



RADIOGRAPHIC TECHNIQUE-2

OPTIC FORAMINA, ZYGOMATIC ARCHES , MANDIBLE

Sawa University

College of health and medical techniques

Department of Radiology Tech.

3rd Academic year

LEC.5

THEORETICAL

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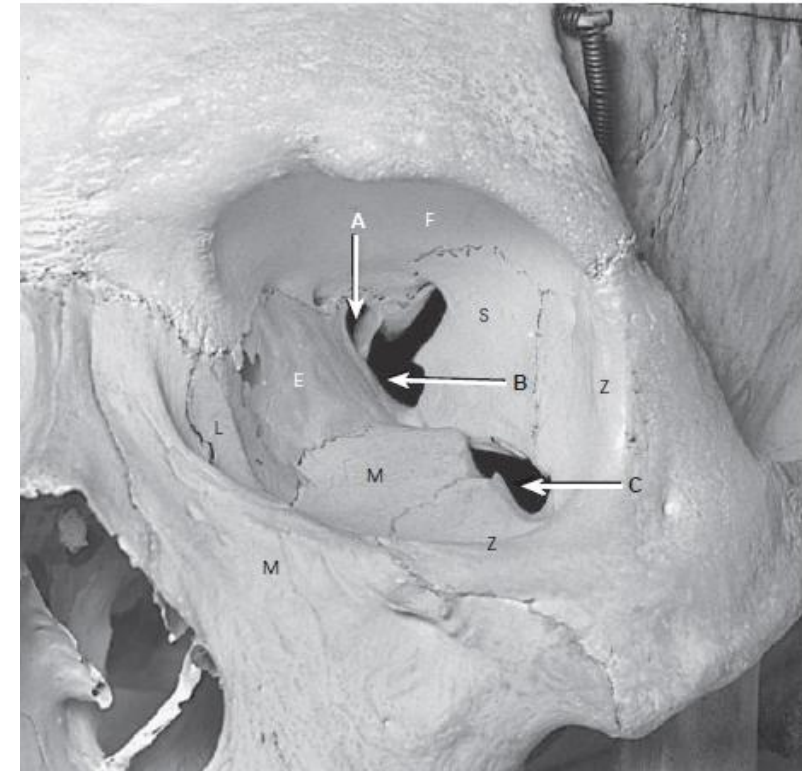
OPTIC FORAMINA

Routine Projections

- ▶ **Parieto-orbital oblique (Rhes)**
- ▶ Parietoacanthial (Waters method)

Clinical Indications

- ▶ Bony abnormalities of the optic foramen.
- ▶ Demonstrate lateral margins of orbits and foreign bodies within eye.
- ▶ CT is the preferred modality for a detailed investigation of the optic foramina.
- ▶ Radiographs of both sides are taken for comparison.



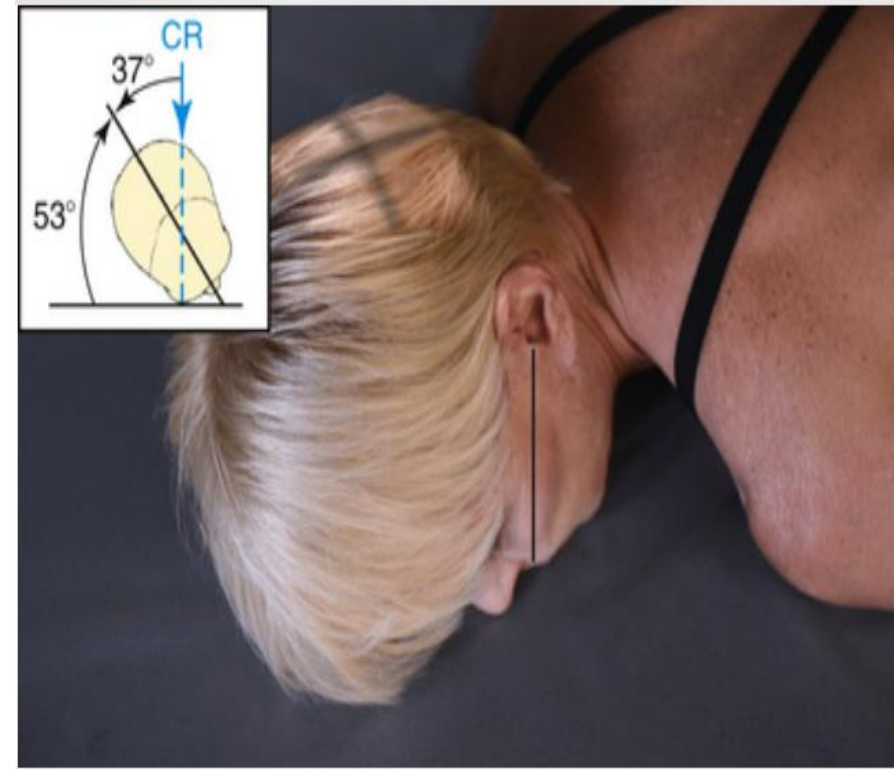
A, Optic canal and foramen. B, Superior orbital fissure. C, Inferior orbital fissure. E, ethmoid; F, frontal; L, lacrimal; M, maxilla; S, sphenoid; Z, zygomatic

PARIETO-ORBITAL OBLIQUE (RHESE)

Patient Position

1. Position patient erect or supine. patient's head in a prone position with MSP perpendicular to IR.
2. Adjust flexion and extension so that AML is perpendicular to IR.
3. Adjust the patient's head so that the chin, cheek, and nose touch the IR.
4. Rotate the head 37° toward the affected side. The angle formed between MSP and plane of IR measures 53° .

