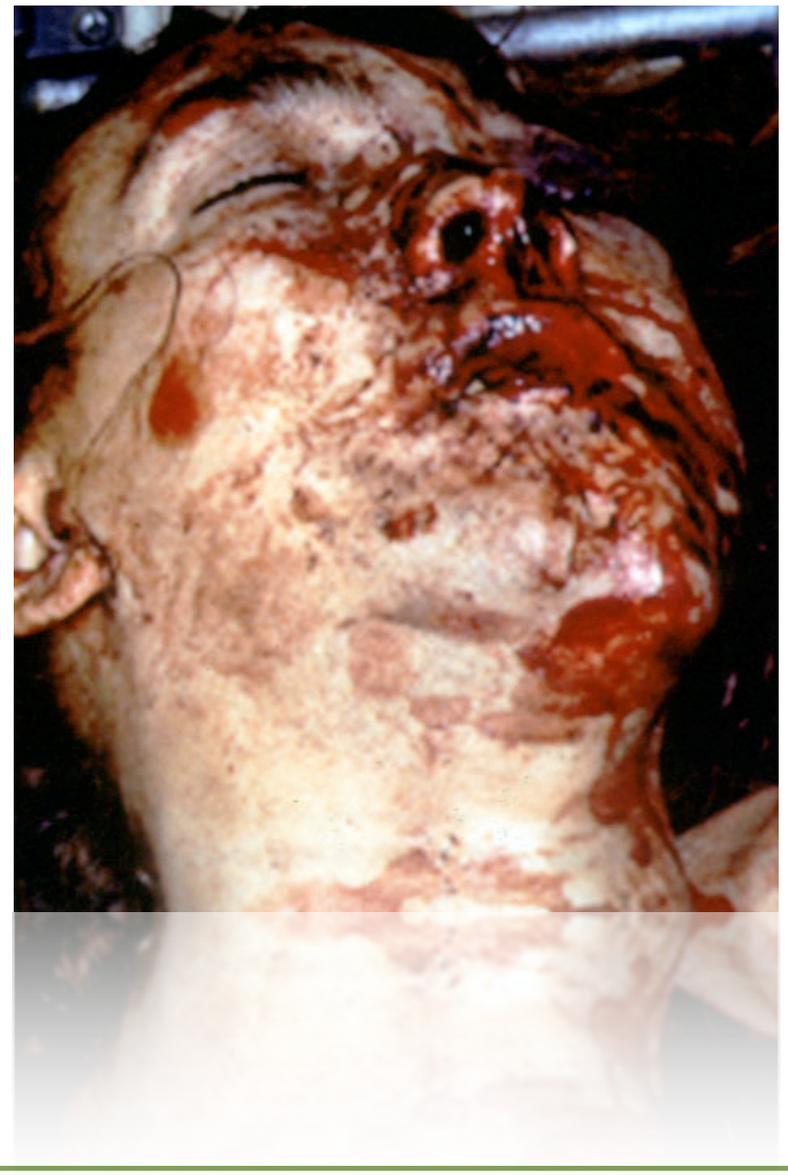
Mr Colin Dibble
Consultant in Emergency Medicine
North Manchester General Hospital

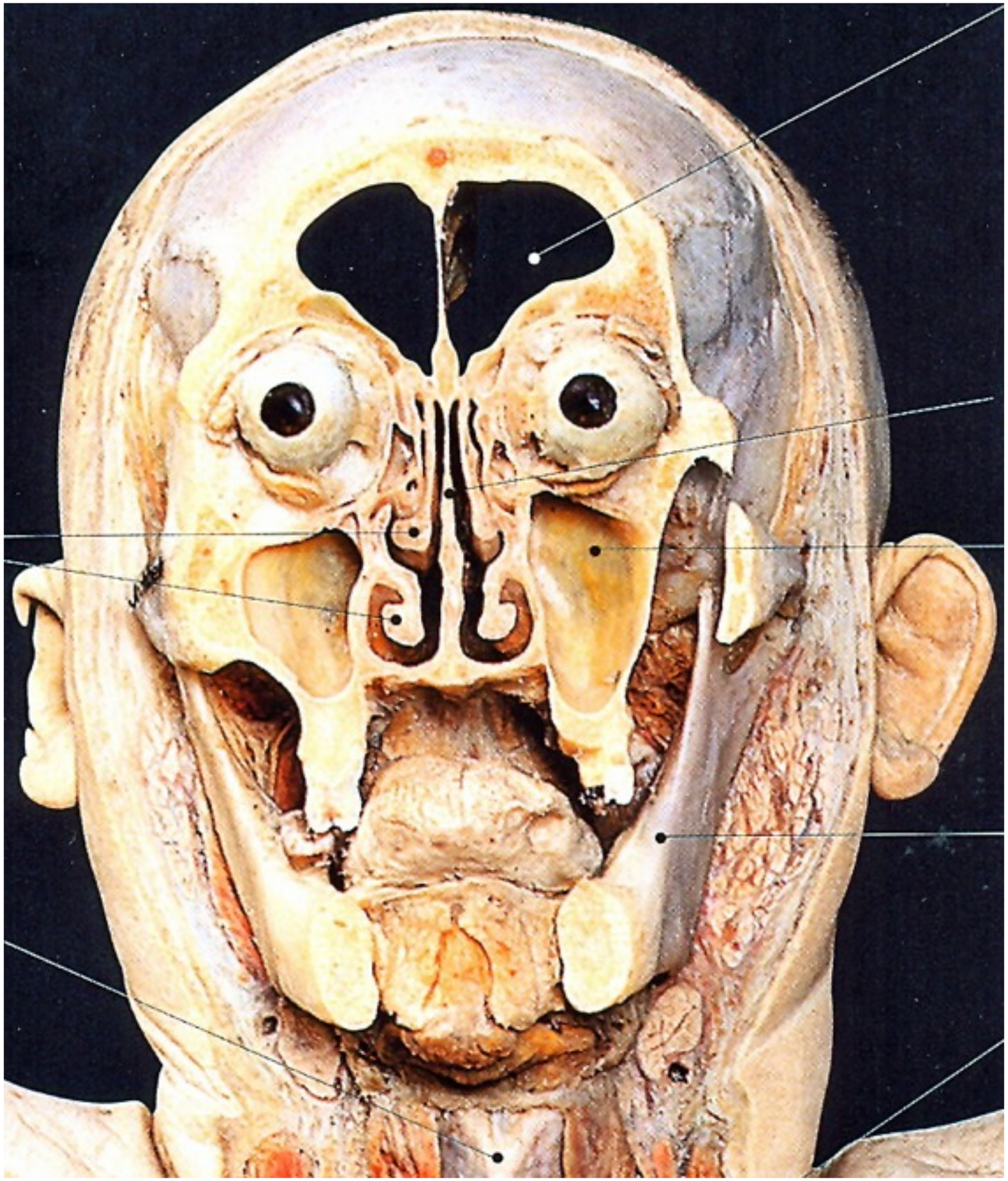


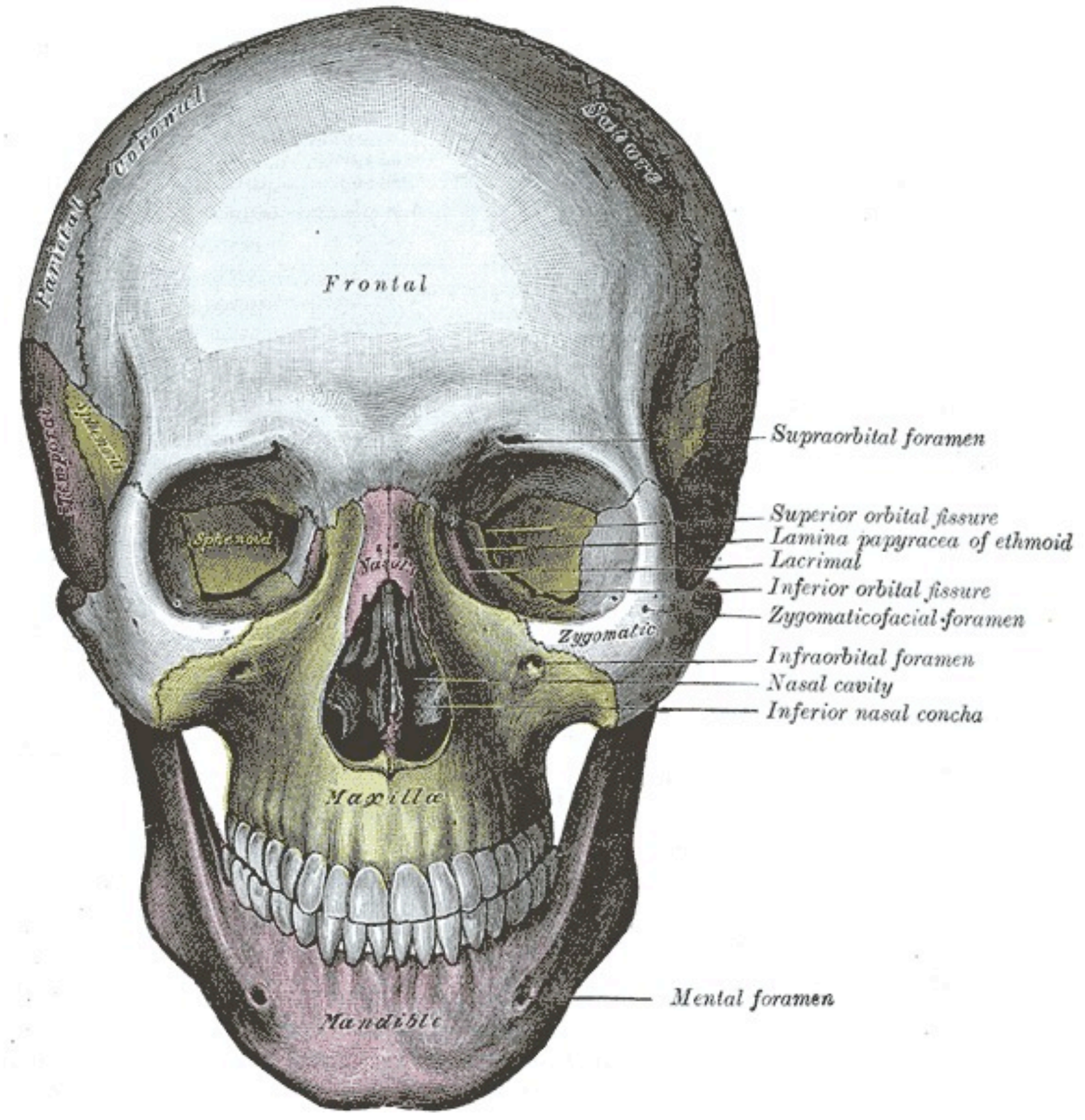
Objectives

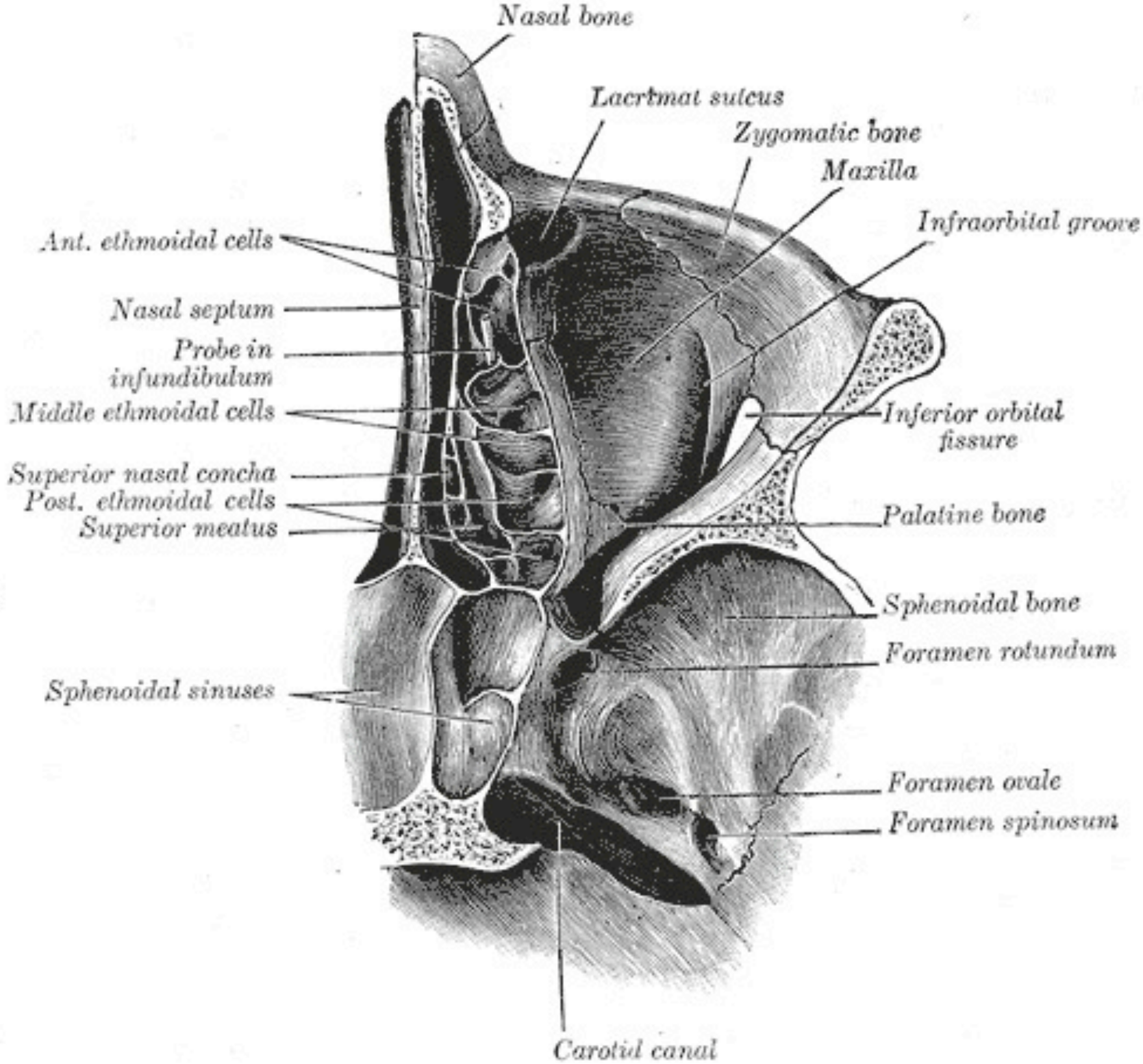
Learn About:

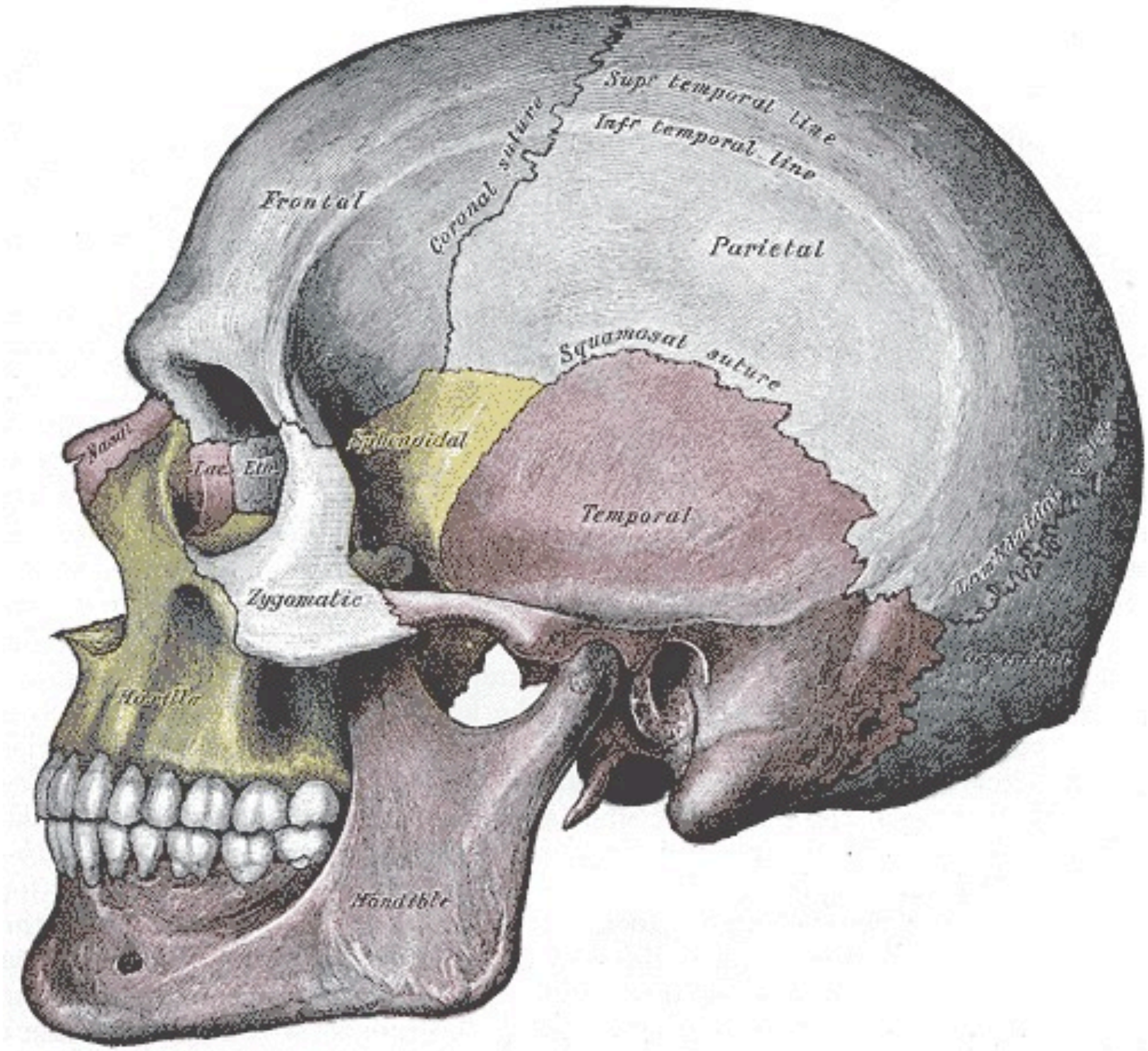
- Anatomy
- Facial lacerations
- Facial Fractures
- Dental injuries
- Dental Abscesses
- Mandibular Fractures/Dislocation
- Summary

