Radiographic Procedures III (RAD 230)
Nasal Bones, Zygoma, and Orbits

Nasal Bones Articulations
Cranial: Frontal, ethmoid
Facial: Maxilla, nasal

Ethmoid Bone
Superior view
- Crista galli
- Orbiiform plate
- Superior nasal concha
- Lateral labyrinth (male)
- Perpendicular plate
- Middle nasal concha (battinate)

Coronal view

Frontal

Ethmoid

Nasal Bone Articulations
Cranial: Frontal, ethmoid
Facial: Maxilla, nasal
Nasal Bone Routine

- Routine
  - Lateral (Right and Left)
  - Parietoacanthial (Waters)
- Special
  - PA axial (Caldwell)
  - Superoinferior tangential

Lateral Nasal Bones

- IPL perpendicular to IR
- CR perpendicular, centered to ½ in (1.25 cm) inferior to nasion
- Collimation

Evaluation Criteria: Lateral Nasal Bones

- Nasal bones centered
- No rotation
- Optimal exposure factors
- Close collimation
  - Anterior nasal spine must be included
    - Missing in images
- Superior/Inferior displacement
Lateral Nasal Bones
Anterior Nasal Spine Inclusion

Parietoacanthial (Waters)
Nasal Bones
- MML perpendicular to IR
- OML forms a 37° angle with IR
- CR perpendicular to IR to exit at acanthion
  - Collimation

Evaluation Criteria: Parietoacanthial
- Petrous ridges below maxillary sinuses
- No rotation
- Optimal exposure factors
  - Nasal Bones, nasal septum, zygoma, arches, ant nasal spine
- Medial/Lateral displacement
Nasal Bones

Medial/Lateral displacement

Superoinferior Tangential

Nasal Bones

- IR parallel to GAL, perpendicular to IR
- CR parallel to GAL
  - Collimation
- Critical Thinking
  - Identify two radiation protection or imaging concerns with this position.
Evaluation Criteria: Superoinferior Tangential

- Nasal bones free of superimposition
- No rotation
- Optimal exposure factors
- Medial/Lateral displacement

Zygomatic Bones

- Articulations:
  - Cranial: Frontal, sphenoid, temporal,
  - FB: Maxilla

Zygomatic Arch Routine

- Routine
  - Submentovertex (SMV)
  - Oblique inferosuperior (tangential)
  - AP axial (modified Towne)
- Special (commonly part of facial bone study)
  - Parietoacanthial (Waters)
  - Lateral
SMV – Zygomatic Arches

- IOML parallel to IR
- CR perpendicular to IOML
  - 1 1/2" inferior to mandibular symphysis
  - Collimation

Evaluation Criteria: SMV Zygomatic Arches

- Zygomatic arches well demonstrated in profile
  - Medial/Lateral displacement
- Zygomatic arches symmetric
- No rotation
- Optimal exposure factors

Oblique Inferosuperior (Tangential)
Both sides imaged for comparison

- IOML parallel to IR
- Rotate skull and tilt chin 15° toward affected side
  - Vertex tilts to opposite side
- CR perpendicular to IR and IOML
- CR to arch of interest
  - Collimation
Evaluation Criteria: Oblique Inferosuperior (Tangential)

- Unilateral zygomatic arch well demonstrated
  - Medial/Lateral displacement
- No superimposition
- Optimal exposure factors

AP Axial (Towne)

- CR 30° to OML or 37° to IOML
- CR 1 in (2.5 cm) superior to glabella (to pass through mid arches)
  - Collimation

Evaluation Criteria: AP Axial (Towne)

- Zygomatic arches well demonstrated
  - Medial/Lateral displacement
- No rotation
- Optimal exposure factors
Zygoma Positions
Lateral
Parietoacanthial

Base of Orbit: 3 Bones

Bony Composition of Orbits
- Cranial bones (3)
  - Ethmoid, frontal, sphenoid
- Facial bones (4)
  - Lacrimal, maxillary, palatine, zygomatic
Openings in Orbit

Optic Foramen: Optic Nerve

Superior Orbital Fissure: (CN III-VI)
(movement eye & eyelid)

 Inferior Orbital Fissure: CN V
(Sensory cheek, nose, upper lip, teeth)

Optic Foramina - Orbit

- Routine
  - Parietoorbital oblique (Rhese)
  - Parietoacanthial (Waters)
  - PA (Caldwell)
- Special
  - Modified parietoacanthial (modified Waters)
Parietoorbital Oblique Projection (Rhese Method)

- Bilateral projections taken for comparison
- CR perpendicular to downside orbit
- MSP 37° to CR, 53° to IR
- AML perpendicular to IR

Evaluation Criteria: Rhese Method

- Optic foramen in lower outer quadrant
- Close collimation
- Optimal exposure factors

Orbit Routine

Parietoacanthial, Modified Parietoacanthial

Identify the localization line used
Identify the degree of OML angle with the IR
How do you differentiate the radiographic positions?