CR: Align CR perpendicular to IR at the midportion of the downside orbit.



PARIETO-ORBITAL OBLIQUE (RHESE)

Collimation: Collimate on all sides to anatomy of interest.

Technical Factors

SID: 102 cm

Grid: yes

IR size: (8 × 10 inches) L.W

kV: 75

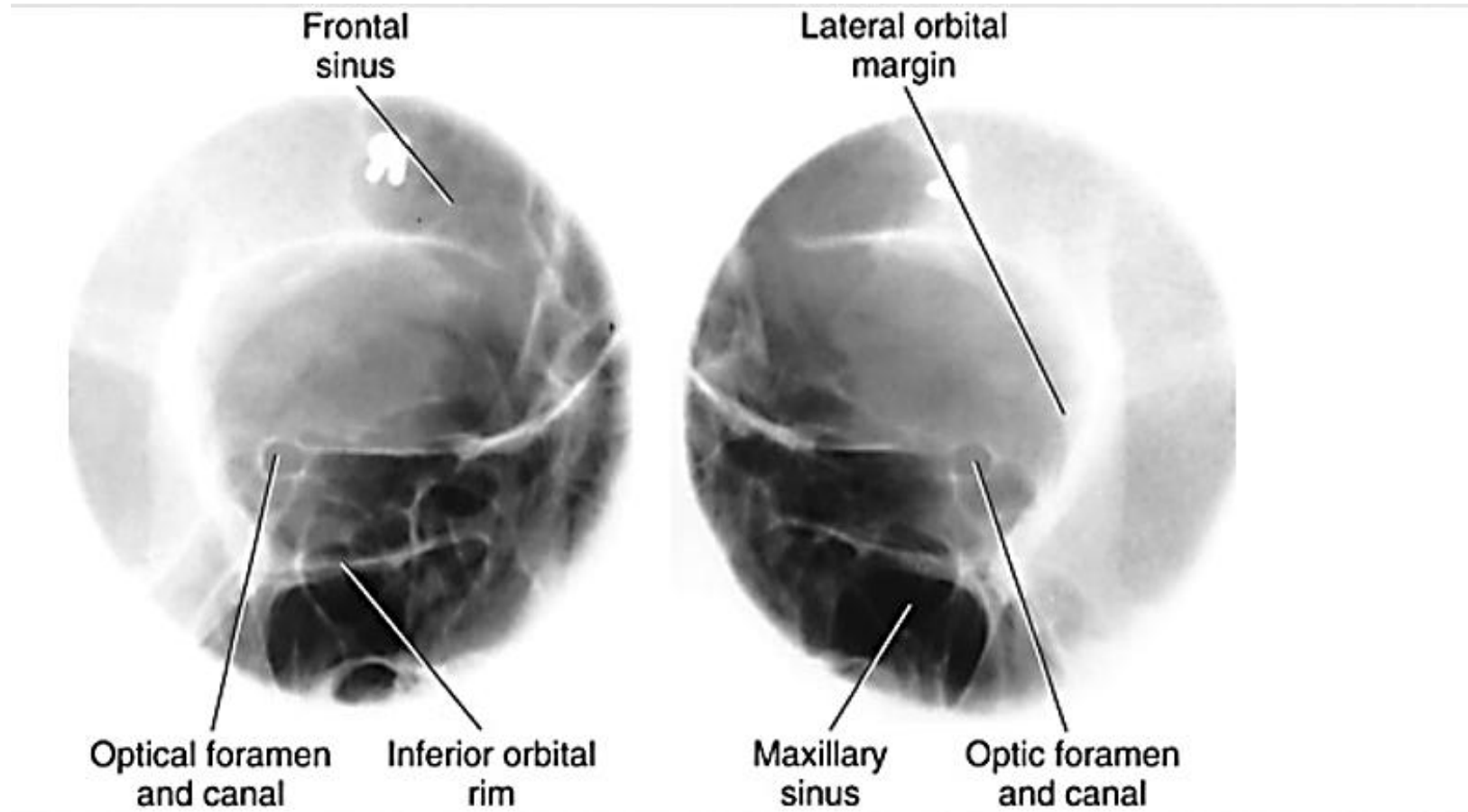
mAs: 20

Respiration: Suspended

Evaluation Criteria:

- ▶ Bilateral, nondistorted view of the optic foramen. Lateral orbital margins are demonstrated.
- ▶ Accurate positioning projects the optic foramen into the lower outer quadrant of the orbit.
- ▶ Sufficient brightness and contrast to visualize the optic foramen.