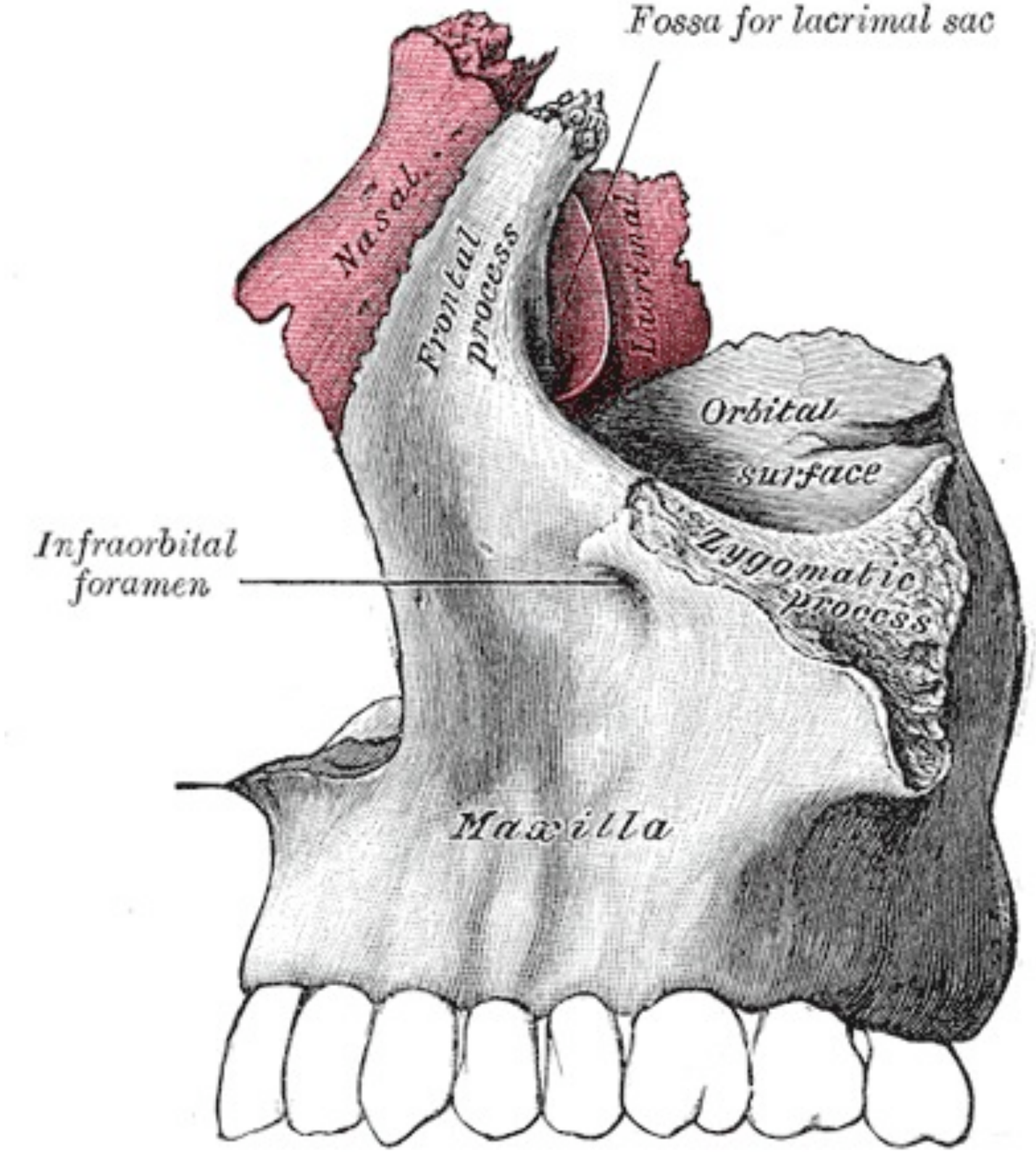


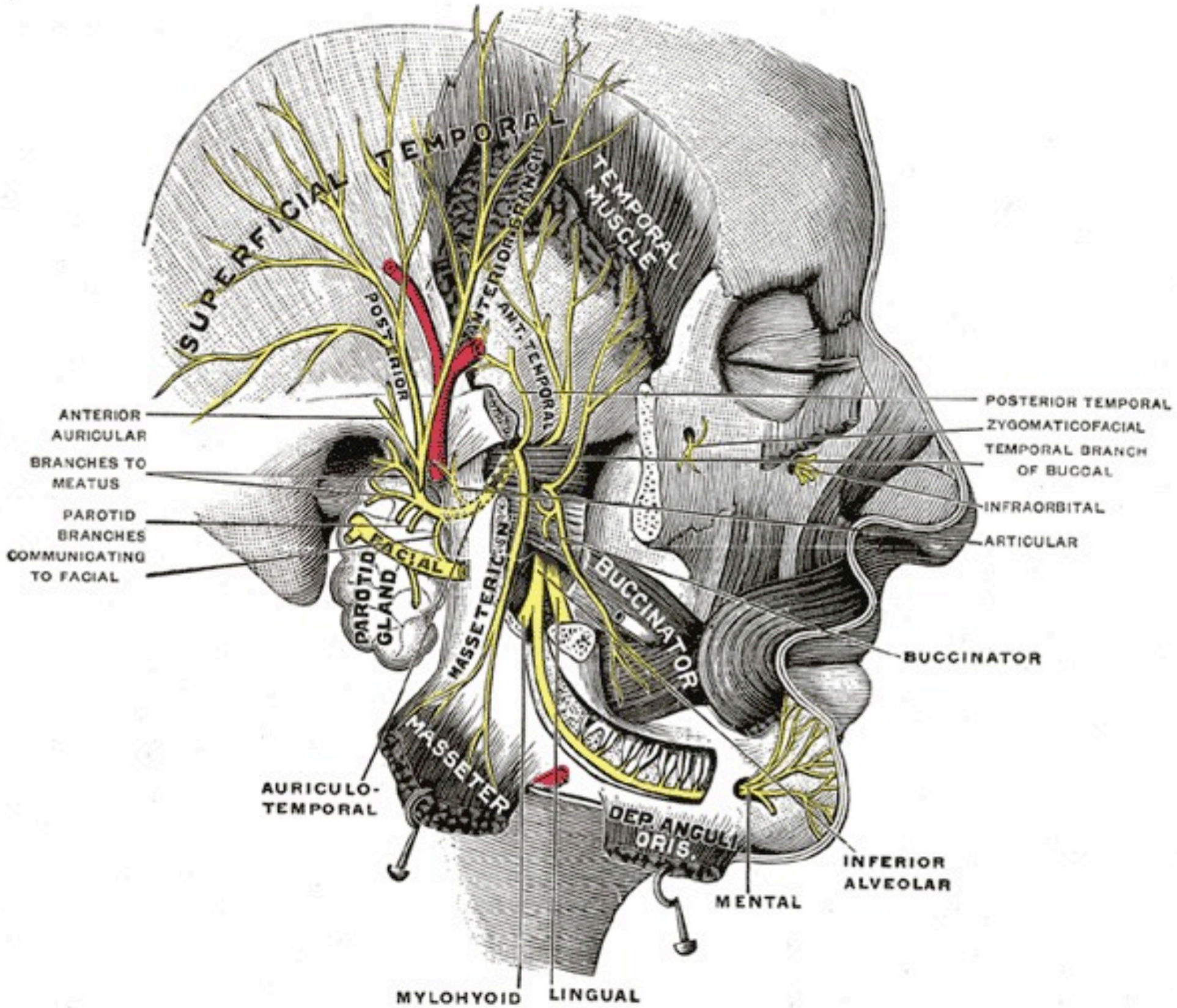


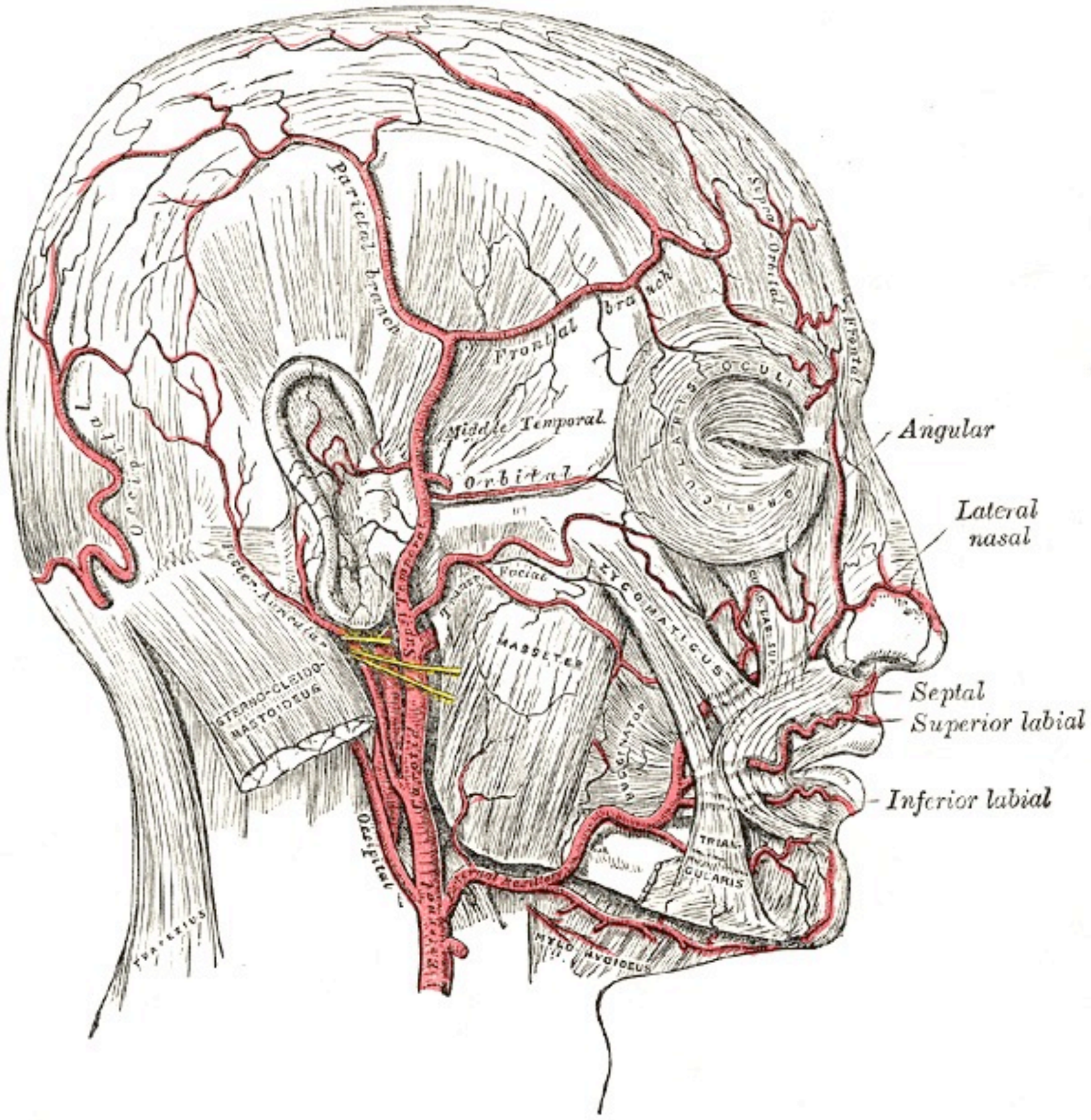

Parietal
Coronal
Suture
Frontal
Temporal
Sphenoid
Sphenoid
Nasal
Zygomatic
Maxillæ
Mandible
Supraorbital foramen
Superior orbital fissure
Lamina papyracea of ethmoid
Lacrimal
Inferior orbital fissure
Zygomaticofacial foramen
Infraorbital foramen
Nasal cavity
Inferior nasal concha
Mental foramen


Nasal bone
Lacrimal sulcus
Zygomatic bone
Maxilla
Infraorbital groove
Ant. ethmoidal cells
Nasal septum
Probe in infundibulum
Middle ethmoidal cells
Inferior orbital fissure
Superior nasal concha
Post. ethmoidal cells
Superior meatus
Palatine bone
Sphenoidal bone
Foramen rotundum
Sphenoidal sinuses
Foramen ovale
Foramen spinosum
Carotid canal


Frontal
Coronal suture
Supr temporal line
Infr temporal line
Parietal
Squamosal suture
Nasal
Lac.
Eth.
Sphenoidal
Temporal
Zygomatic
Maxilla
Mandible

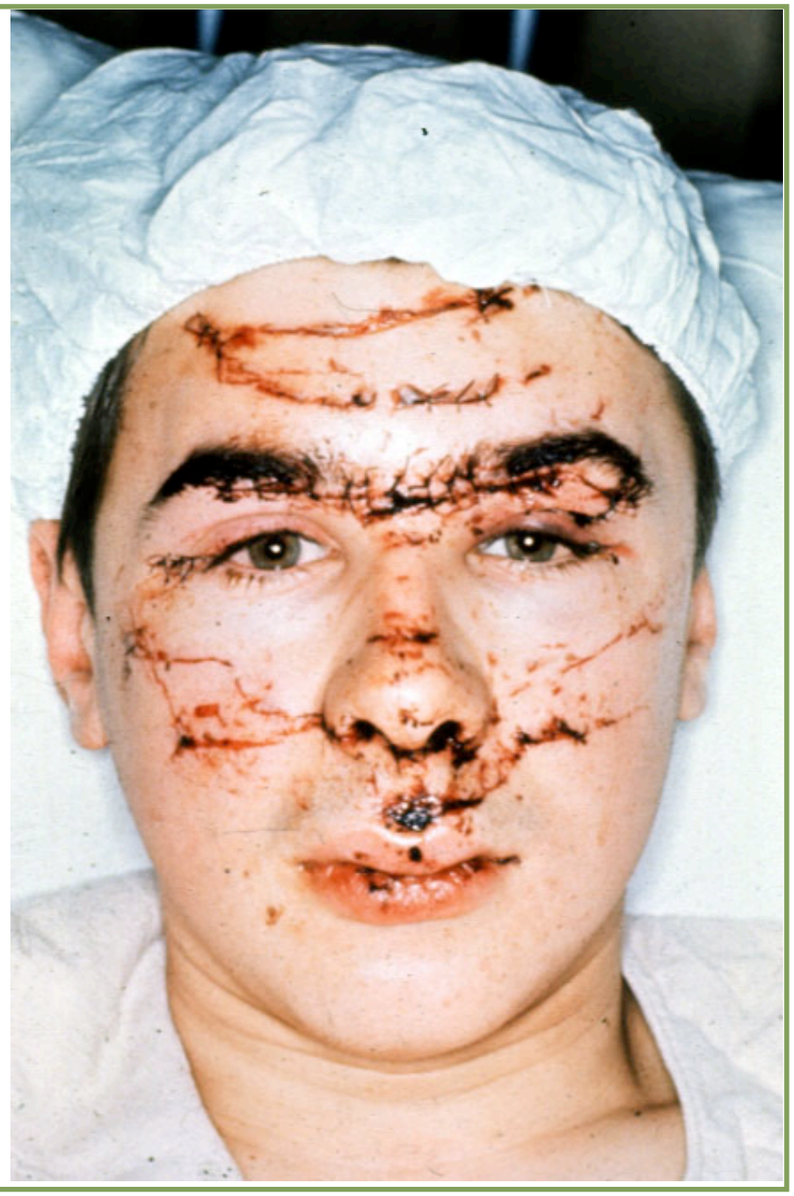

Fossa for lacrimal sac
Nasal
Frontal process
Lacrimal
Orbital surface
Zygomatic process
Infraorbital foramen
Maxilla


SUPERFICIAL TEMPORAL
POSTERIOR
ANTERIOR BRANCH
ANT. TEMPORAL
TEMPORAL MUSCLE
ANTERIOR AURICULAR
BRANCHES TO MEATUS
PAROTID BRANCHES COMMUNICATING TO FACIAL
FACIAL
PAROTID GLAND
MASSETERIC
BUCCINATOR
MASSETER
AURICULO-TEMPORAL
DEP. ANGULI ORIS.
MYLOHYOID
LINGUAL
POSTERIOR TEMPORAL
ZYGOMATICOFACIAL
TEMPORAL BRANCH OF BUCCAL
INFRAORBITAL
ARTICULAR
BUCCINATOR
INFERIOR ALVEOLAR
MENTAL


Parietal branch
Occipital
Frontal branch
Supra-Orbital
Frontal
Middle Temporal
Orbital
Angular
Lateral nasal
Facial
Transverse Facial
ZYGOMATICUS
MASSETER
Septal
Superior labial
Inferior labial
STERNO-CLEIDO-MASTOIDEUS
TRIANGULARIS
TRIANGULARIS
TRAPEZIUS
MYLO-HYOIDEUS

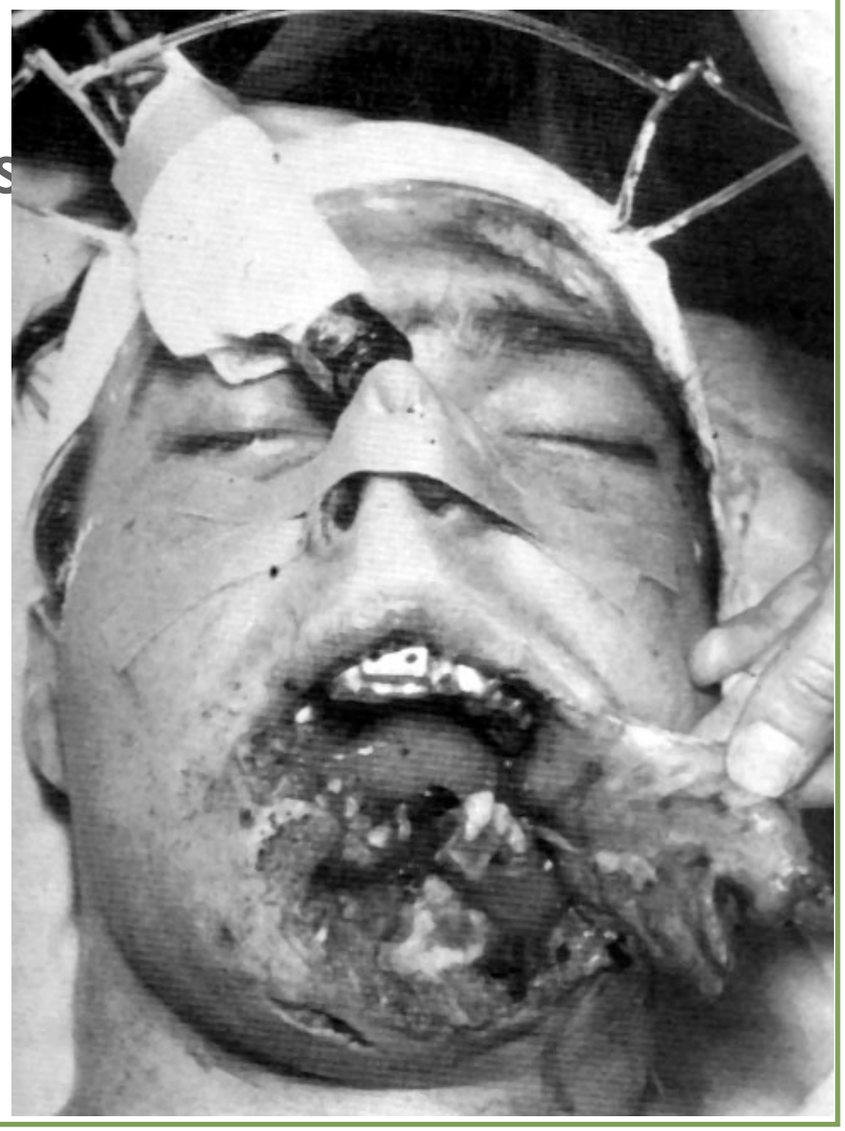
Facial Lacerations

- Often bleed heavily.
- Need fine 5-6/0 nylon for repair (in layers if required).
- Refer (unless you have particular experience):
  - Through and through lip,
  - Through the vermillion border of lip,
  - Complex nasal or lip lacerations.
- Bite wounds can also be repaired.