PARIETO-ORBITAL OBLIQUE (RHESE)



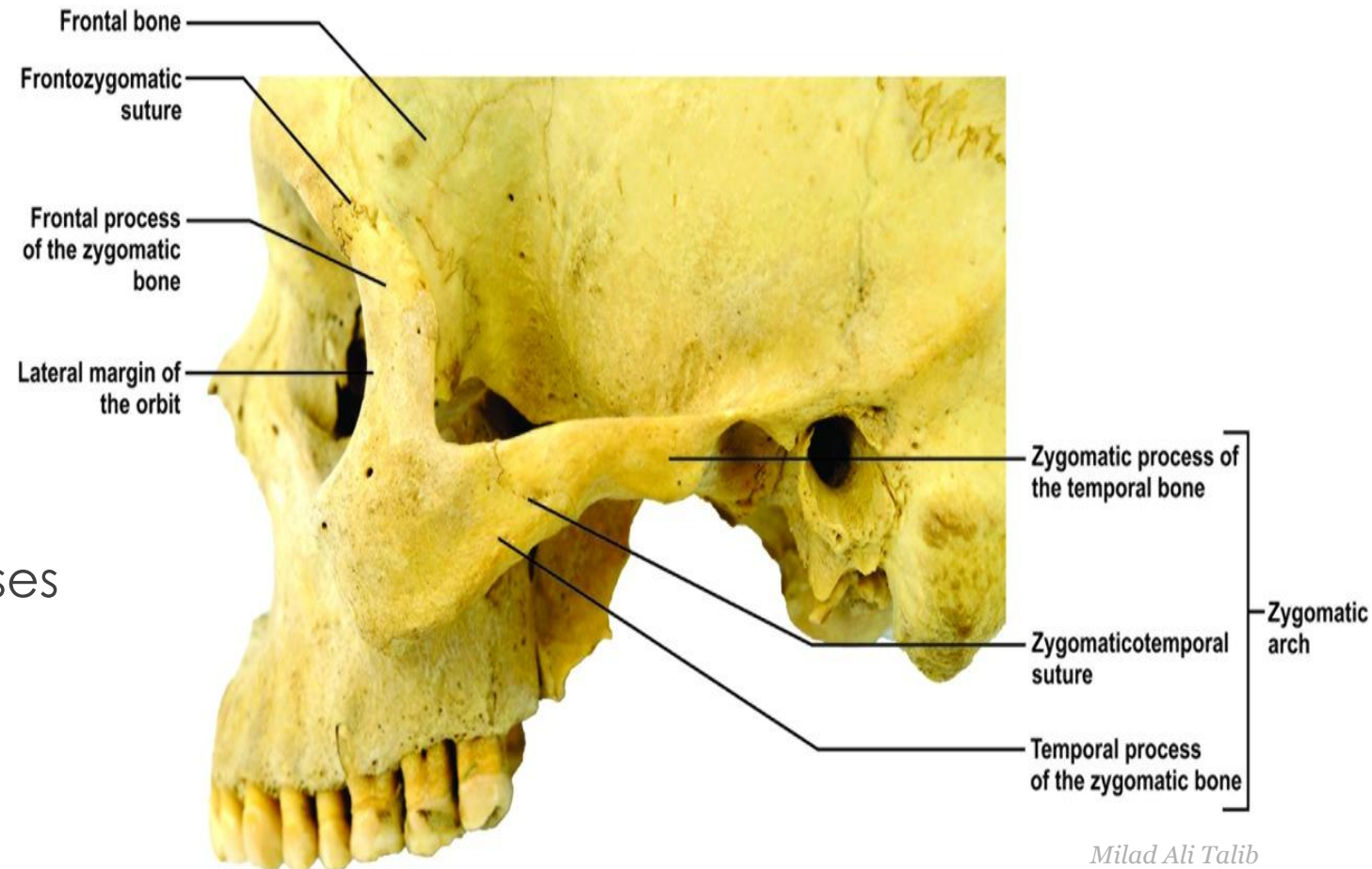
ZYGOMATIC ARCHES

Routine Projections

- ▶ Submentovertical (SMV)
- ▶ **Oblique inferosuperior (tangential)**
- ▶ AP axial (modified Towne method)

Clinical Indications

- ▶ Fractures of zygomatic arch
- ▶ Neoplastic or inflammatory processes



OBLIQUE INFEROSUPERIOR (TANGENTIAL)

Patient Position

- ▶ Patient is erect (easier) or supine.
- ▶ Raise chin, hyperextending neck until IOML is parallel to IR.
- ▶ Rest head on vertex of skull.
- ▶ Rotate head 15 ° toward side to be examined; also tilt chin 15 ° toward side of interest.

CR

- ▶ Align CR perpendicular to IR and IOML.
- ▶ Center CR to exit at zygomatic arch of interest.
- ▶ Adjust IR so it is parallel to IOML and perpendicular to CR.



OBLIQUE INFEROSUPERIOR (TANGENTIAL)

Collimation Collimate closely to zygomatic bone and arch.

Technical Factors

SID: 102 cm

Grid: yes

IR size: (8 × 10 inches) L.W

kV: 68

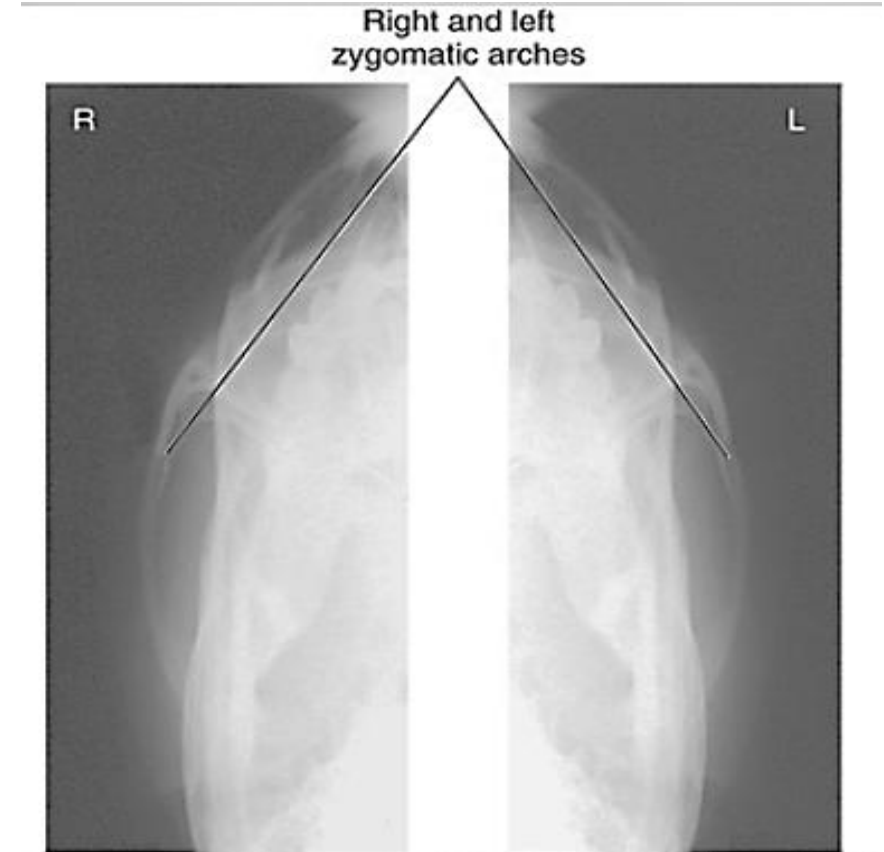
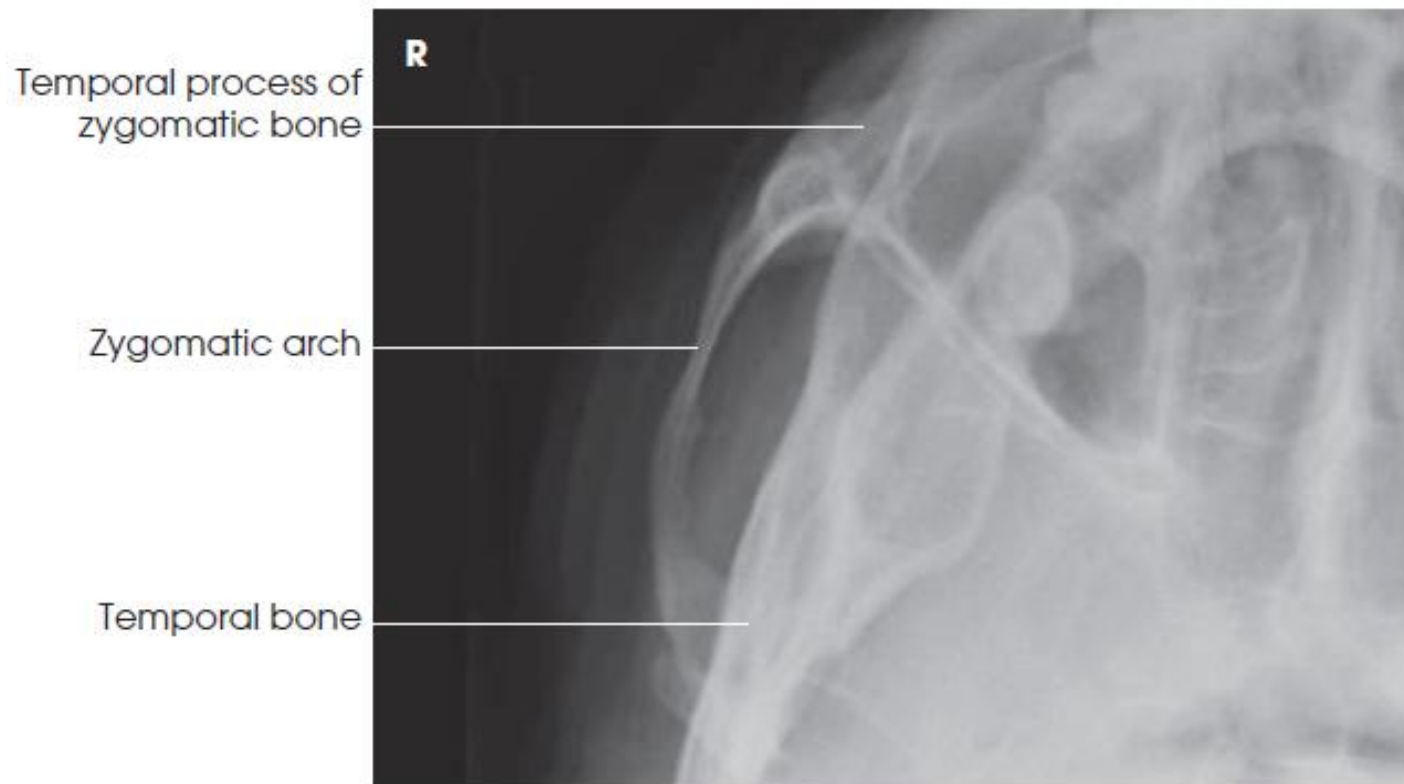
mAs: 12