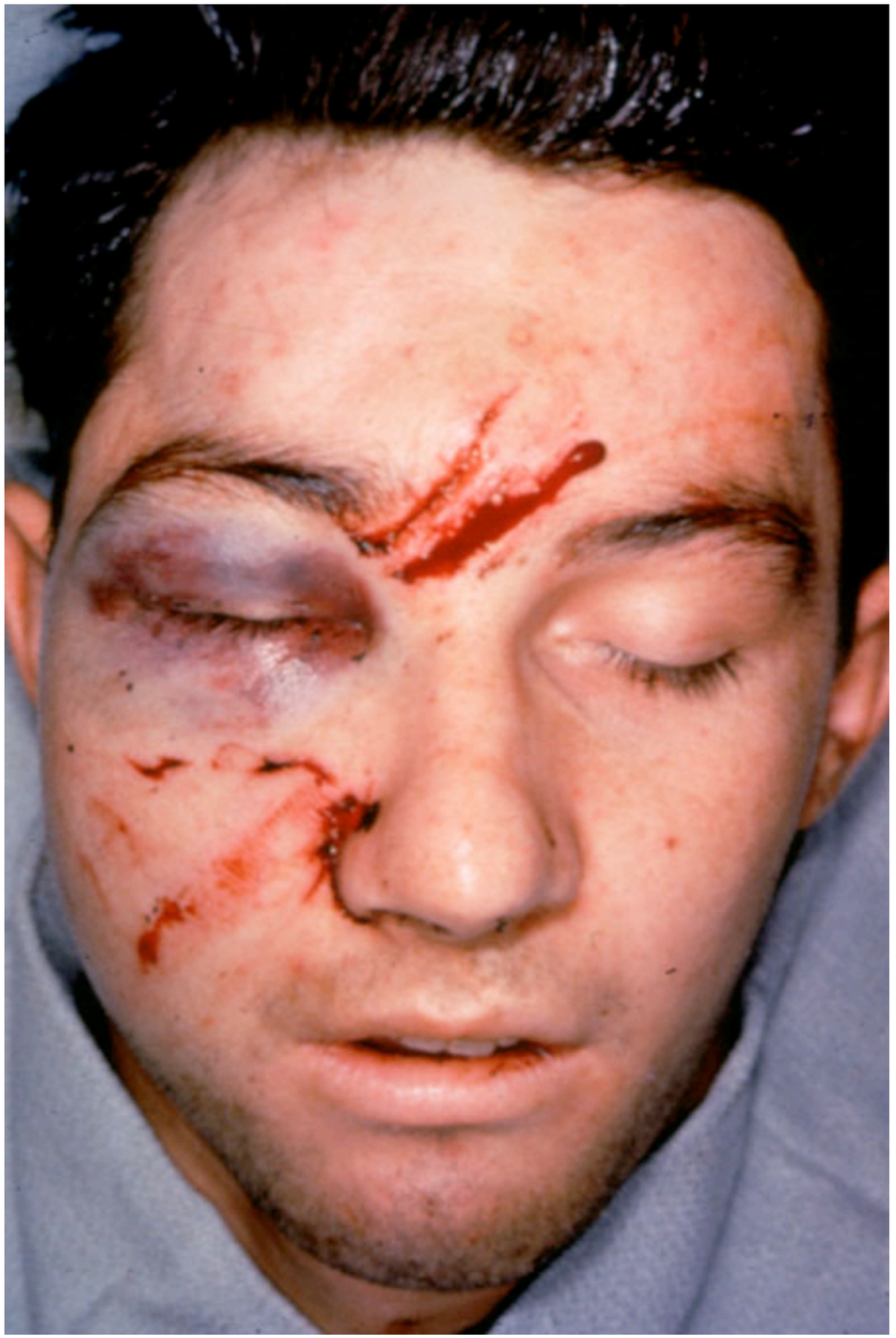
Facial Lacerations

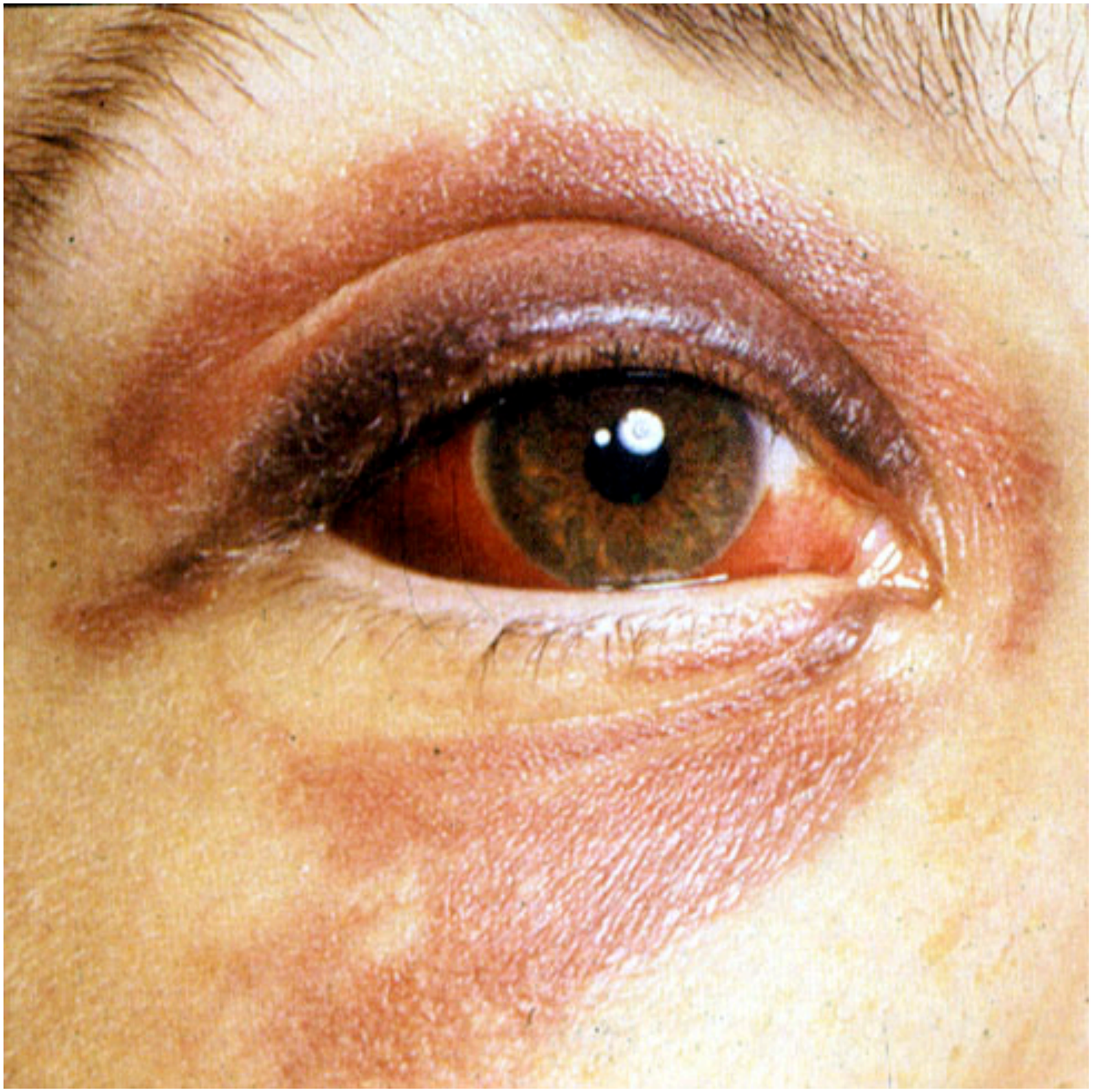
- Often bleed heavily.
- Need fine 5-6/0 nylon for repair (in layers if required).
- Refer (unless you have particular experience):
  - Through and through lip,
  - Through the vermillion border of lip,
  - Complex nasal or lip lacerations.
- Bite wounds can also be repaired.

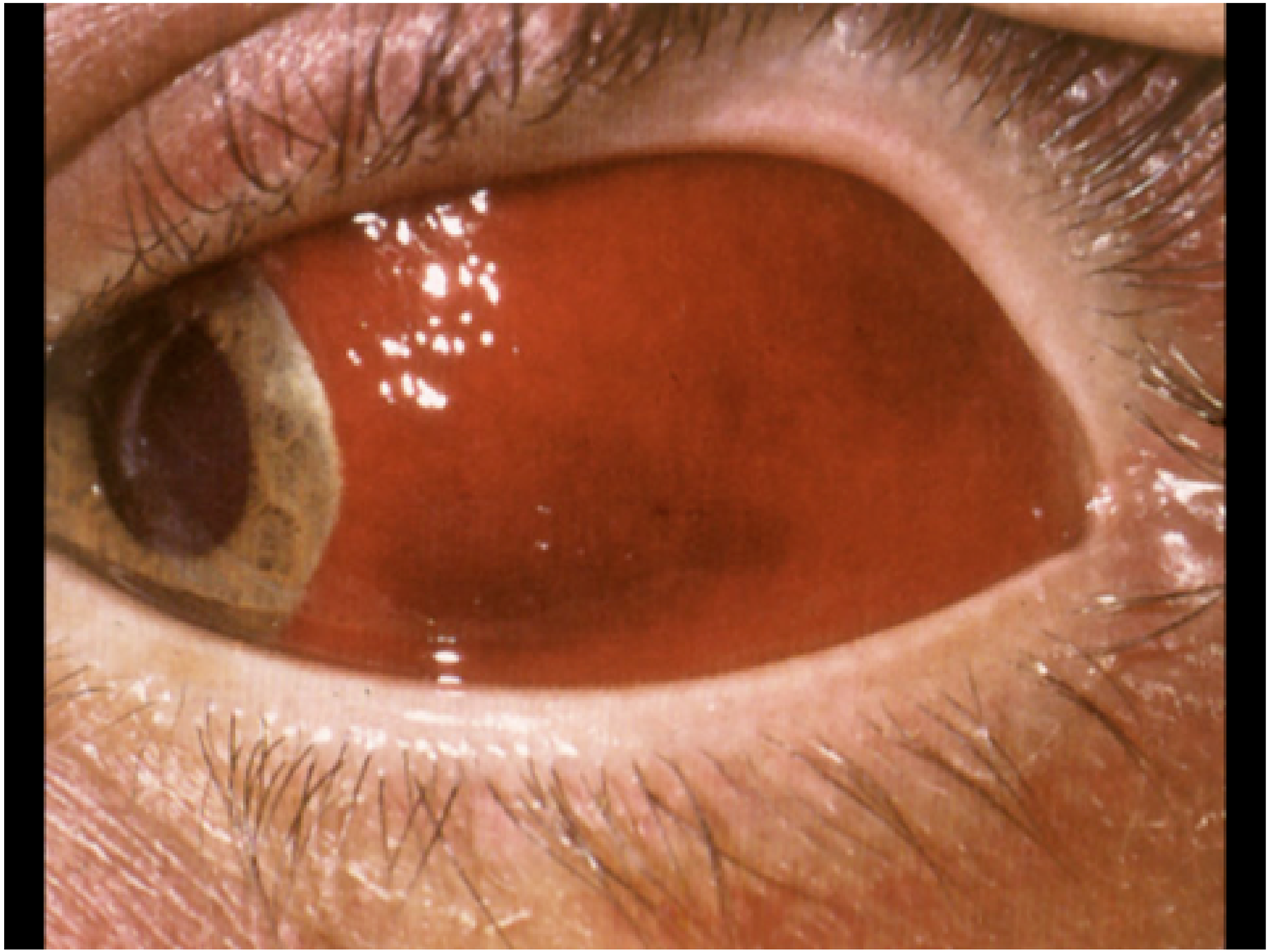


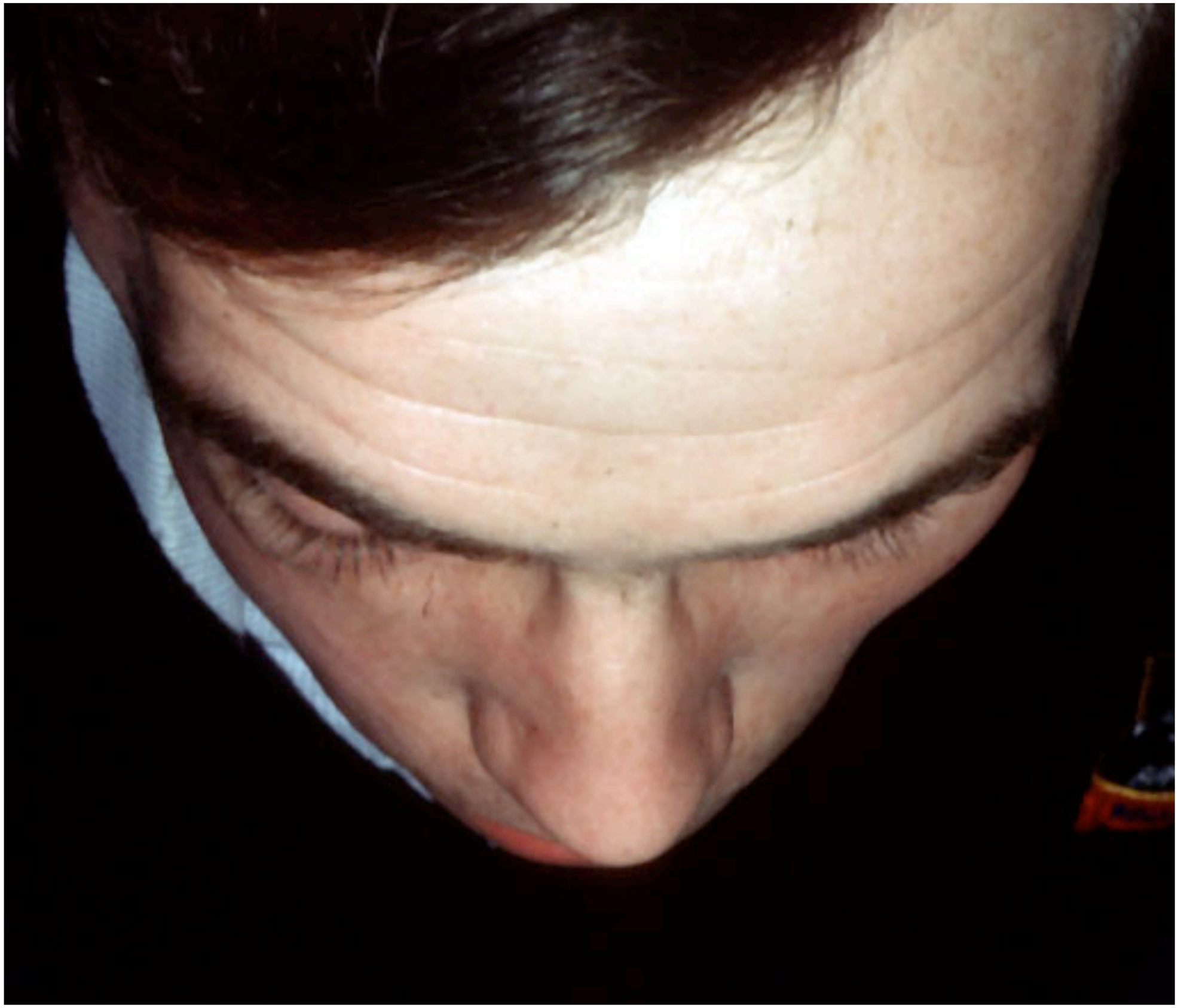
Facial Fractures

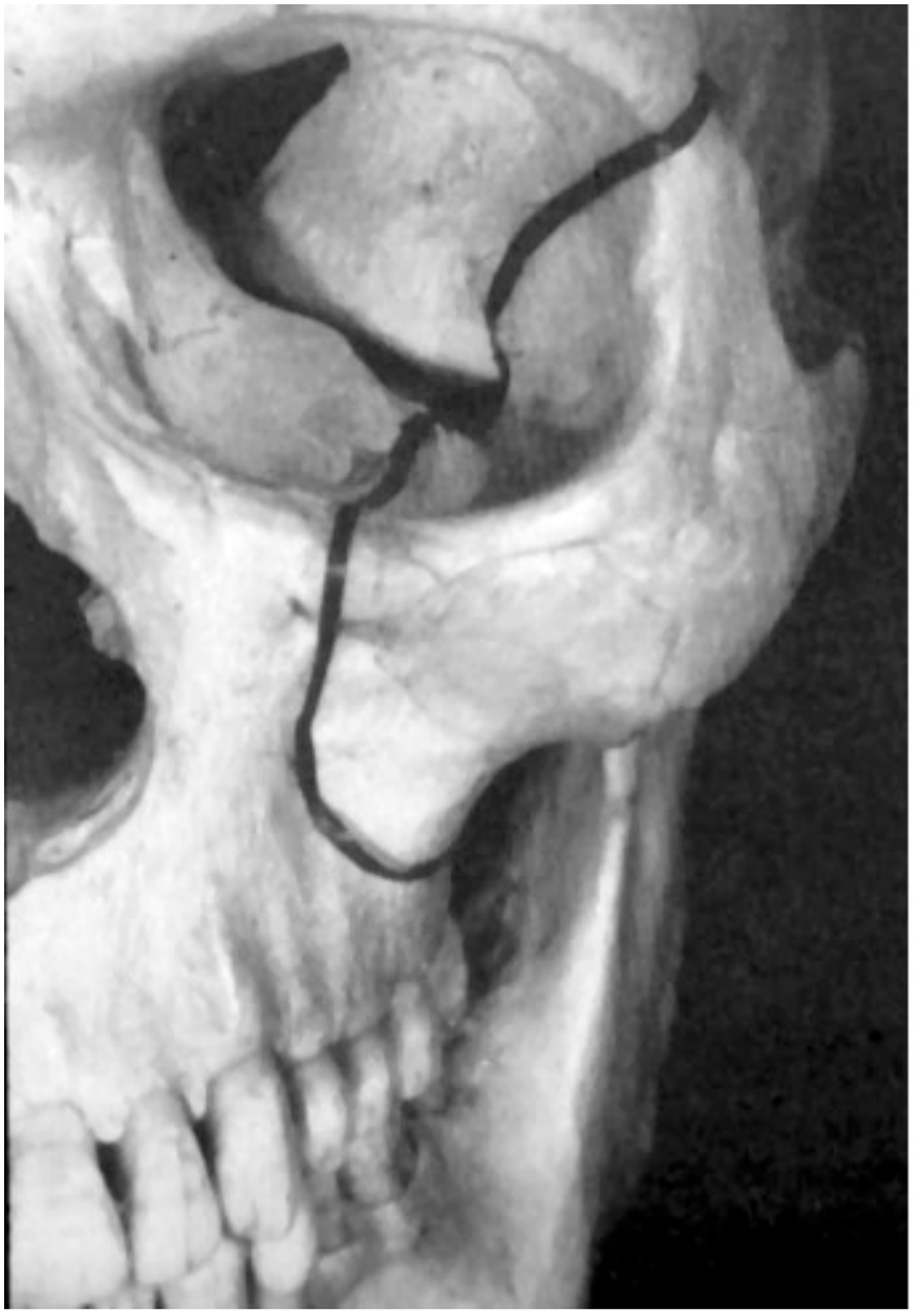
- Direct blows e.g. assault, RTAs, falls from height etc.
- Le Fort fractures can cause life threatening haemorrhage and airway compromise.
- Suspect if numbness over cheek/upper teeth (infra-orbital nerve) or sub-conjunctival haemorrhage with no posterior limit, cheek flattening. Malocclusion.
- May have diplopia/ophthalmopegia, so always check.
- Peri-orbital ecchymosis, orbital rim step.