Respiration: Suspended

Evaluation Criteria:

- ▶ Single zygomatic arch, free of superimposition.
- ▶ Sufficient brightness and contrast demonstrate zygomatic arch.
- ▶ No motion.

OBLIQUE INFEROSUPERIOR (TANGENTIAL)



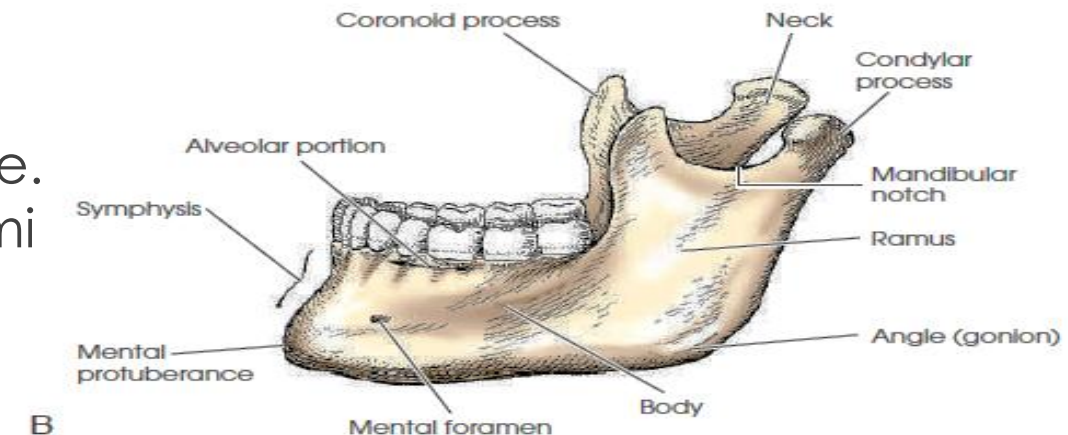
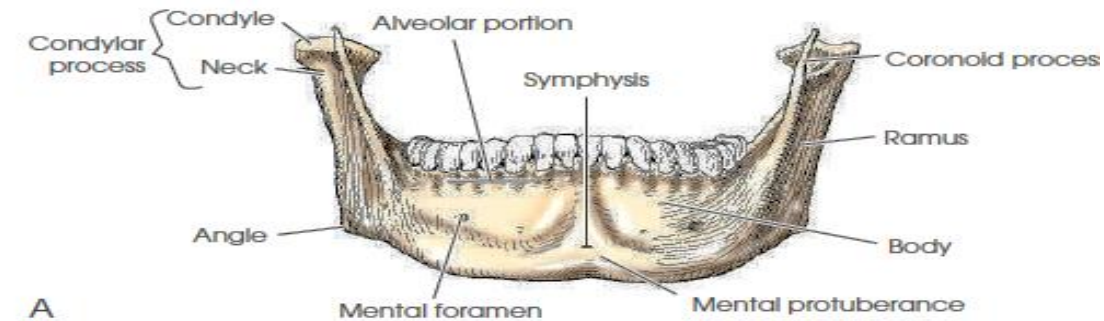
MANDIBLE

Routine

- ▶ Axiolateral or Axiolateral oblique
- ▶ **PA (or PA axial)**
- ▶ AP axial (Towne method)

Clinical Indications

- ▶ Fractures
- ▶ Neoplastic or inflammatory processes of mandible. Optional PA axial best demonstrates proximal rami and elongated view of condyloid processes.



PA (OR PA AXIAL)

Patient Position:

- ▶ Patient is erect or prone. Rest patient's forehead and nose against IR.
- ▶ Tuck chin, bringing OML perpendicular to IR.
- ▶ Align MSP perpendicular to midline of IR.
- ▶ Center IR to projected CR (to exit the acanthion).

CR

- ▶ PA: Align CR perpendicular to IR, **CR centered to exit at acanthion**. **For trauma patients, this position is best performed supine**.



PA—CR perpendicular, exit at acanthion. Inset, Optional PA axial—CR 20° to 25° cephalad, exit at acanthion.

PA (OR PA AXIAL)

Collimation: Collimate on four sides to anatomy of interest.

Technical Factors

SID: 102 cm

Grid: yes

IR size: (10X12 inches) L.W

kV: 75

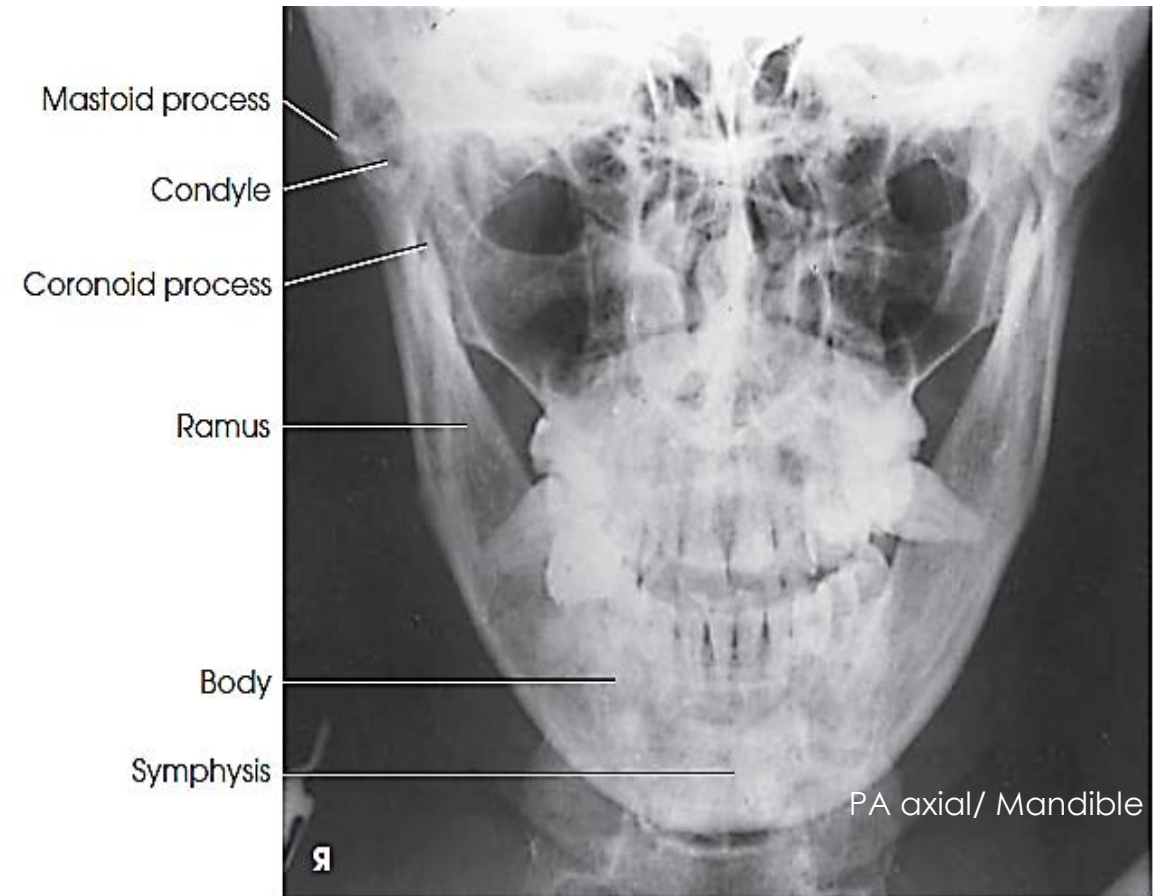
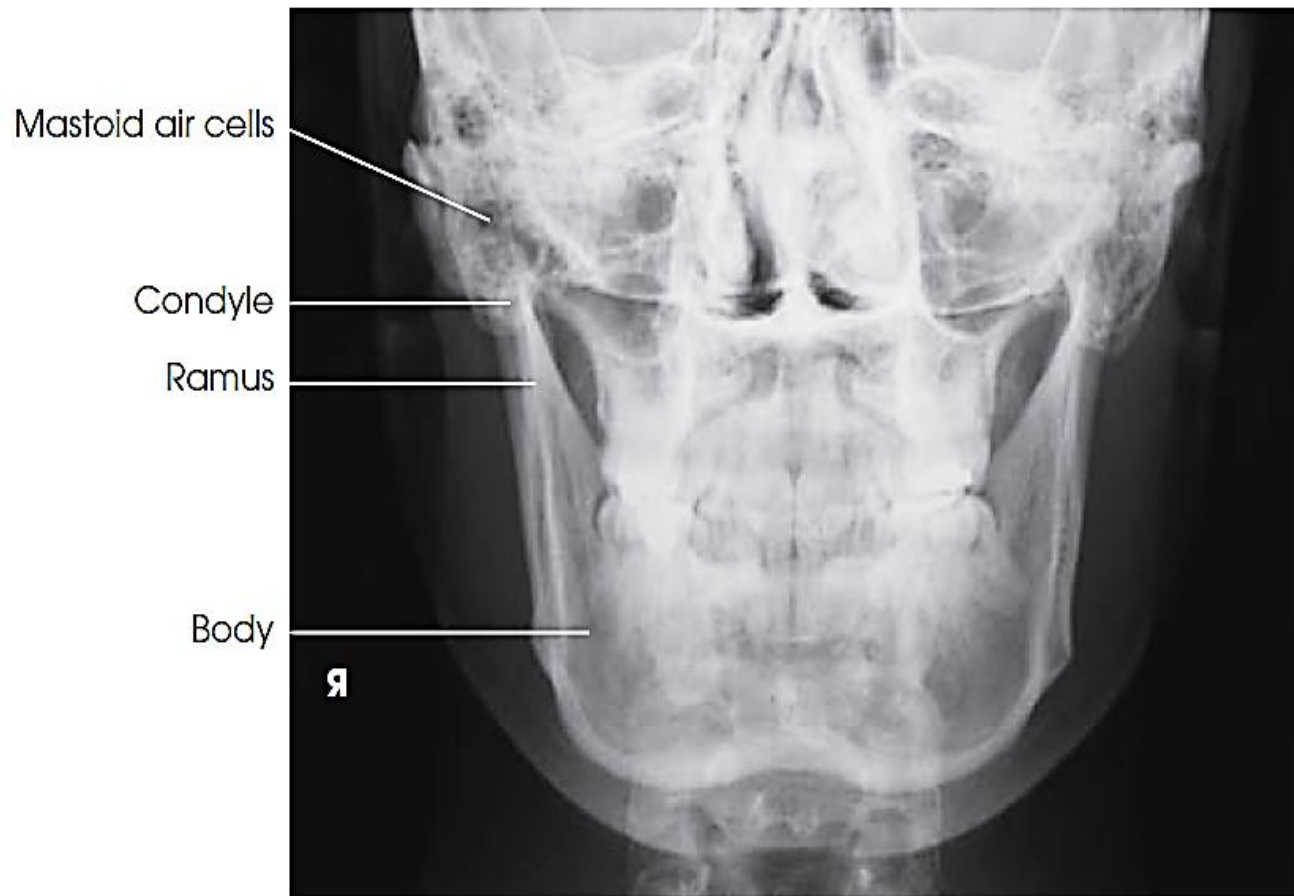
mAs: 12