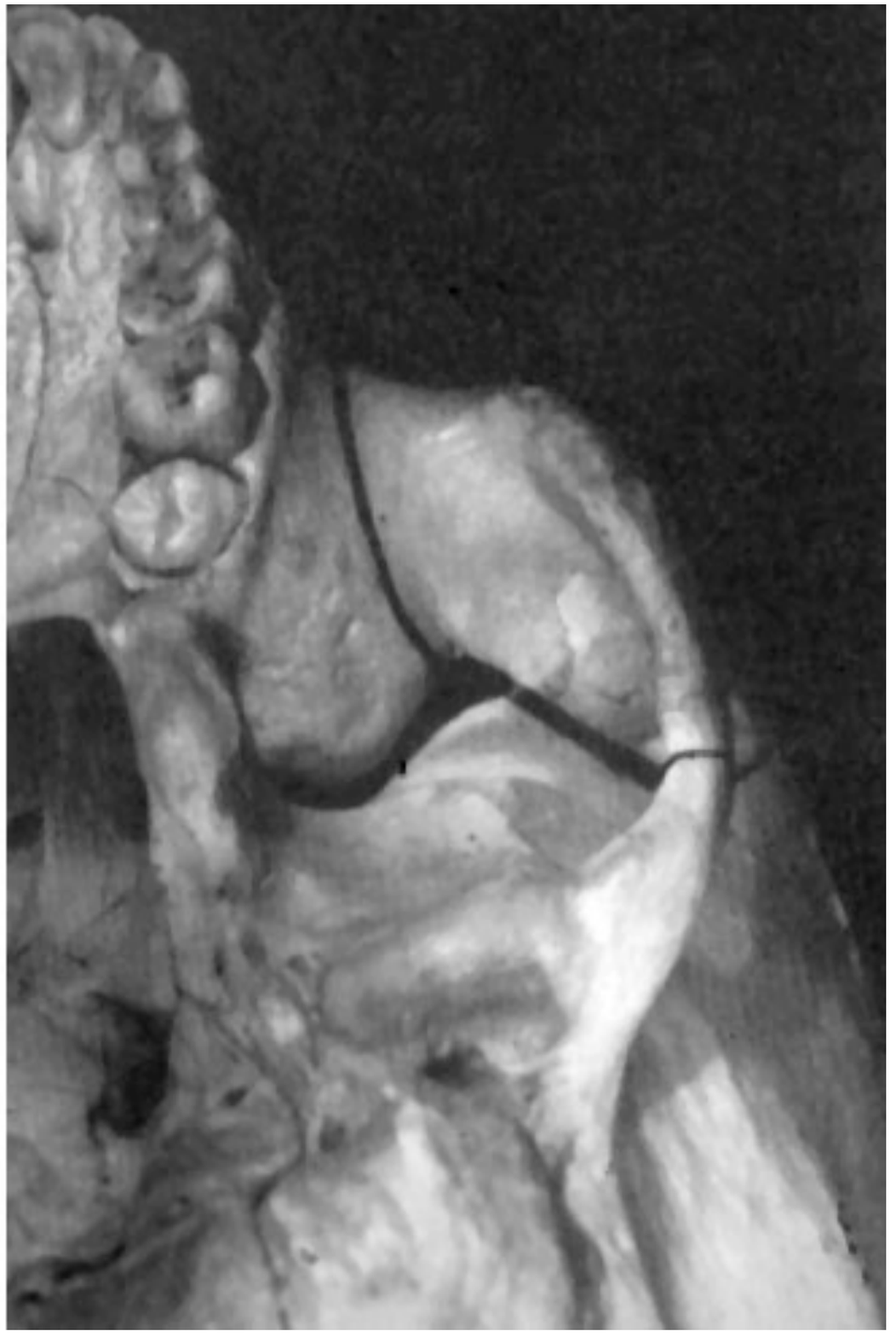


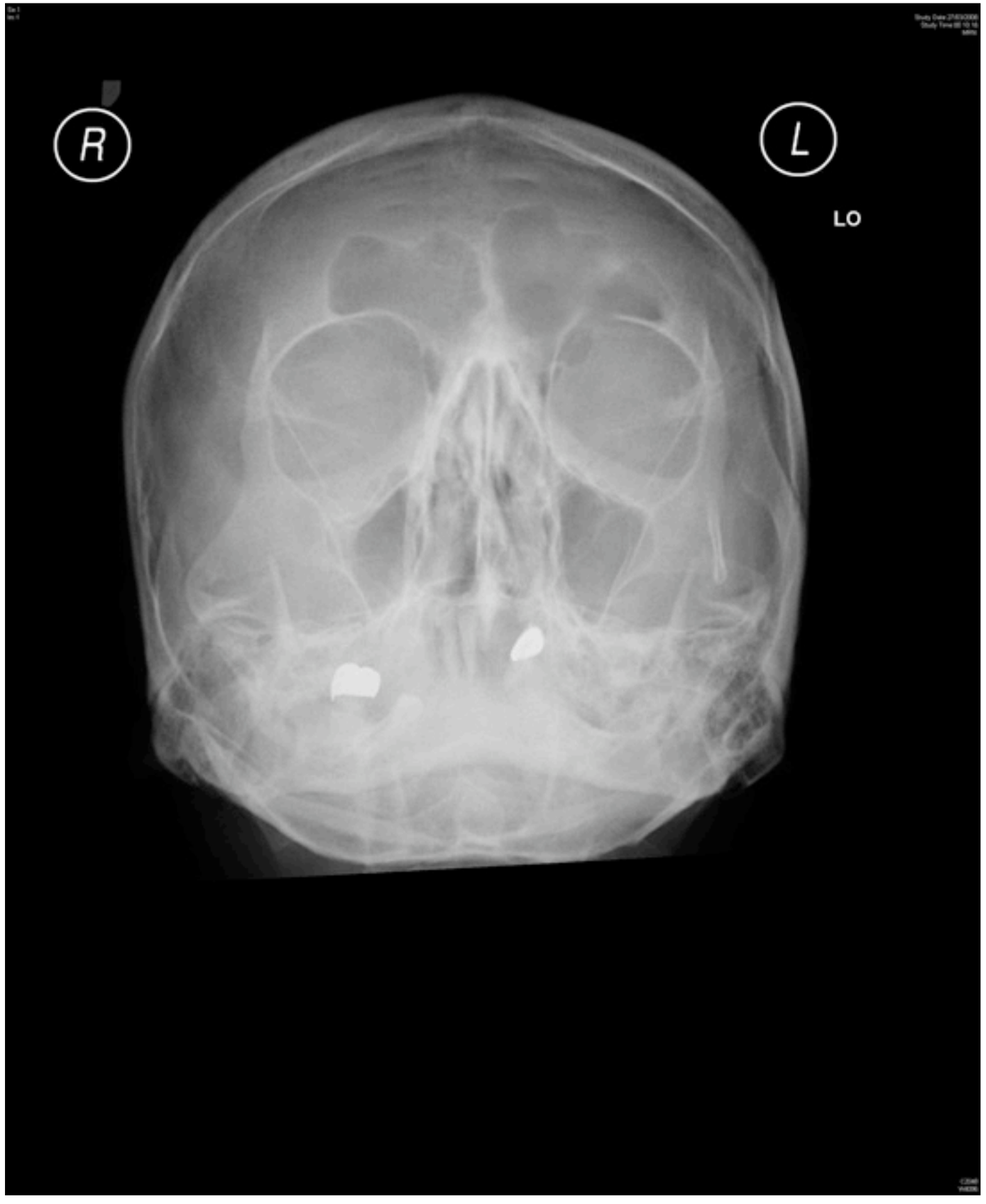


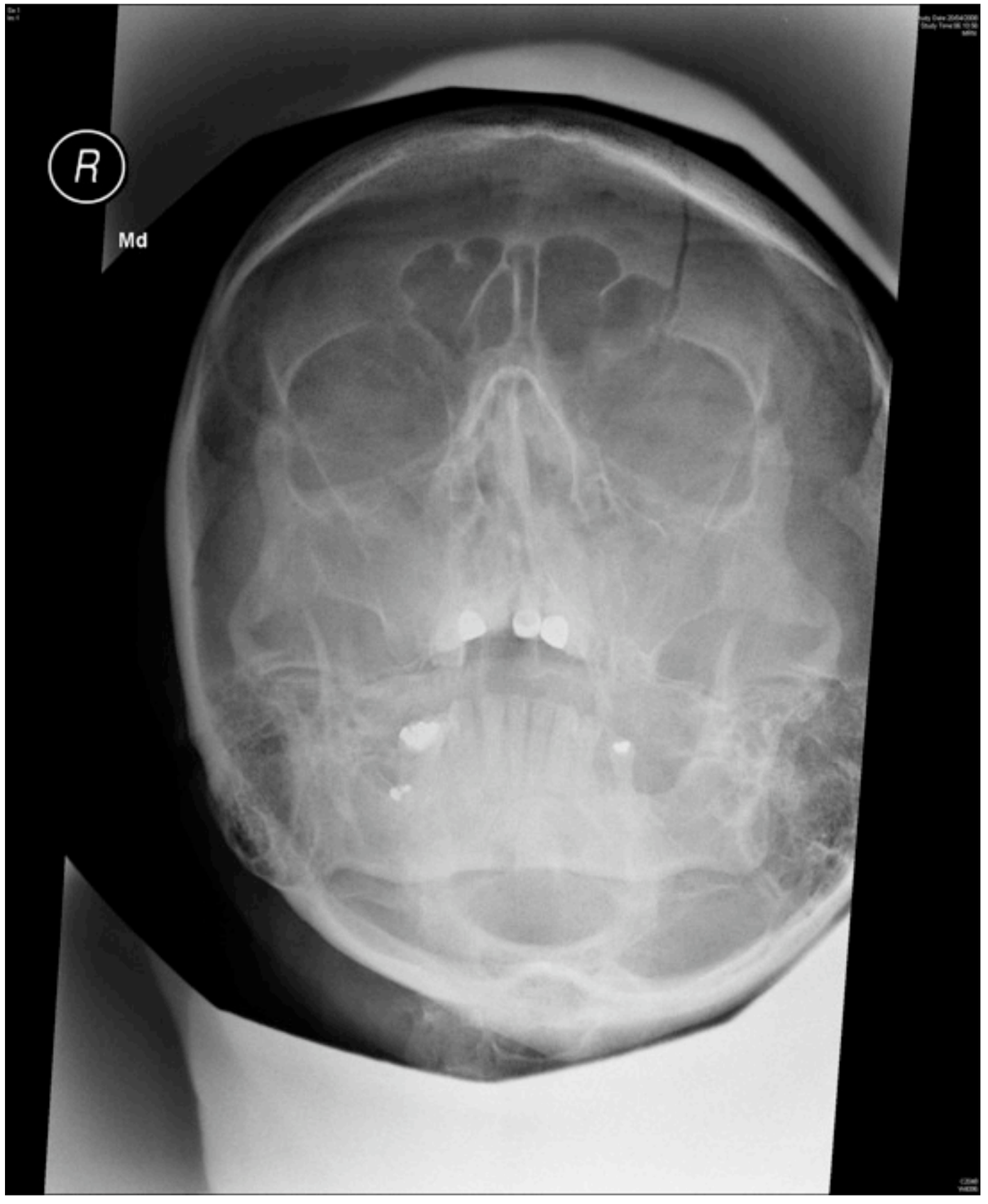


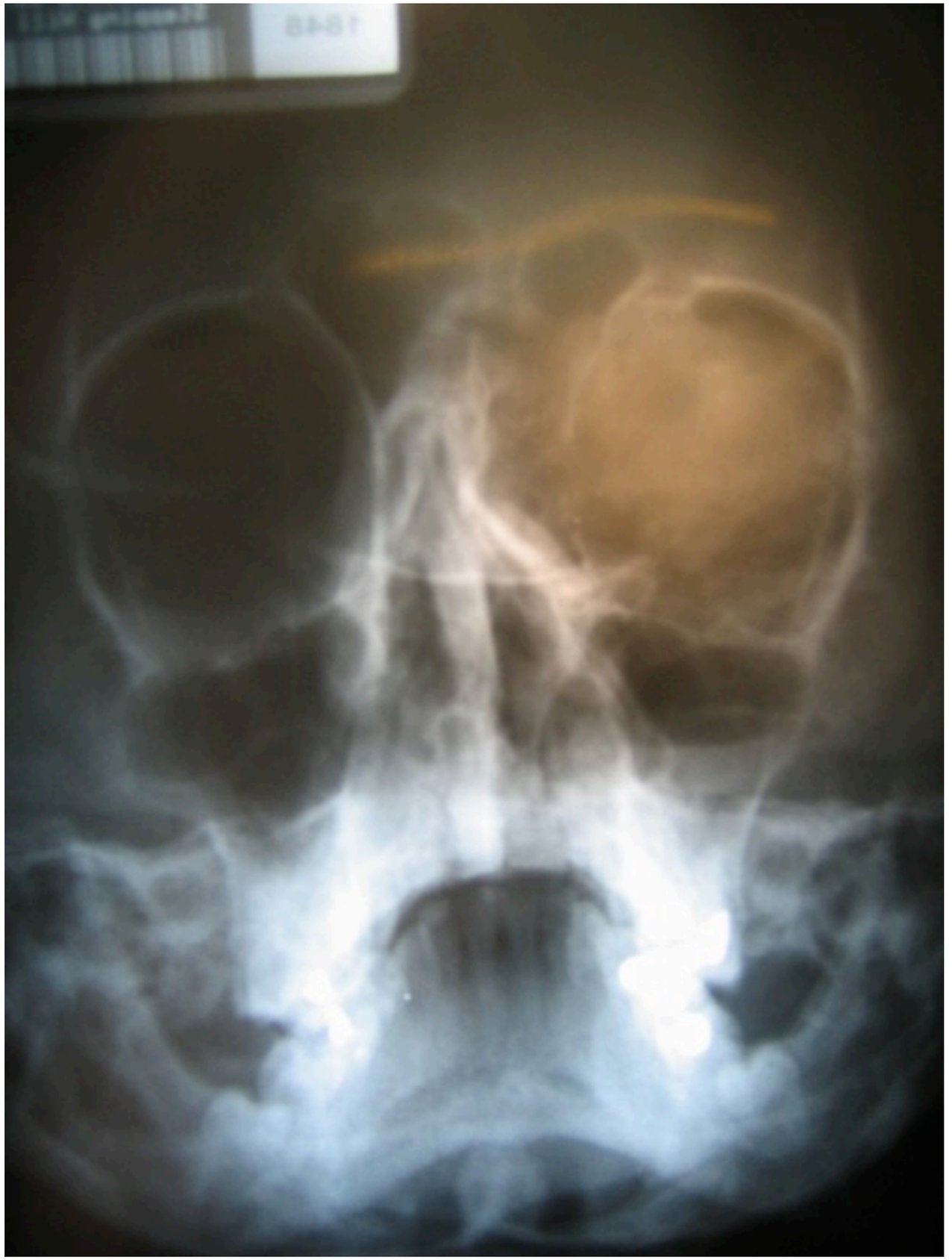







R
L
LO


R
Md

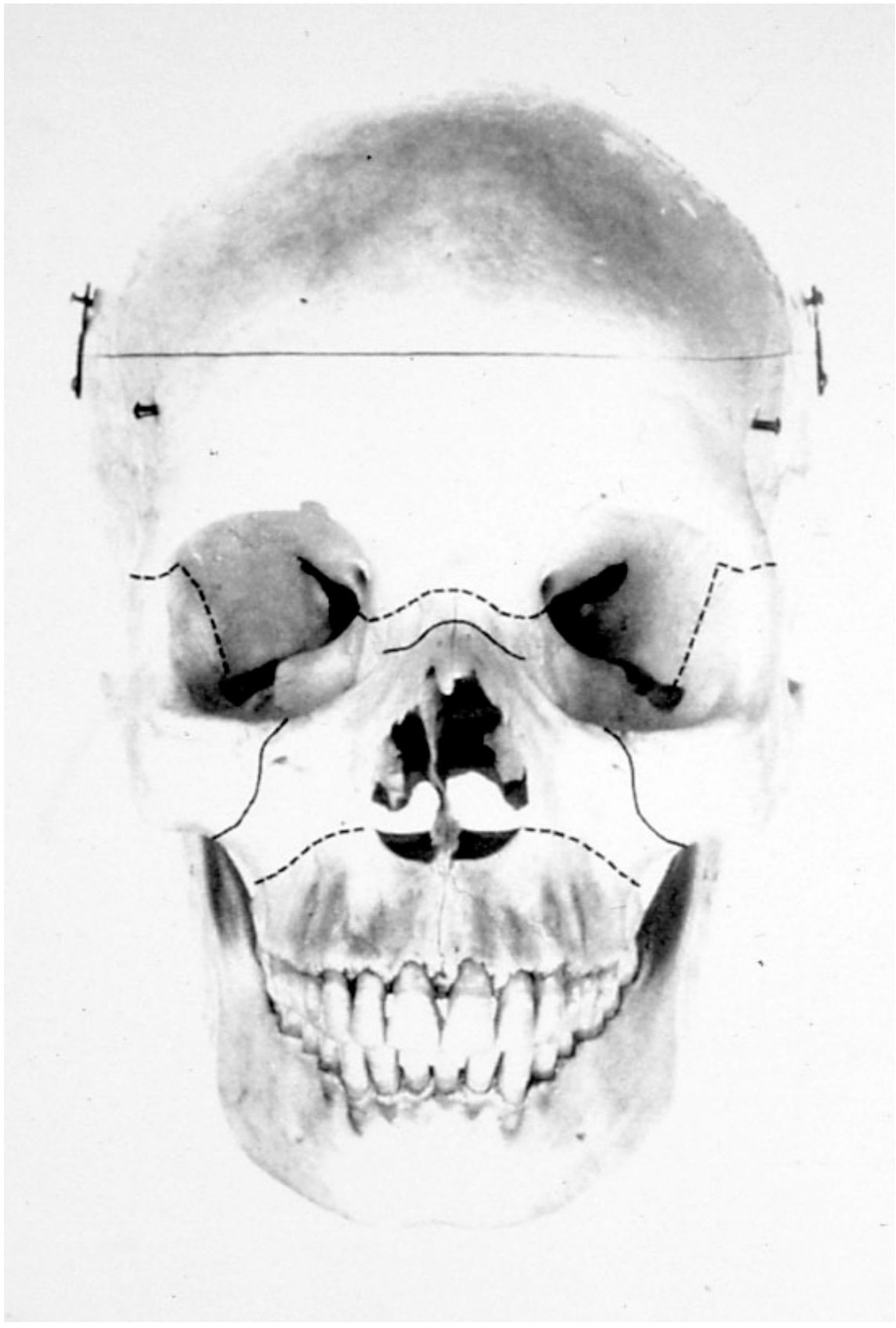


Facial Fractures: Treatment

- If displaced, urgent referral.
- If non-displaced, MaxFax OPD follow up.
- Advise patient not to blow nose.
- Prophylactic antibiotics; amoxycillin.
- Remember ‘head injury’ aspect of injury.
- Refer if any visual symptoms/signs.
- Severe fractures may need intubation.
- CT & 3D reconstruction investigation of choice

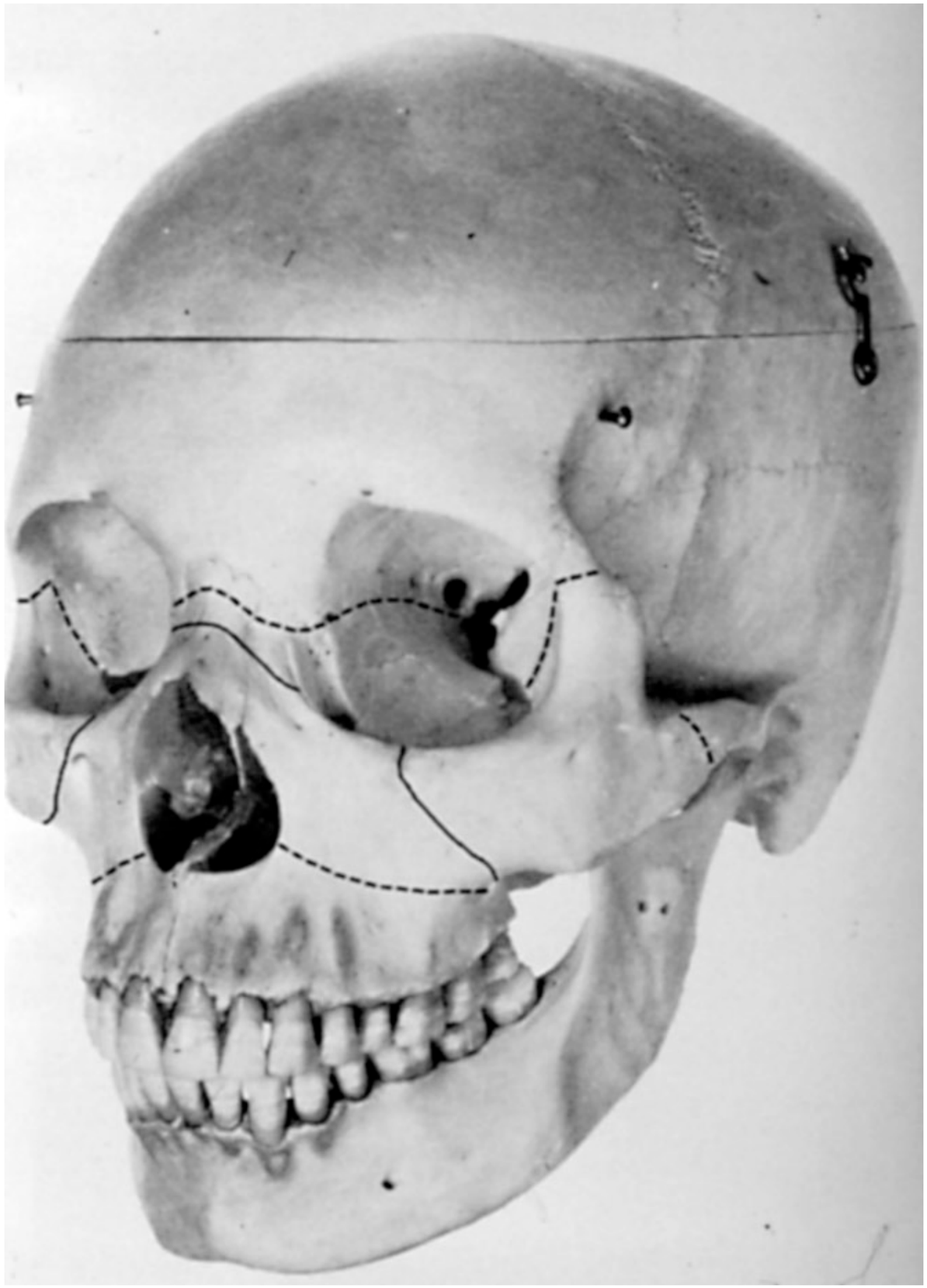
Le Fort

Rene Le Fort described the classic patterns of fracture in his 1901 work. Le Fort's experiments consisted of dropping cadaver skulls from several stories or striking them with a wooden club



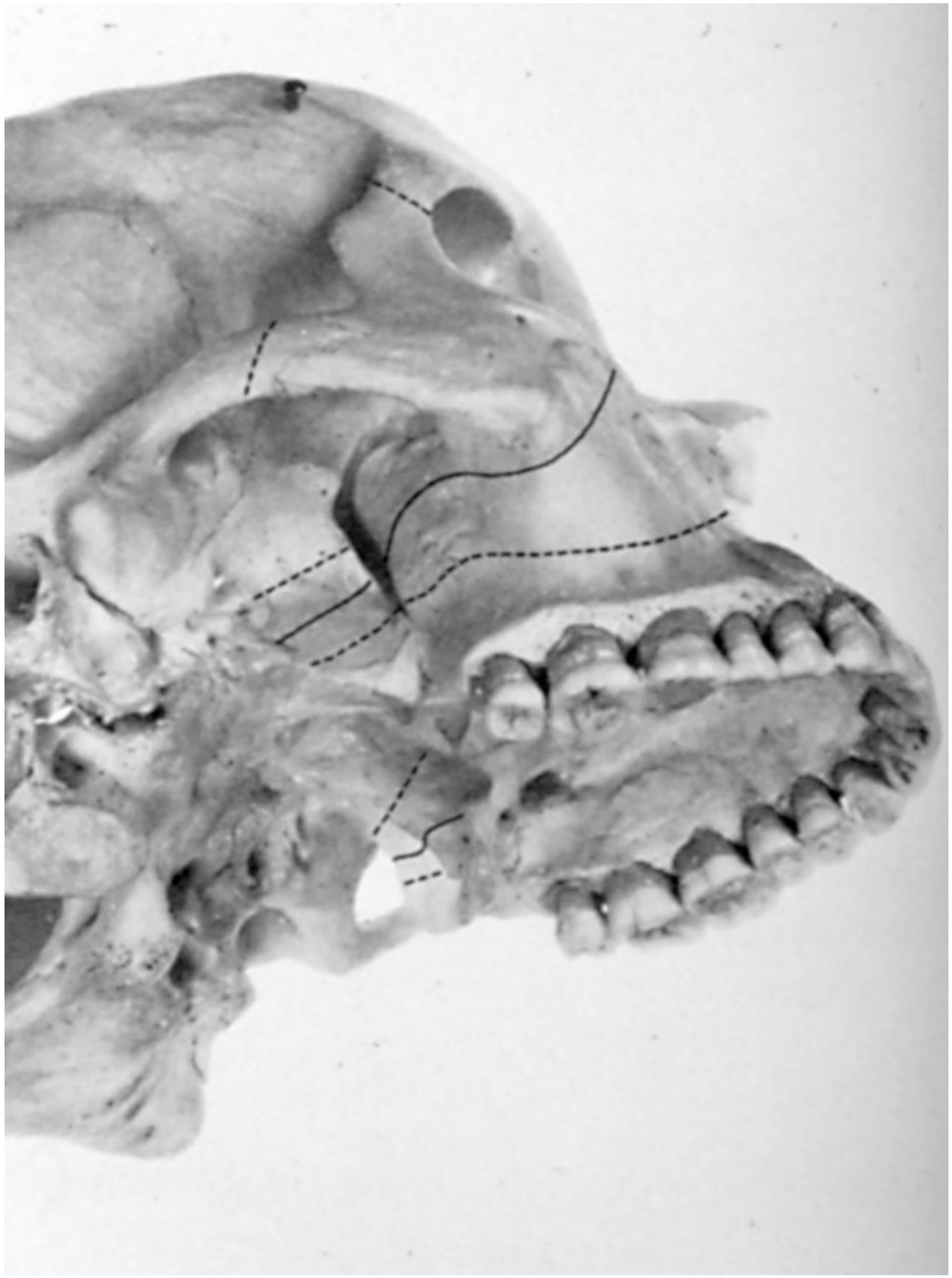
Le Fort

Rene Le Fort described the classic patterns of fracture in his 1901 work. Le Fort's experiments consisted of dropping cadaver skulls from several stories or striking them with a wooden club



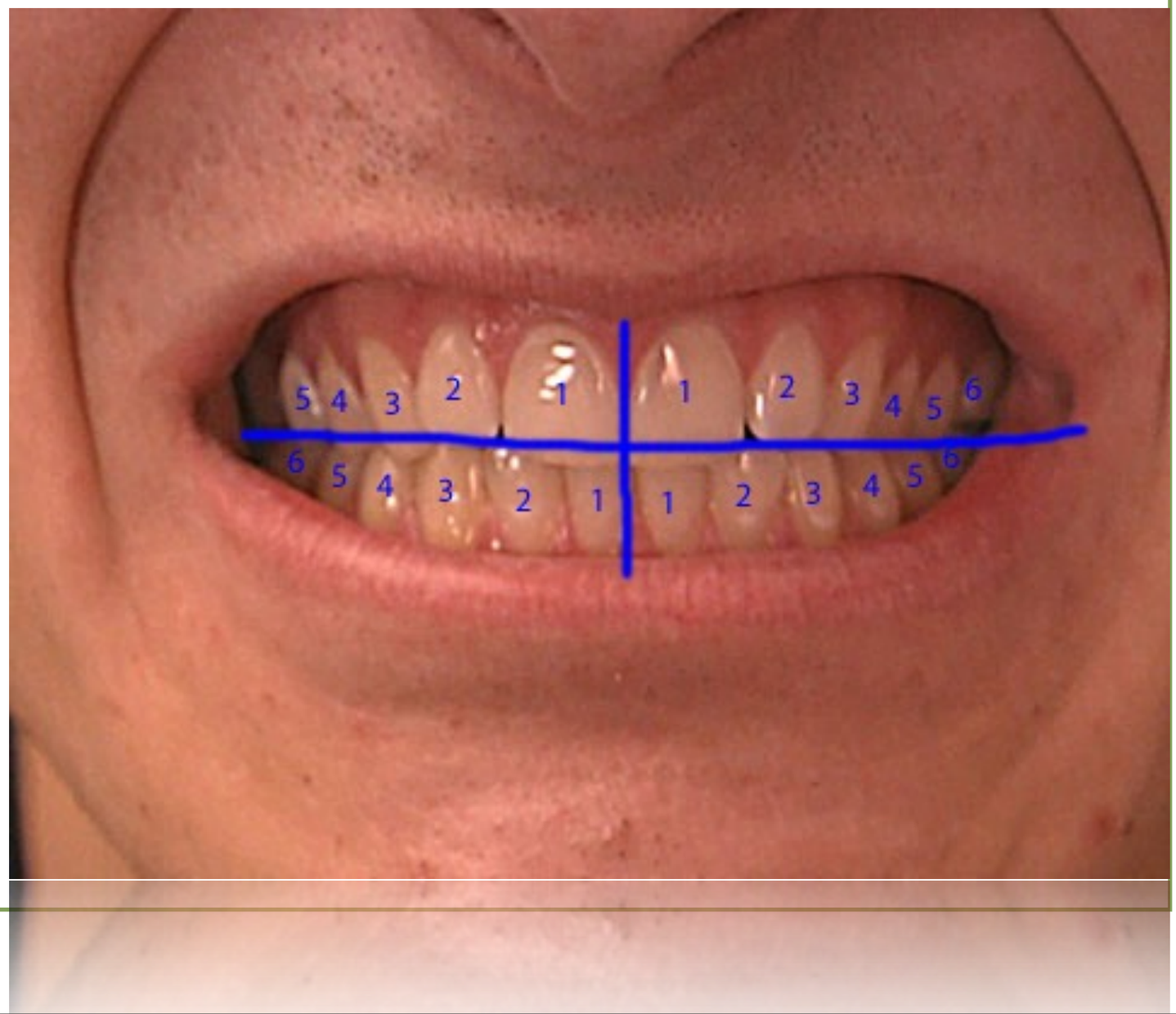
Le Fort

Rene Le Fort described the classic patterns of fracture in his 1901 work. Le Fort's experiments consisted of dropping cadaver skulls from several stories or striking them with a wooden club



Dental Injuries

- Avulsed teeth, reimplant <1hr. Can be stored in milk. Ensure normal alignment and shove it in. May need dental block. Keep in place with tin foil from suture set. Dentist f/u.
- Broken teeth/pushed in etc--own dentist f/u.
- Alveolar plate #: refer MaxFax acutely.



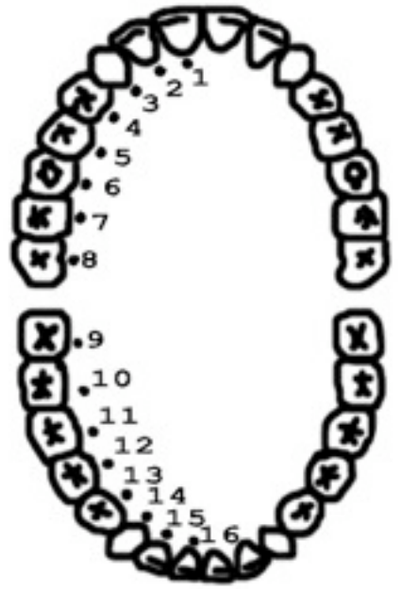
Dental Injuries

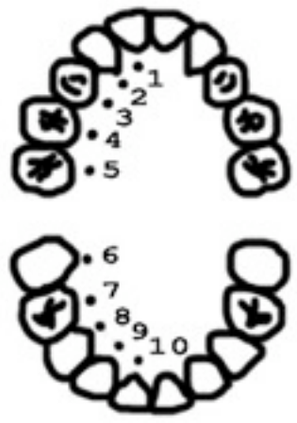
- Avulsed teeth, reimplant <1hr. Can be stored in milk. Ensure normal alignment and shove it in. May need dental block. Keep in place with tin foil from suture set. Dentist f/u.
- Broken teeth/pushed in etc--own dentist f/u.
- Alveolar plate #: refer MaxFax acutely.

Adult Teeth

Upper Teeth
1.Central Incisor
2.Lateral Incisor
3.Canine (cuspid)
4.First Premolar (first bicuspid)
5.Second Premolar (second bicuspid)
6.First Molar
7.Second Molar
8.Third Molar (wisdom tooth)

Lower Teeth
9.Third Molar (wisdom tooth)
10.Second Molar
11.First Molar
12.Second Premolar (second bicuspid)
13.First Premolar (first bicuspid)
14.Canine (cuspid)
15.Lateral Incisor
16.Central Incisor





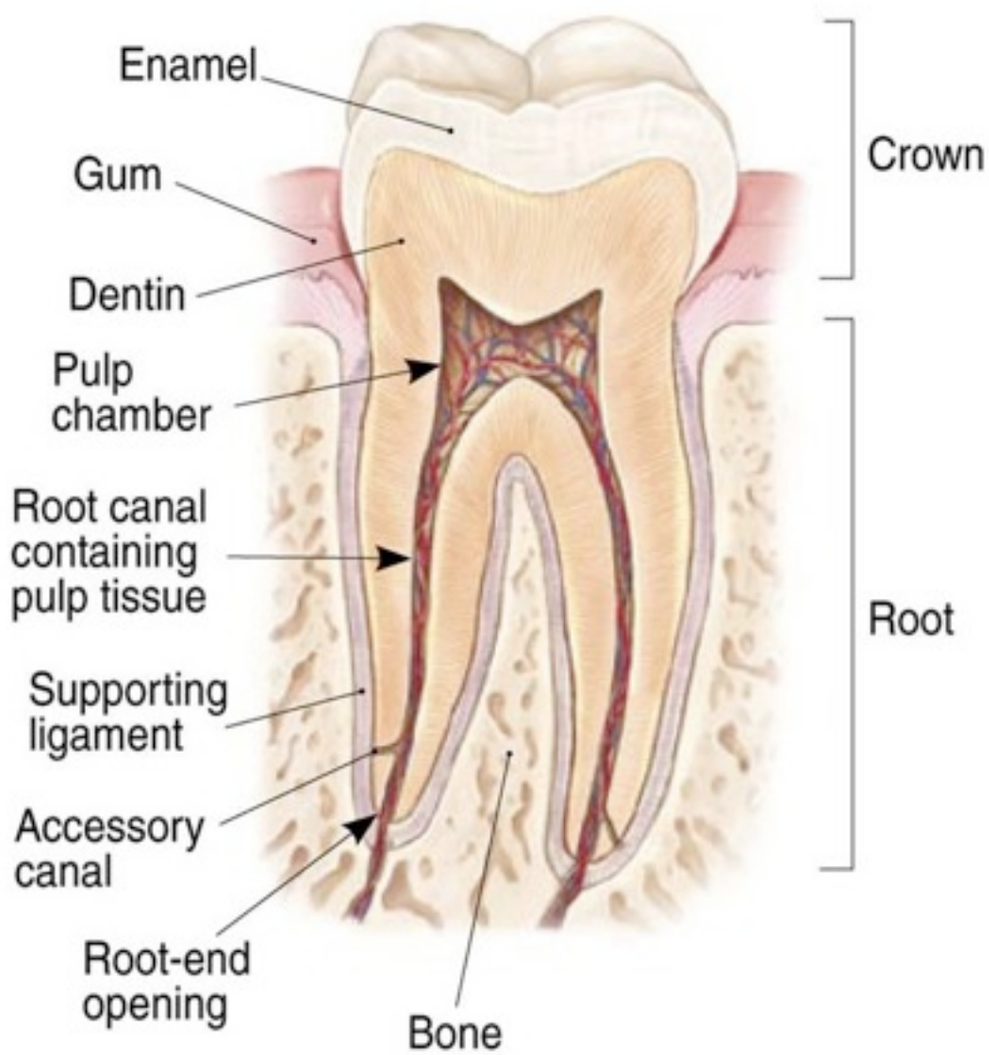
Baby Teeth

Upper Teeth
1.Central Incisor
2.Lateral Incisor
3.Canine (cuspid)
4.First Molar
5.Second Molar

Lower Teeth
6.Second Molar
7.First Molar
8.Canine (cuspid)
9.Lateral Incisor
10.Central Incisor

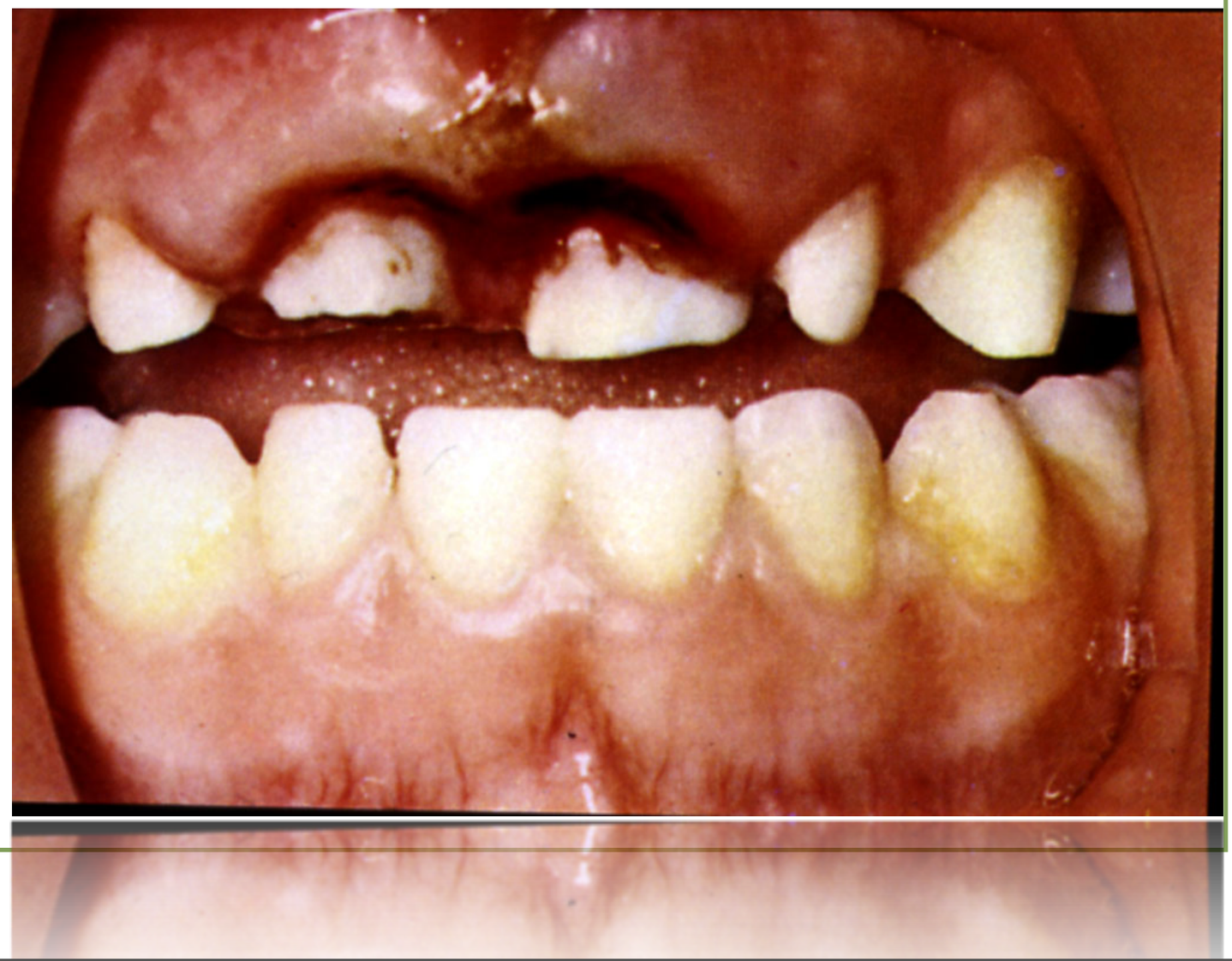
Dental Injuries

- Avulsed teeth, reimplant <1hr. Can be stored in milk. Ensure normal alignment and shove it in. May need dental block. Keep in place with tin foil from suture set. Dentist f/u.
- Broken teeth/pushed in etc--own dentist f/u.
- Alveolar plate #: refer MaxFax acutely.



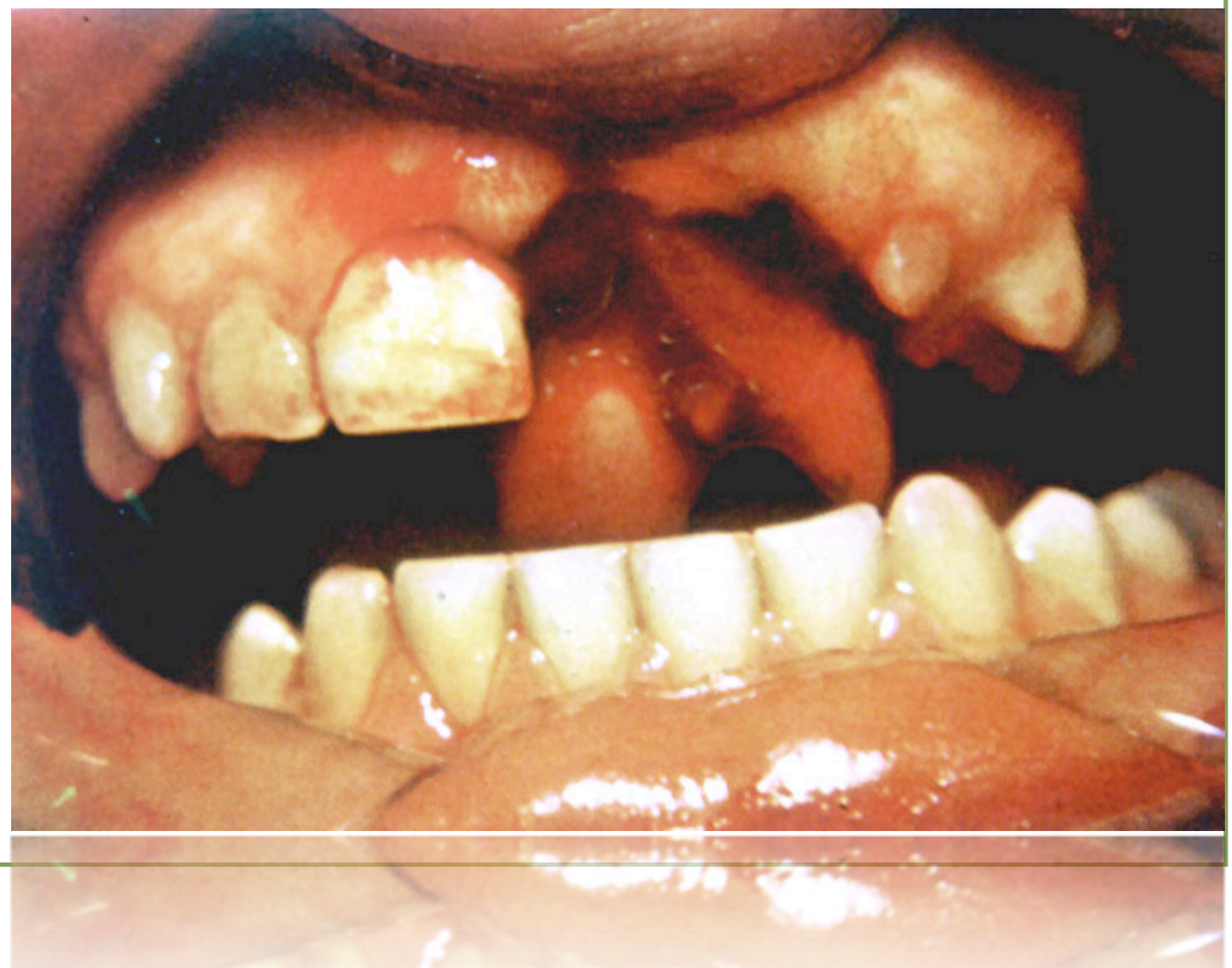
Dental Injuries

- Avulsed teeth, reimplant <1hr. Can be stored in milk. Ensure normal alignment and shove it in. May need dental block. Keep in place with tin foil from suture set. Dentist f/u.
- Broken teeth/pushed in etc--own dentist f/u.
- Alveolar plate #: refer MaxFax acutely.



Dental Injuries

- Avulsed teeth, reimplant <1hr. Can be stored in milk. Ensure normal alignment and shove it in. May need dental block. Keep in place with tin foil from suture set. Dentist f/u.
- Broken teeth/pushed in etc--own dentist f/u.
- Alveolar plate #: refer MaxFax acutely.