Respiration: Suspended

Evaluation Criteria:

- ▶ PA: Mandibular rami and body are visible.
- ▶ Sufficient brightness and contrast.
- ▶ No rotation or tilt.

PA (OR PA AXIAL)



MANDIBLE

Special

- ▶ SMV
- ▶ **Orthopantomography (mandible or TMJs or both)**

This technique of body-section radiography provides a panoramic image of the entire mandible, including the TMJ, and of both dental arches on one long, narrow image.

Clinical Indications

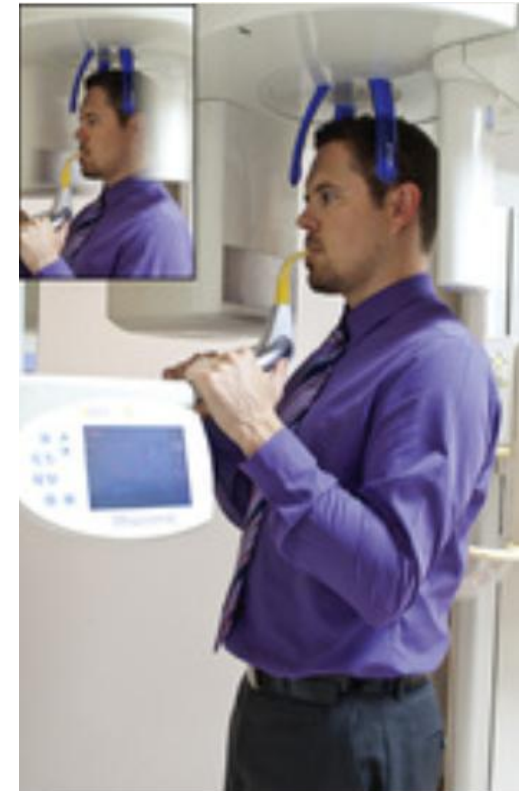
- ▶ Fractures or infectious processes of mandible.
- ▶ Used as an adjuvant before bone marrow transplants.



PANORAMIC TOMOGRAPHY OF THE MANDIBLE

Patient Position:

- ▶ Resting patient's chin on bite-block.
- ▶ Do not allow head and neck to stretch forward; have patient stand in close, with spine straight and hips forward.
- ▶ Adjust height of chin rest until IOML is aligned parallel with floor.
- ▶ Align MSP with vertical center line of chin rest.
- ▶ Position bite-block between patient's front teeth.
- ▶ Instruct patient to place lips together and position tongue on roof of mouth



PANORAMIC TOMOGRAPHY OF THE MANDIBLE

CR:

- ▶ Central laser light in the midsagittal plane, axial laser light at the IOML, lateral laser light at the lateral incisor
- ▶ **Collimation:** A narrow, vertical-slit diaphragm is attached to tube, providing collimation.