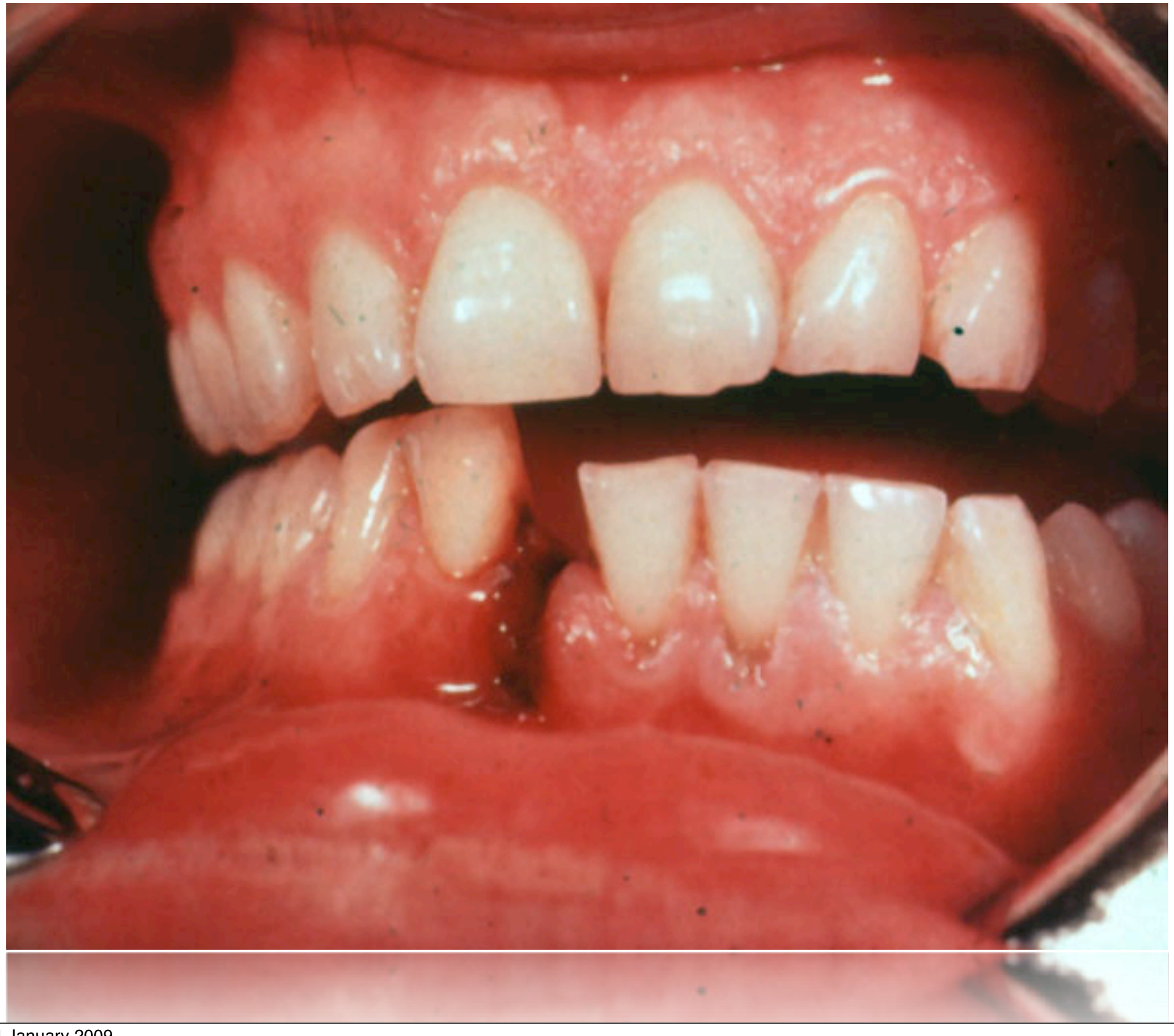


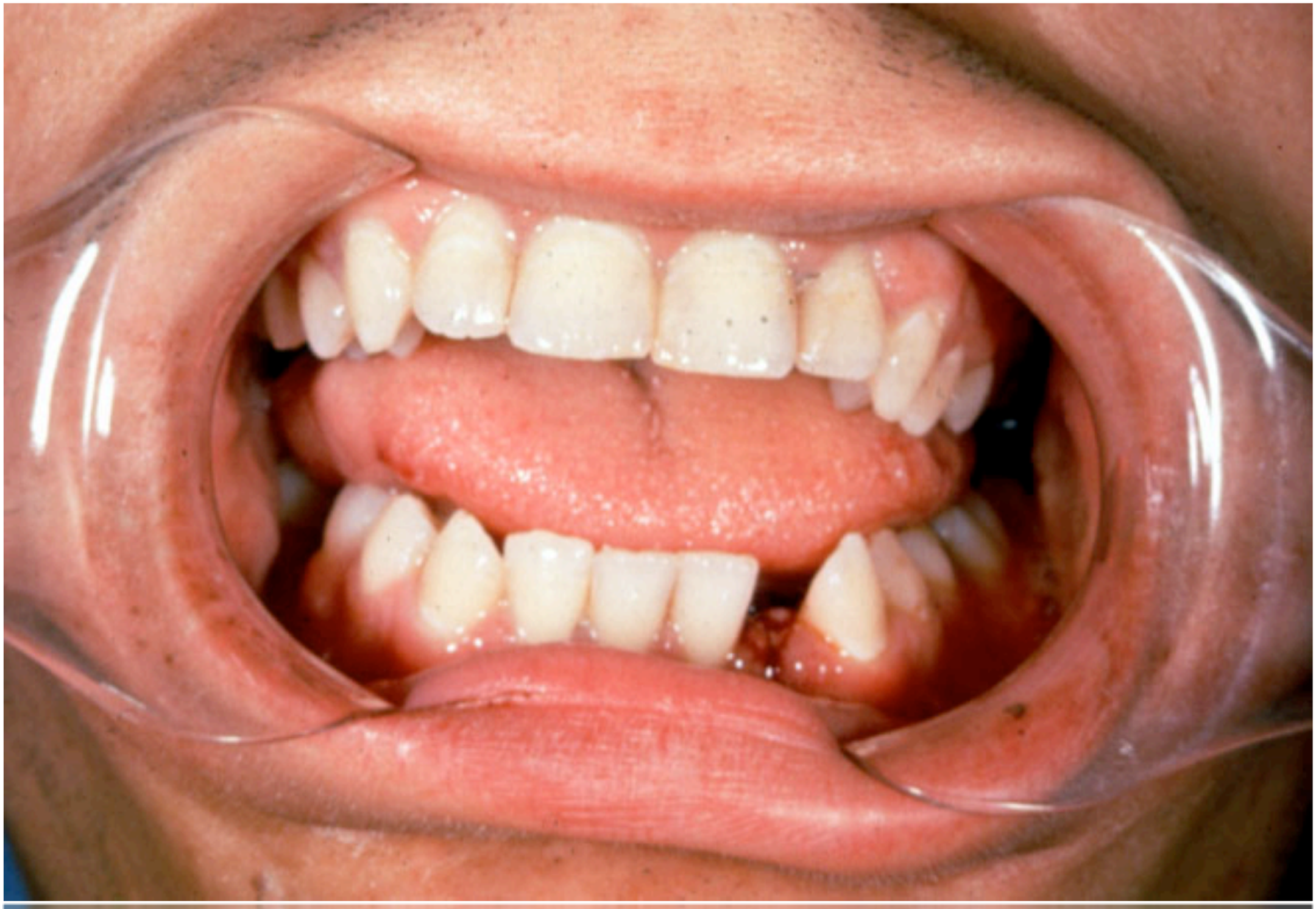
Dental Abscess

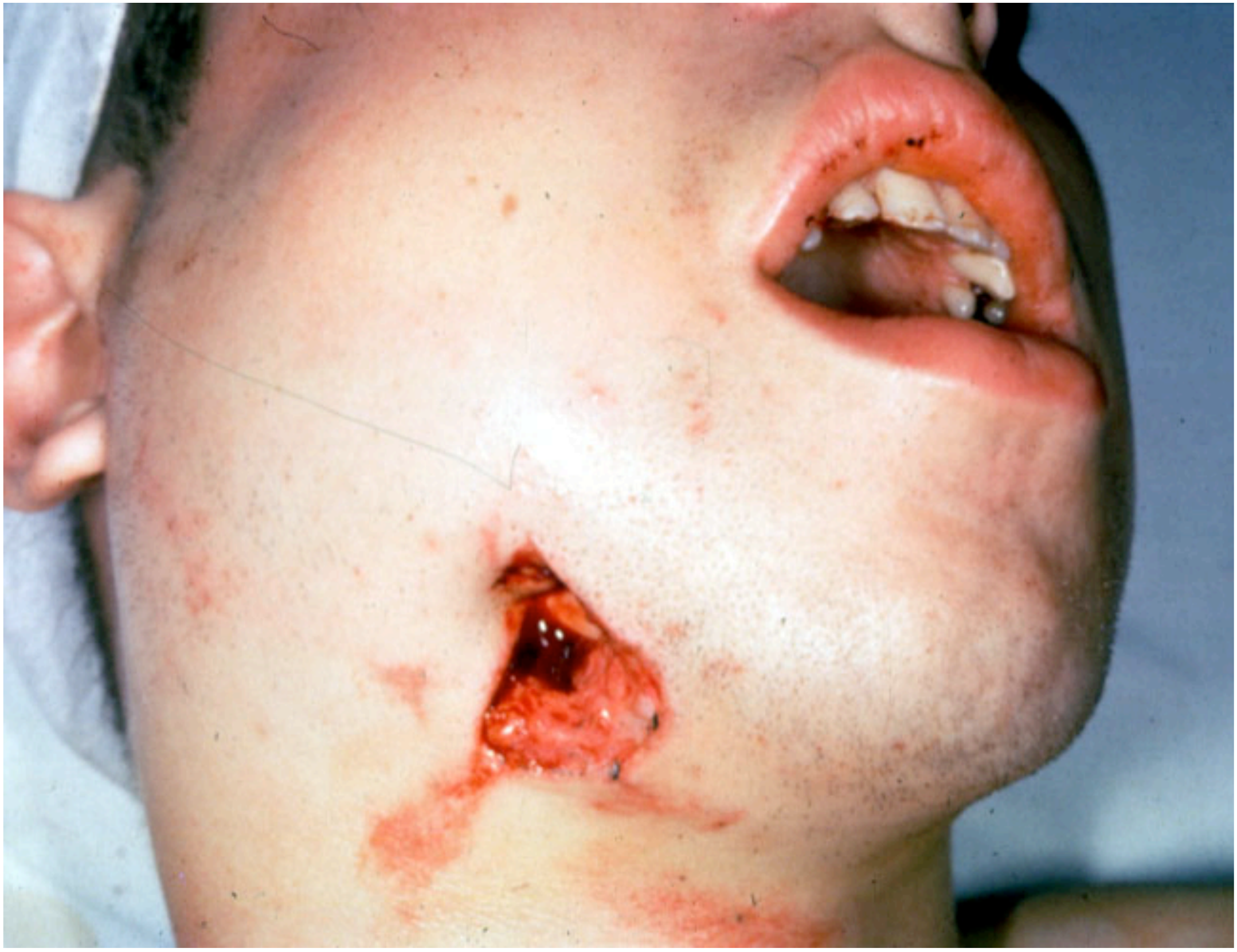
- Starts with toothache, then facial pain and swelling.
- Often has evidence of swelling and caries on tooth.
- Refer MaxFax if obviously pointing, or systemically unwell.
- Give amoxycillin if within 2-3 days of onset , if longer history than this, add metronidazole (greater risk of anaerobes causing).
- MaxFax may order OPG (but we don't!)

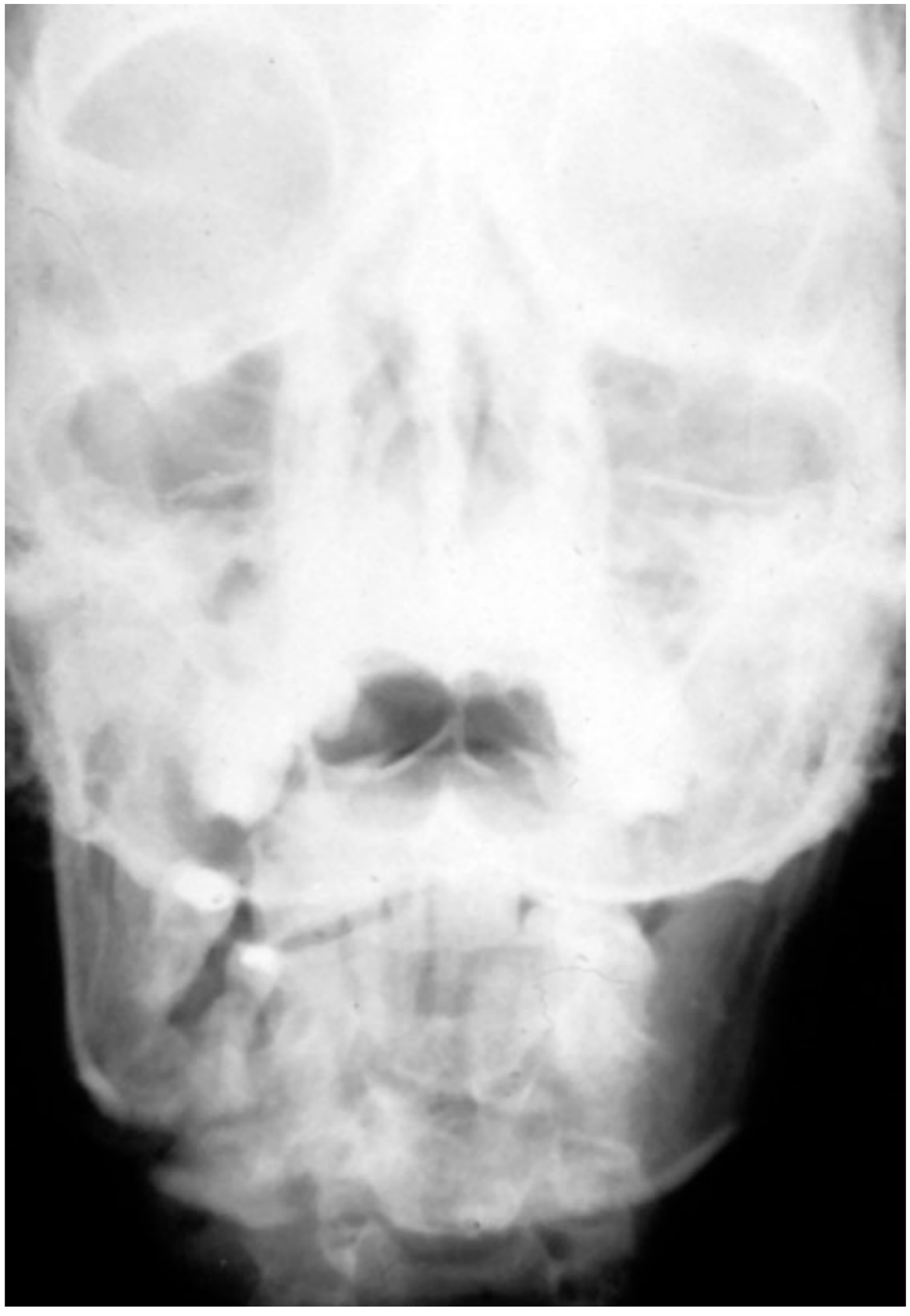
Mandibular Fractures

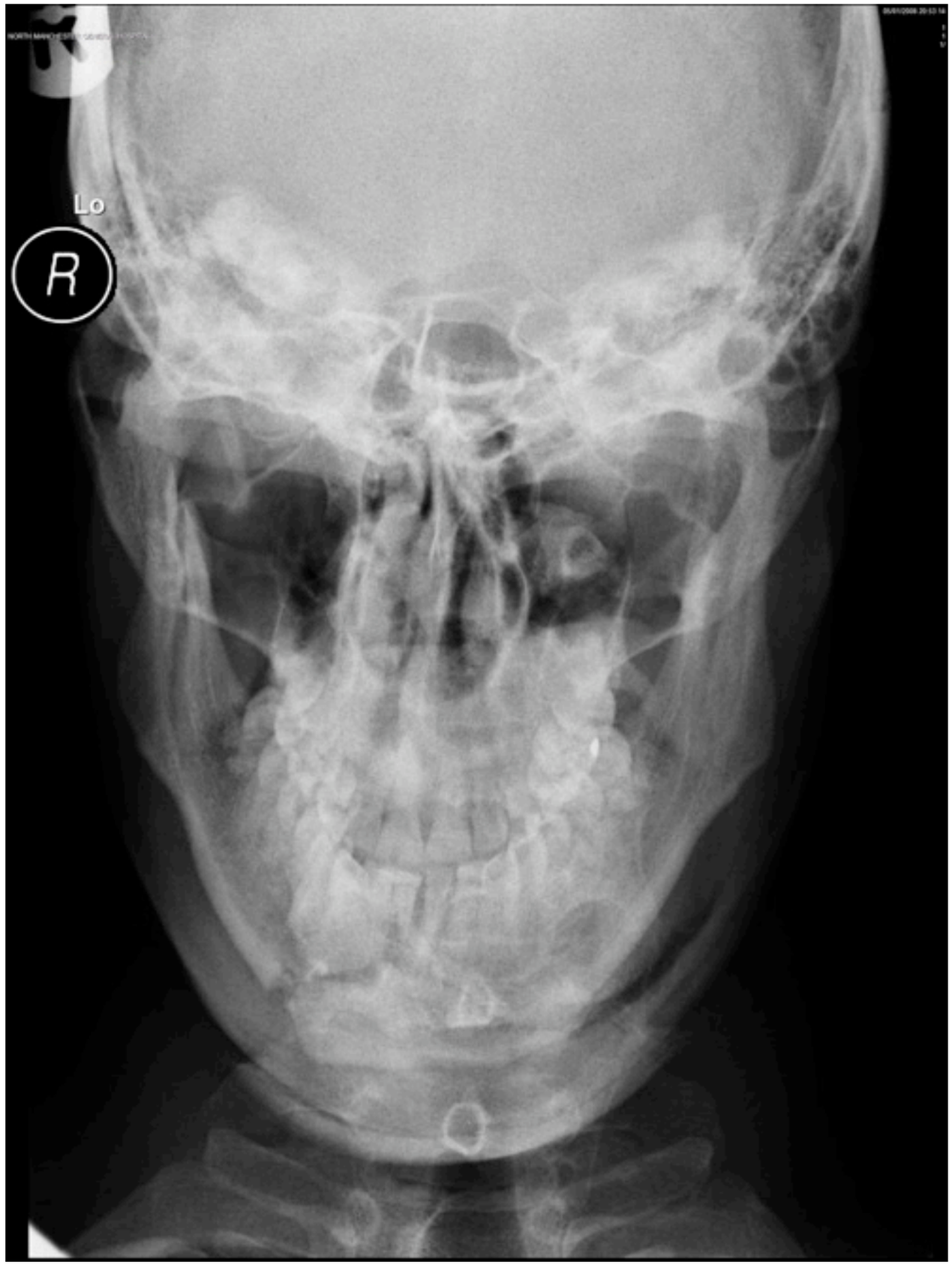
- May have malocclusion, trismus.
- Paraesthesia in mental nerve (lower teeth and chin)
- Usually breaks in two places
- Check for intra-oral step in dentition=compound injury
- If only some swelling/tenderness and no trismus/ malocclusion, and if patient can bite down and hold a wooden spatula while you break it, then NOT fractured and does not need x-rays. If can't, then x-ray.

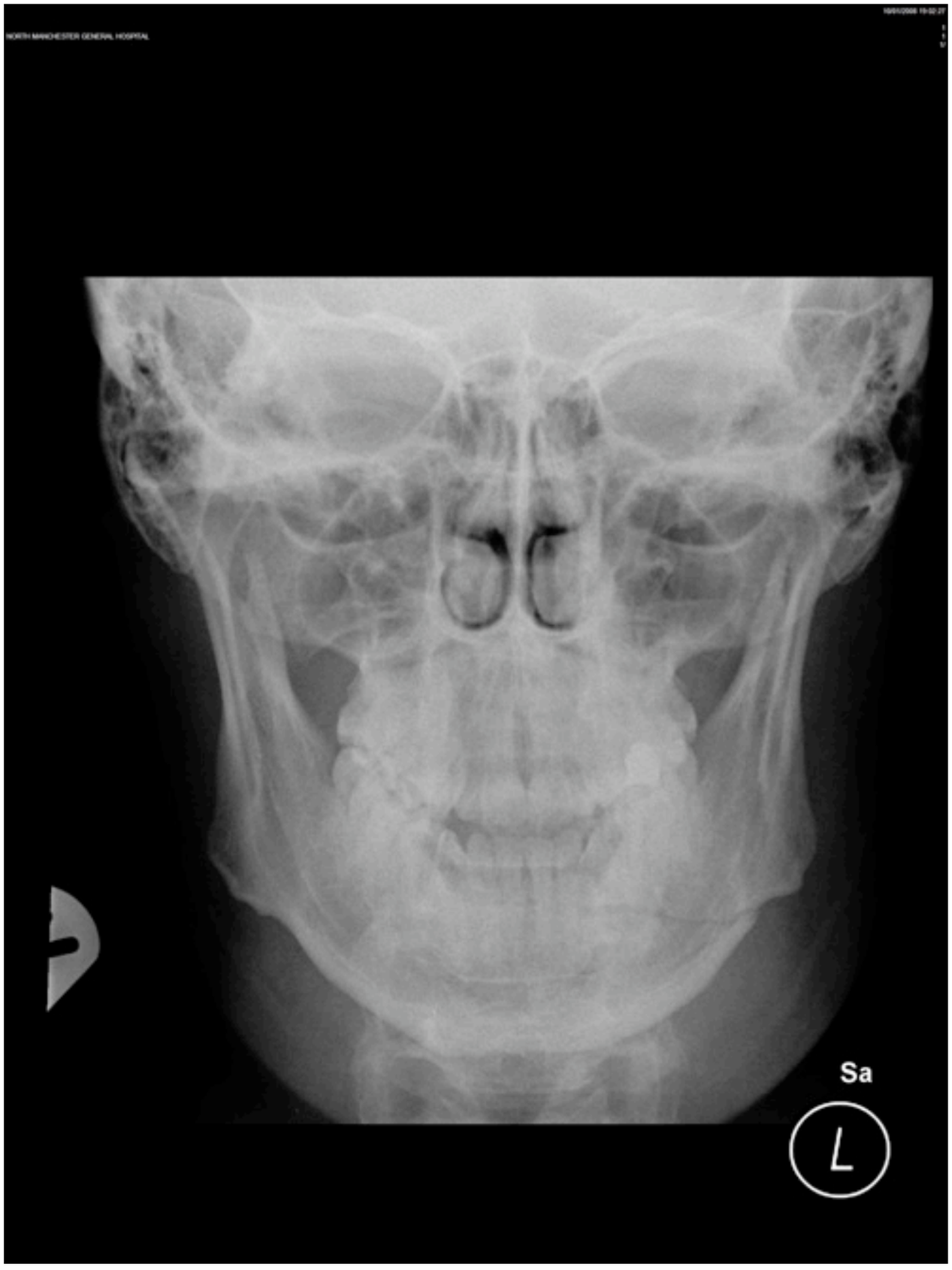


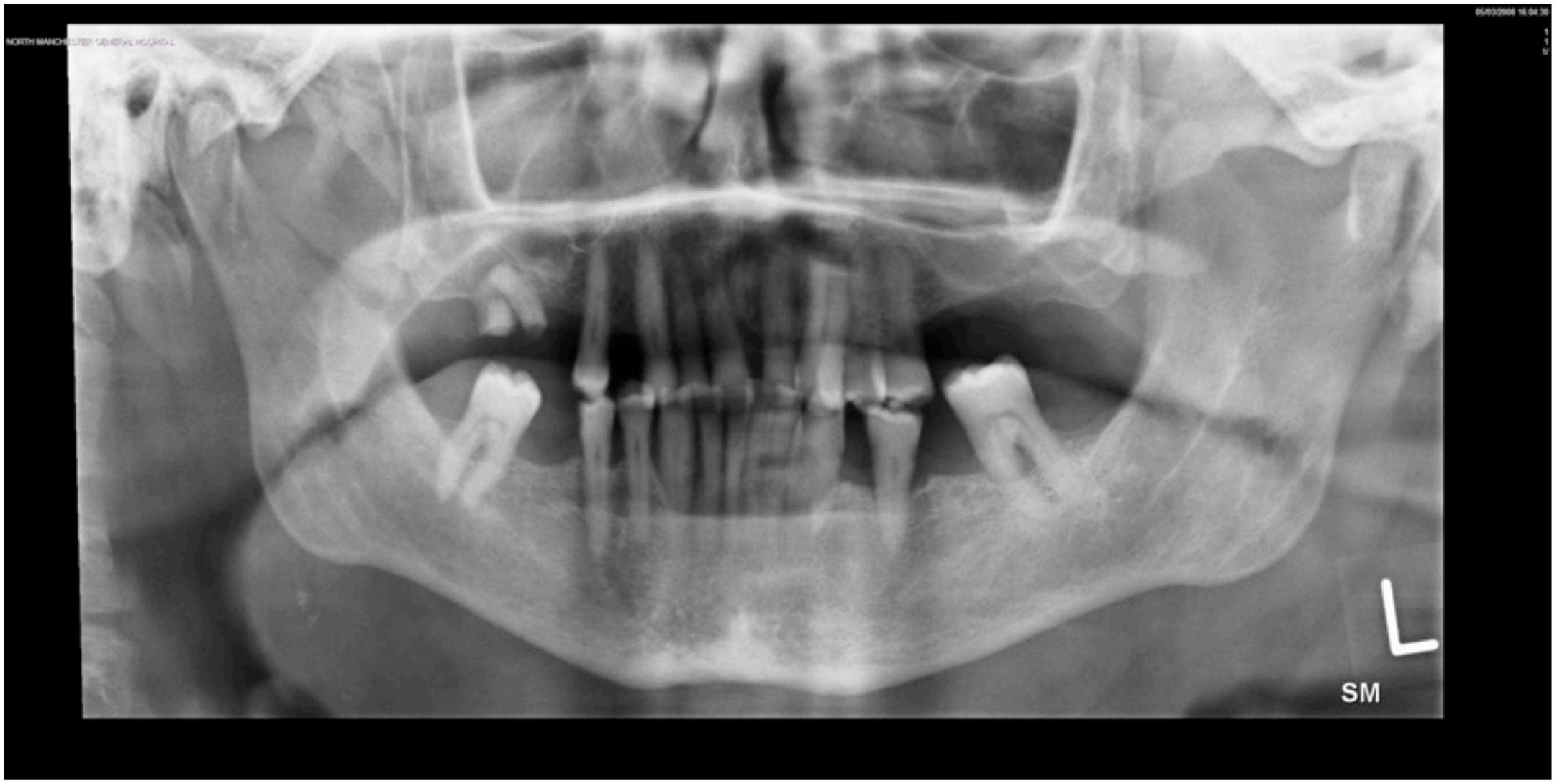


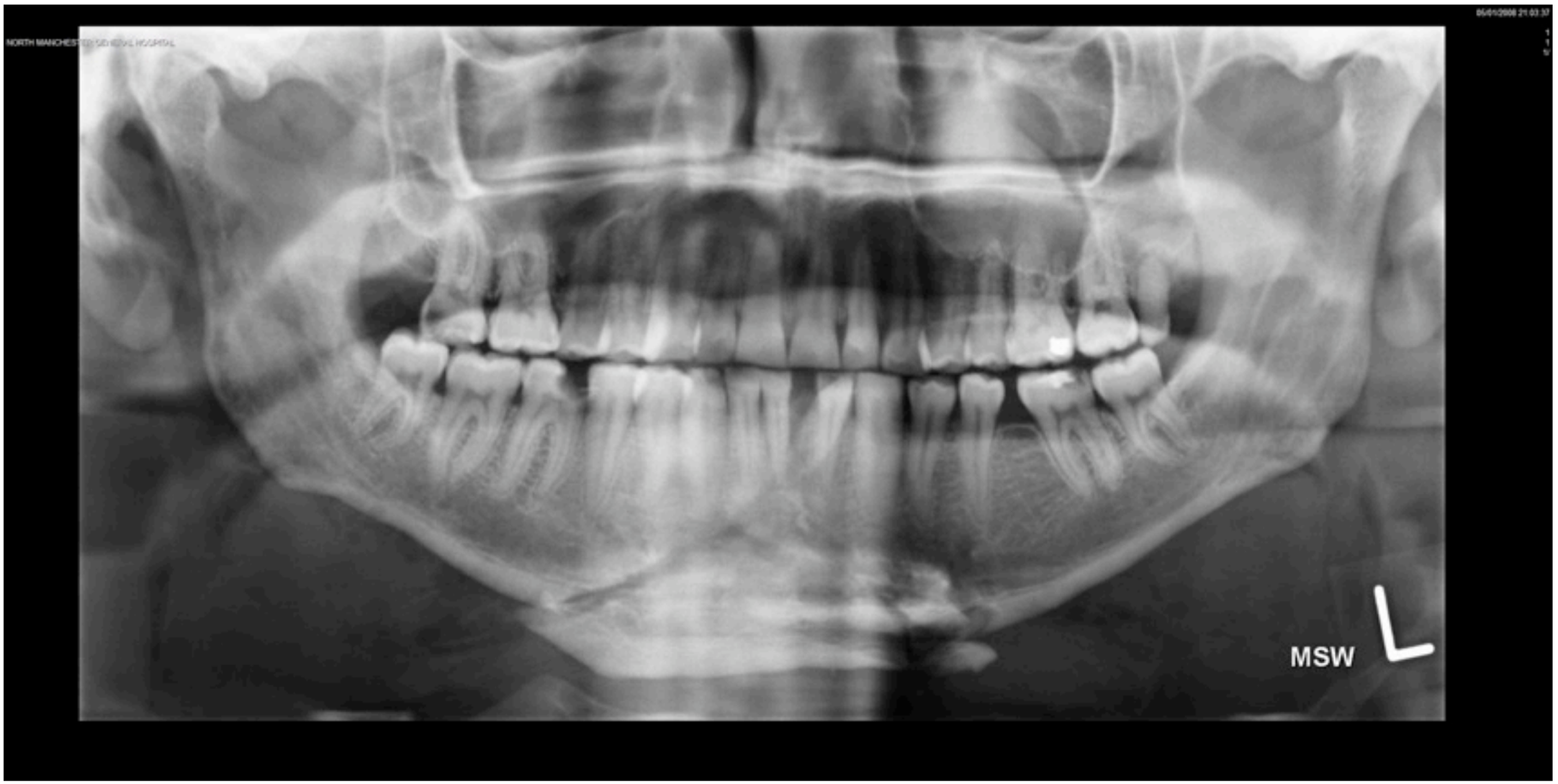


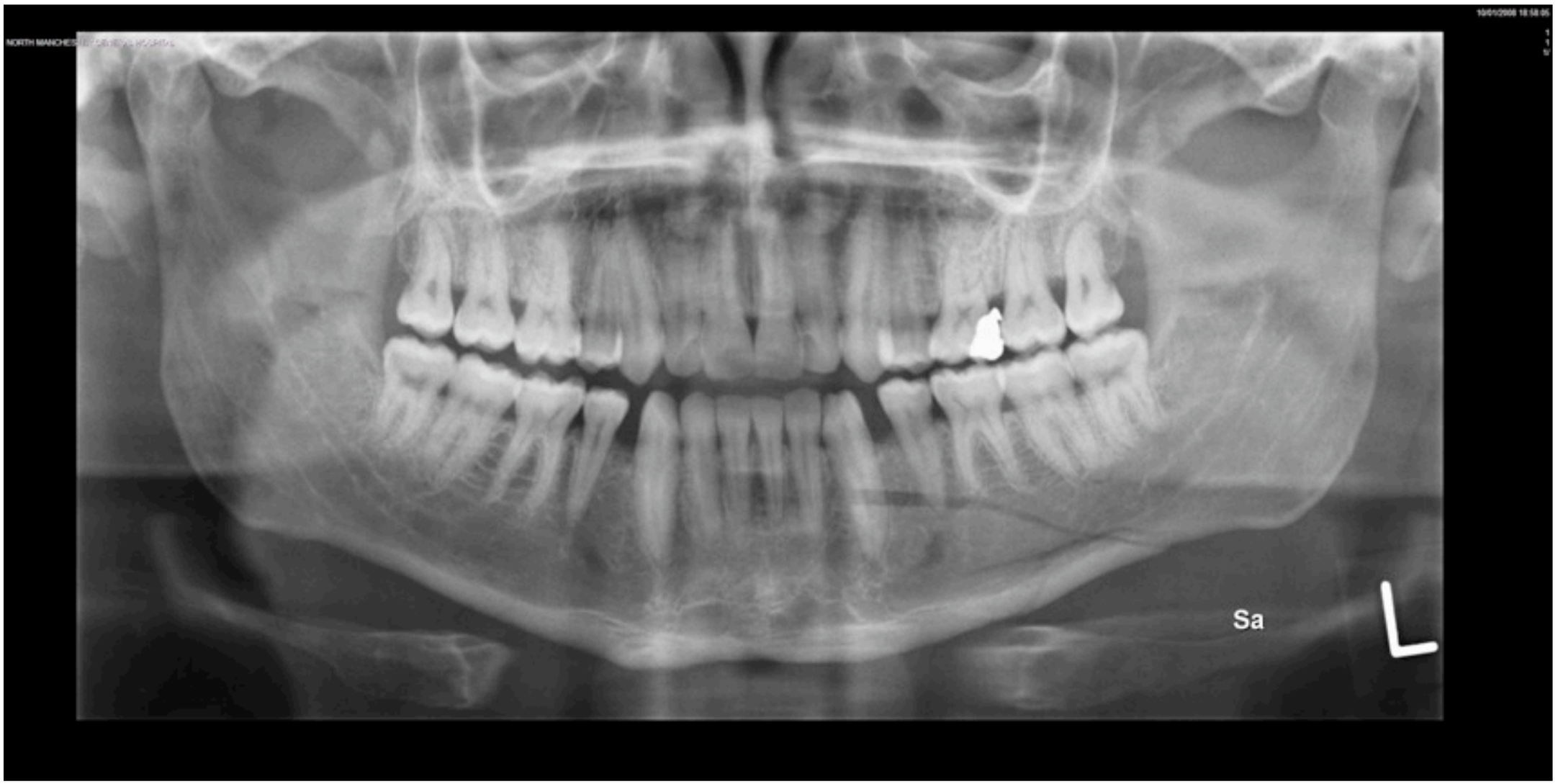


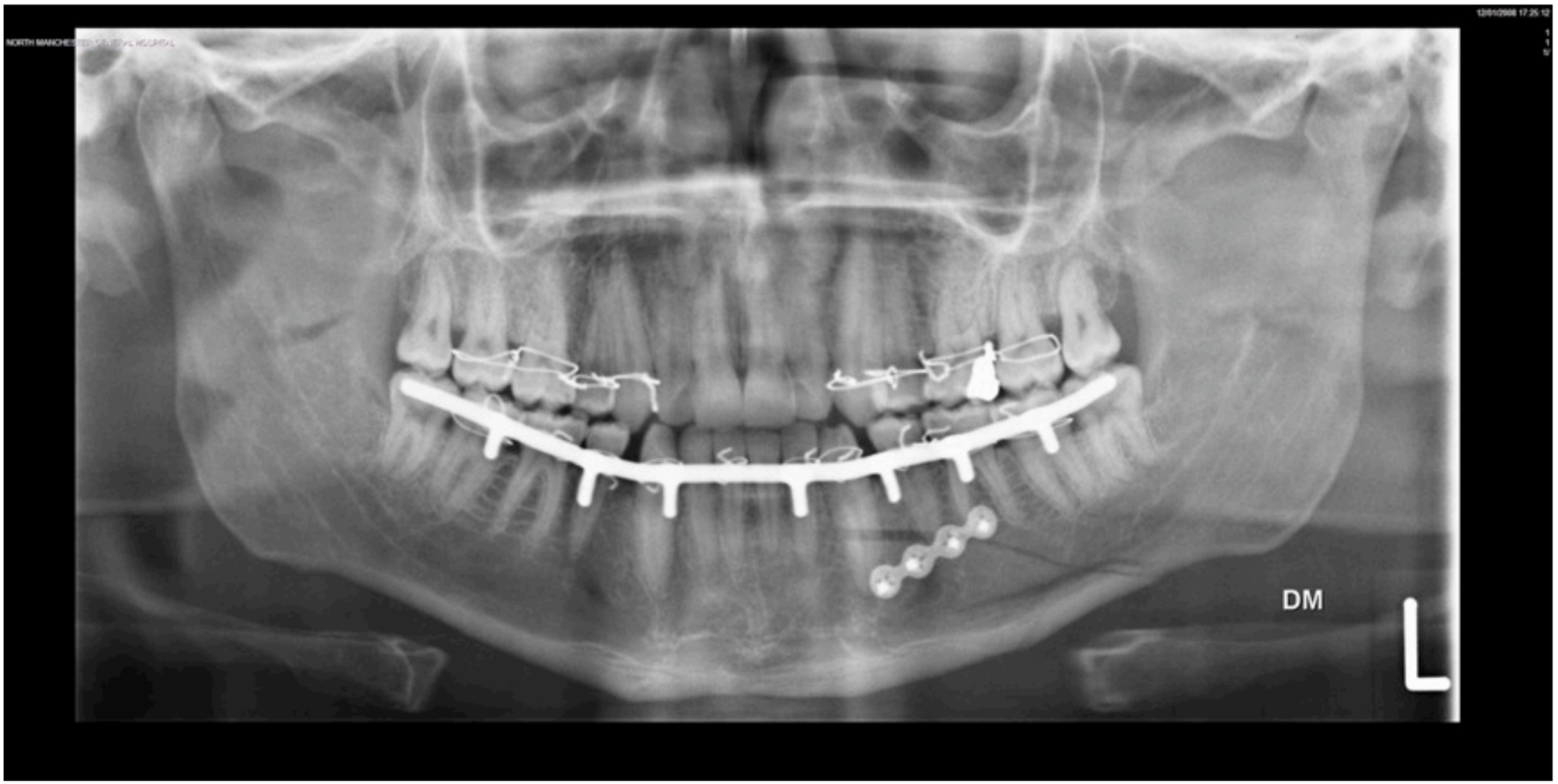

Lo
R

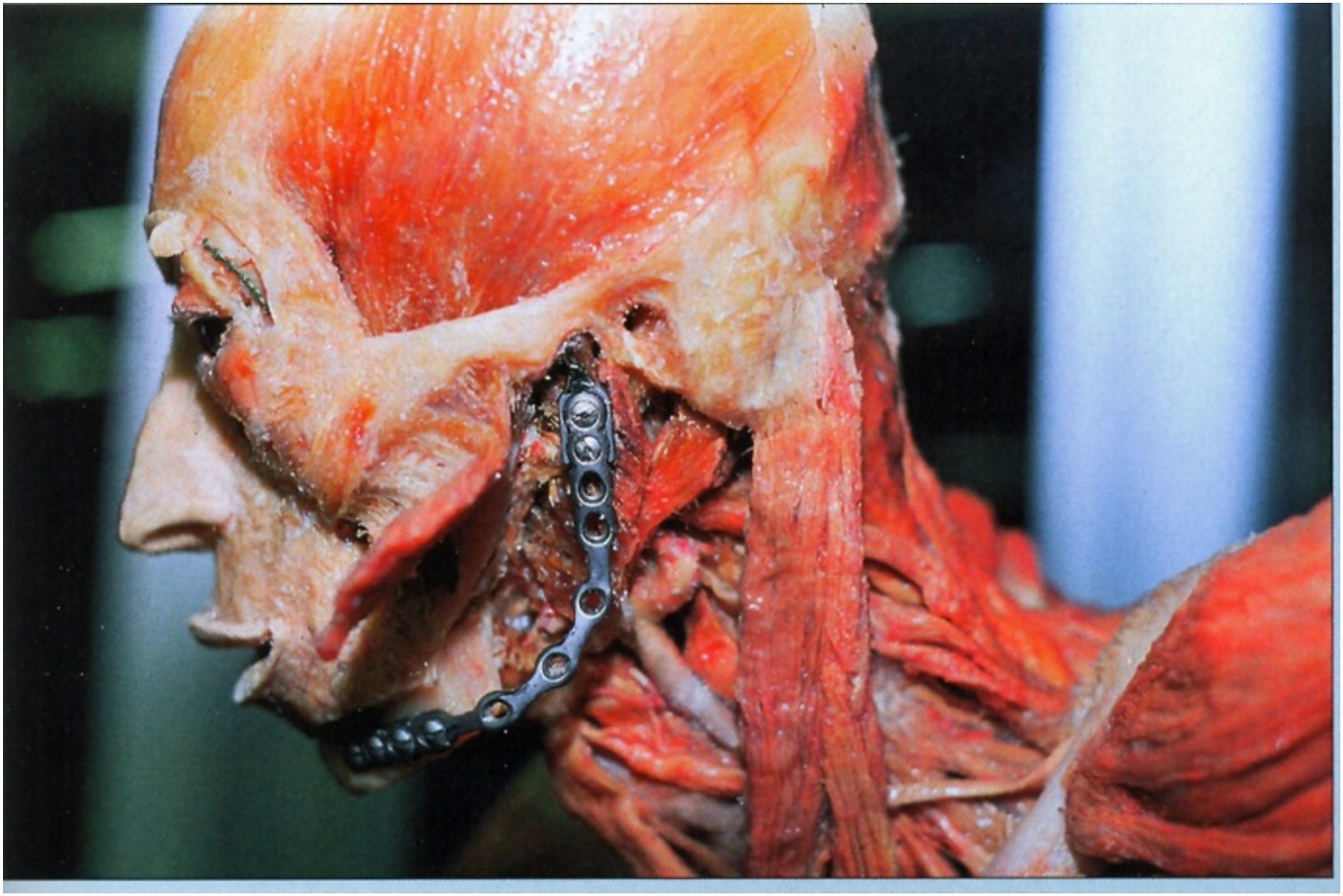

NORTH MANCHESTER GENERAL HOSPITAL
Sa
L


05/03/2008 16:04:30
SM


NORTH MANCHEST
MSW


Sa

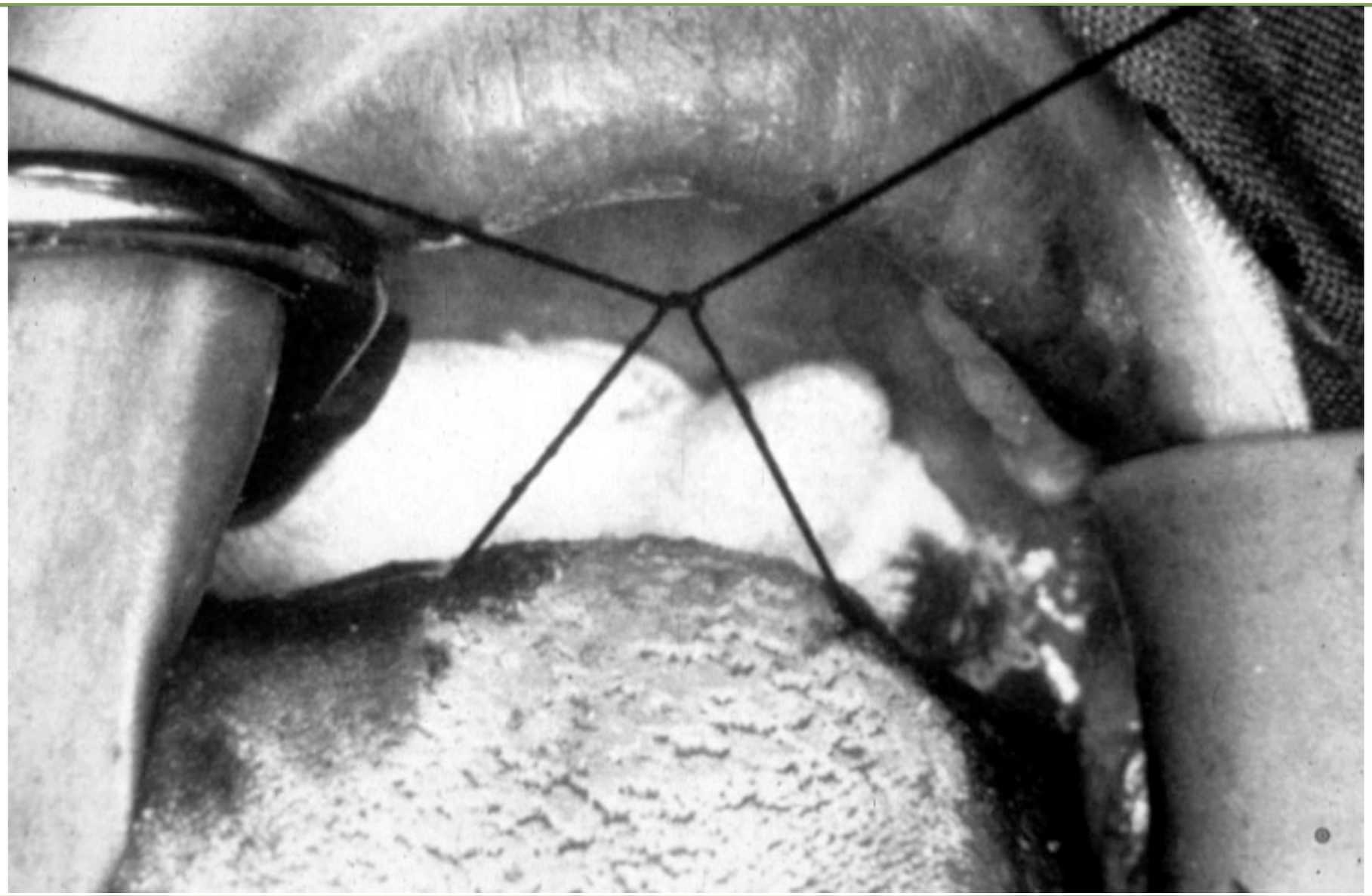

DM



Mandibular Fracture Mx

- Need referral to MaxFax for plating.
- Beware bilateral fracture in reduced GCS= airway loss despite maneouvres. May need suture through tongue and pull forwards on thread to bring segment anteriorly.
- Compound will need clean and dress if external & prophylactic IV antibiotics.

Mandibular Fracture Mx

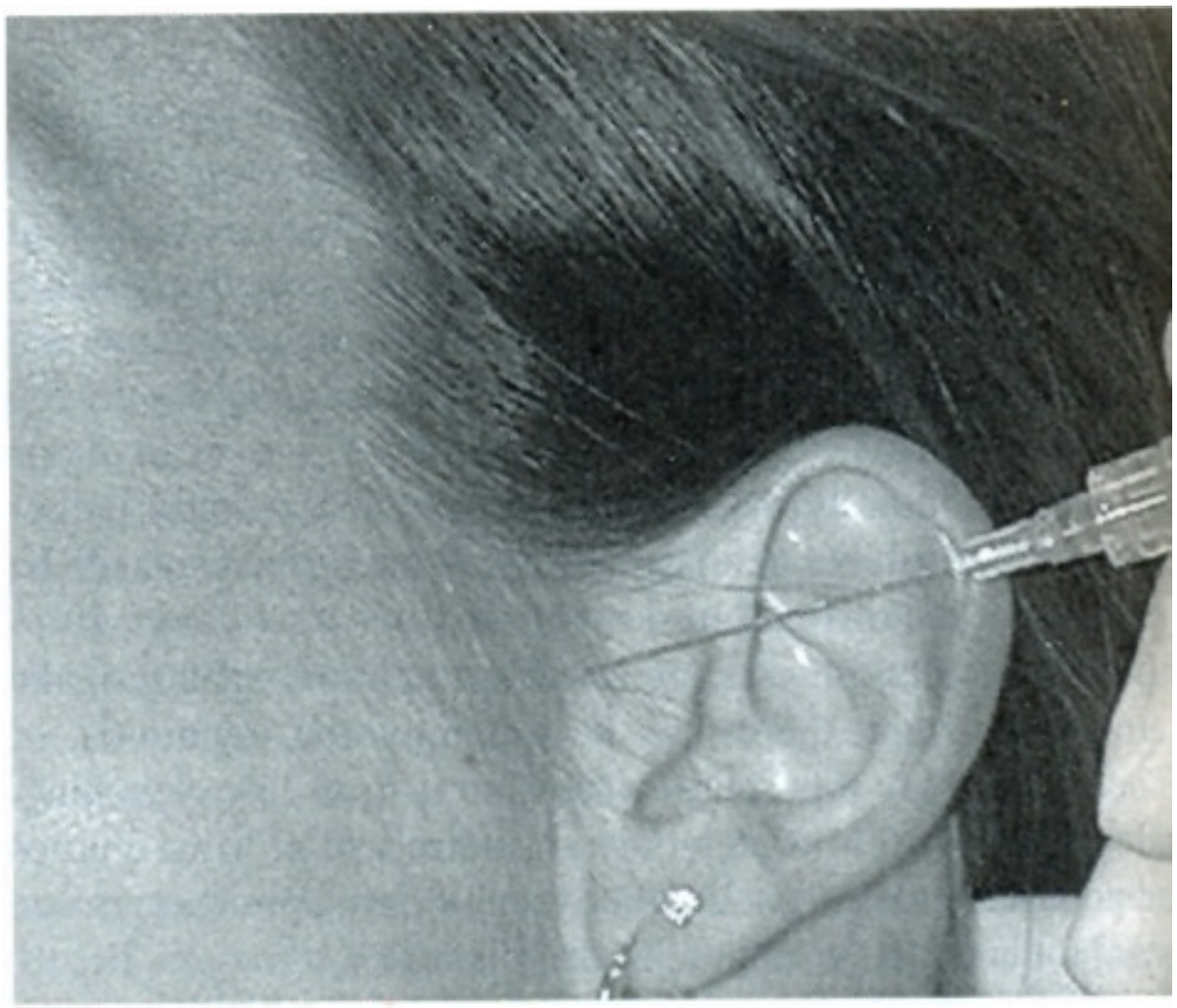


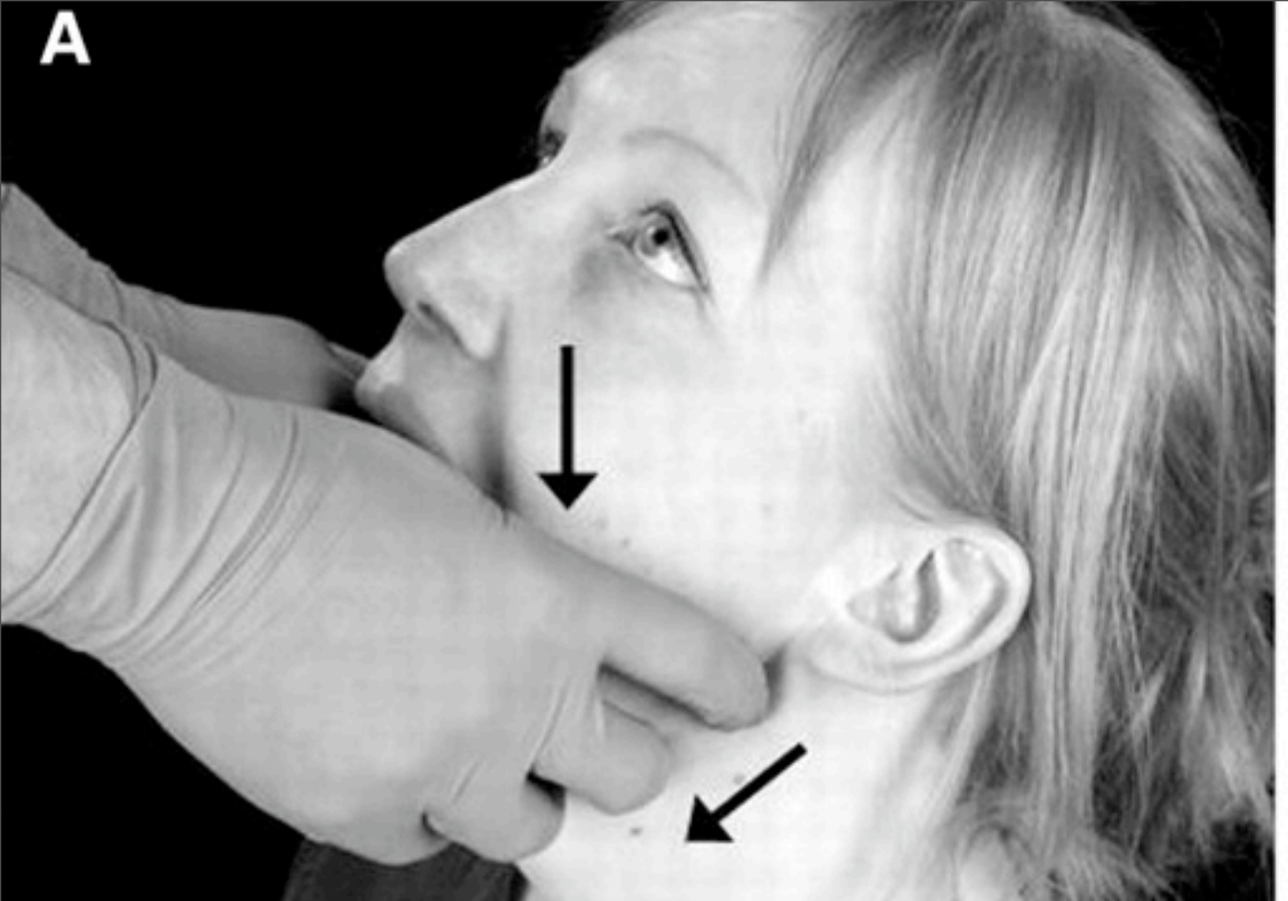
Dislocated Mandible (TMJ)

- Reported after yawning, taking a large bite, vomiting, dental extraction, tonsillectomy and oral sex!. More common in general joint laxity & with extra-pyramidal s/e of neuroleptics
- Unable to close the mouth in anterior dislocations. Pain, difficulty swallowing and speaking and malocclusion.