Technical Factors

SID: 102 cm

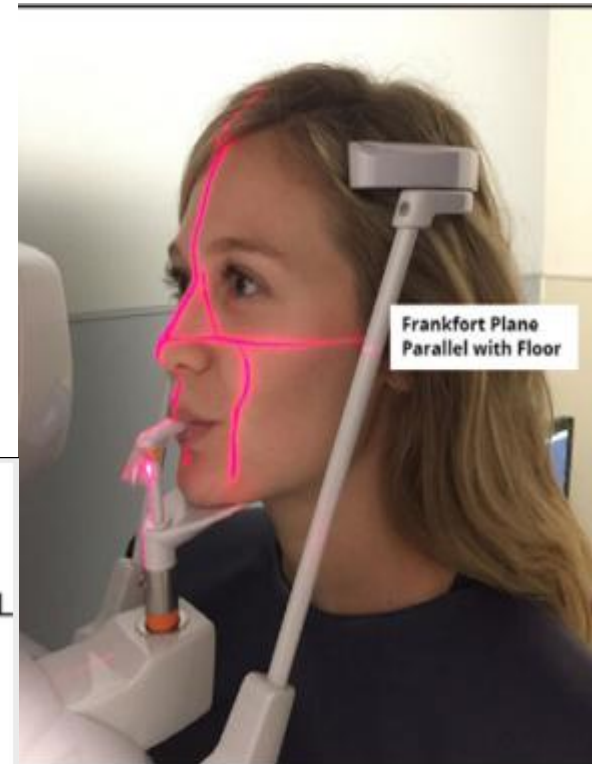
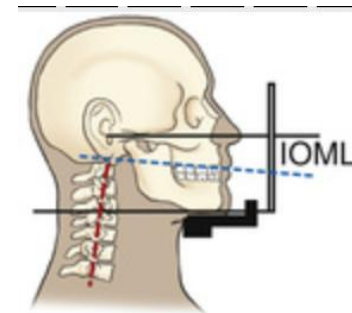
IR size: (9x12 inches)CW

kV: 75

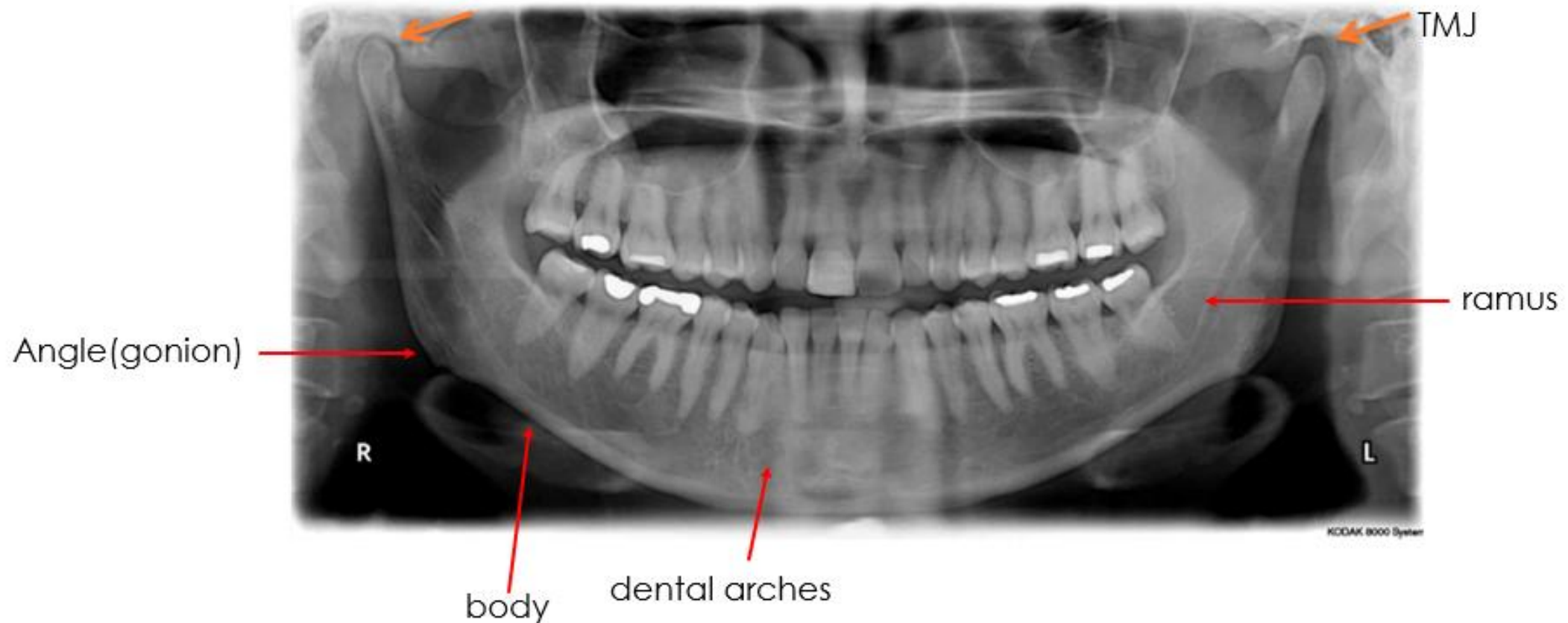
Curved nongrid cassette

Respiration: Suspended

mAs: 10



PANORAMIC TOMOGRAPHY OF THE MANDIBLE





Thank you