- Jaw is obviously opened and displaced anteriorly
- Diagnosis is on clinical grounds. X-ray not necessary unless there is doubt about the diagnosis

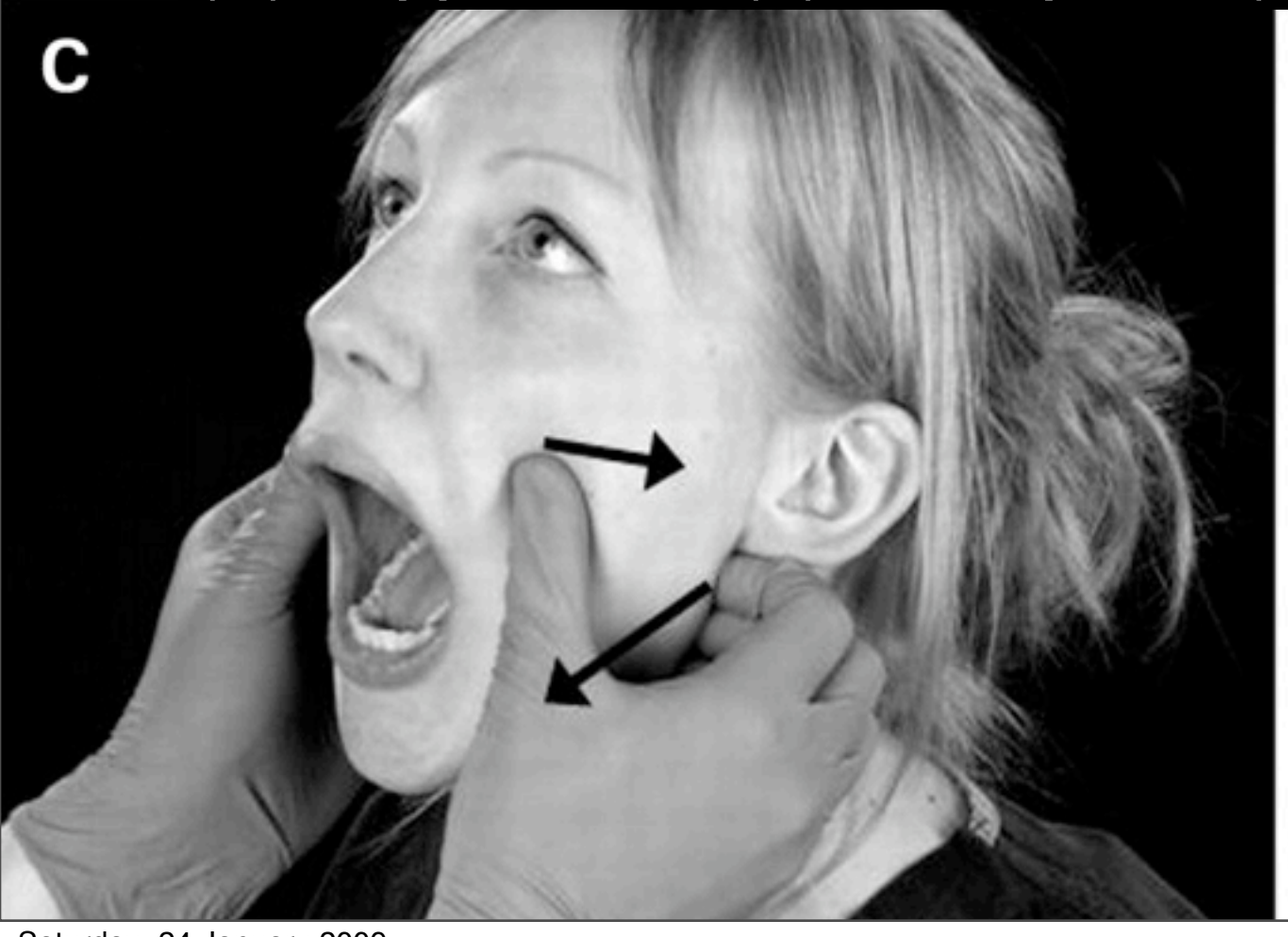
Dislocated Mandible (TMJ)

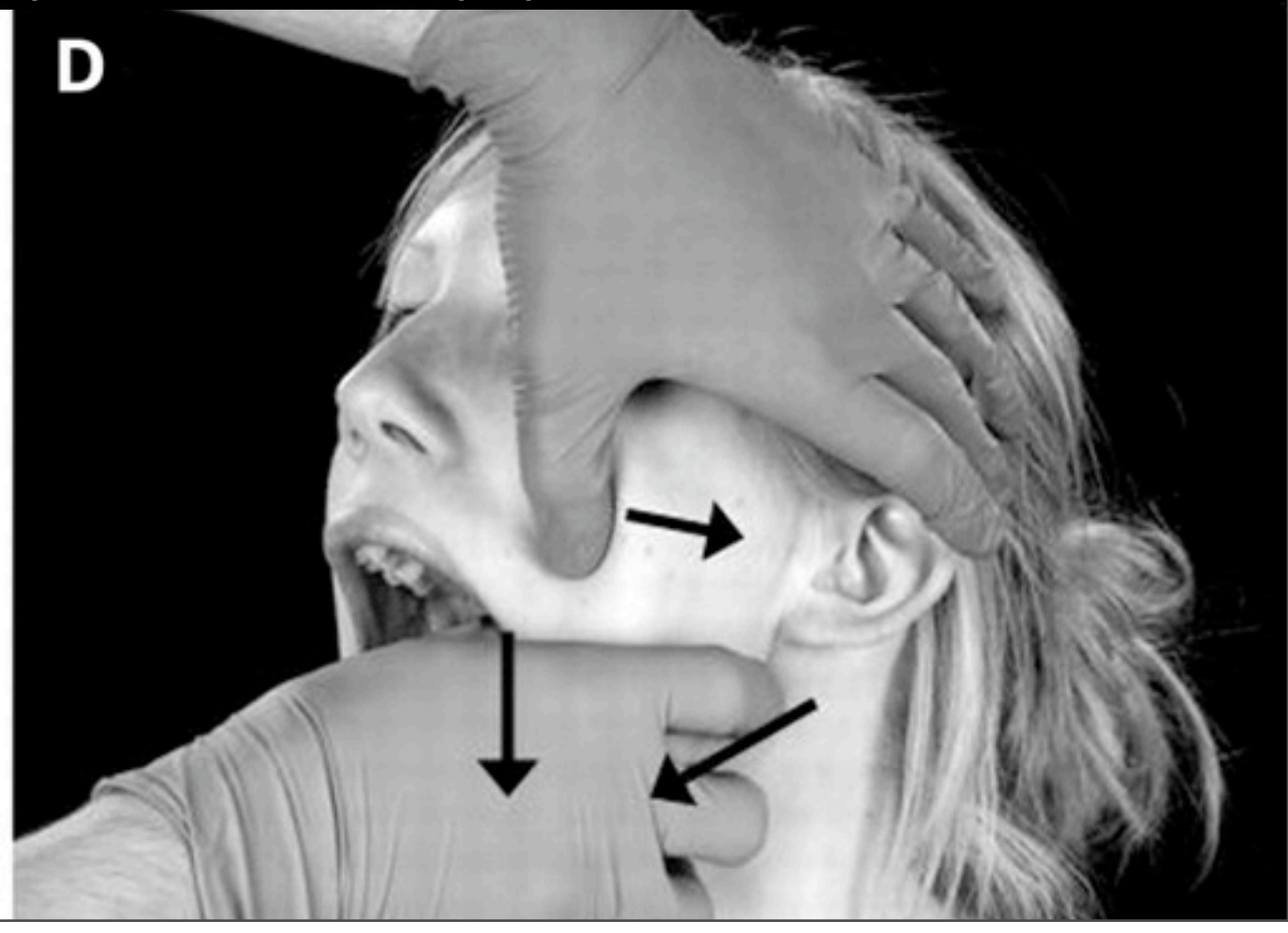
- May need morphine, or (rarely) conscious sedation
- Also 2ml 2% lignocaine via 21G needle in pre-auricular depression
- Gloved hands, gauze wrapped thumbs on lower molars bilaterally inside mouth
- Fingers on lower anterior mandible outside mouth,
- Push down with thumbs, whilst pushing up with fingers (i.e. tilt mandible so the posterior goes inferiorly so the head of the mandible goes over the coronoid process)





(A) Hippocratic; (B) wrist pivot; (C) extra-oral; (D) combined.





Made on a Mac

Made on a Mac

Summary

- Suture lacerations/bites unless complex, or you lack specific experience, then refer
- Suspect facial fracture clinically. Can be tough to see on xray so look for supportive features
- Replace avulsed tooth immediately if possible
- Antibiotics for early dental abscesses
- Refer mandibular fractures acutely