Al-Mustaqbal University

Radiological Techniques Department

Radiographic technique

Facial bones and sinuses

Fourth lecture

Third stage

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Facial bones and sinuses

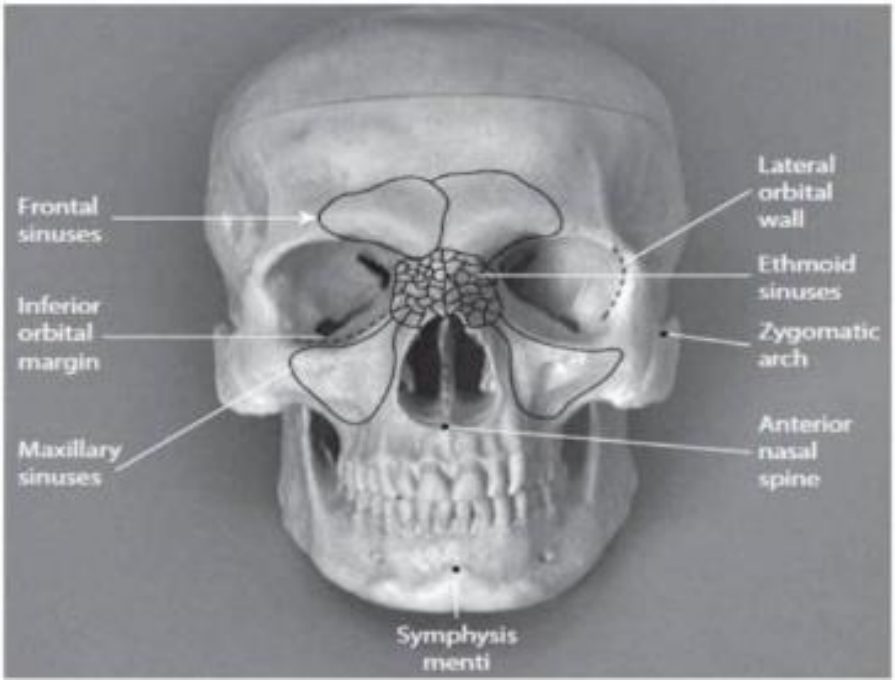

Fig (8-25a) Anterior aspect of the skull showing important structures

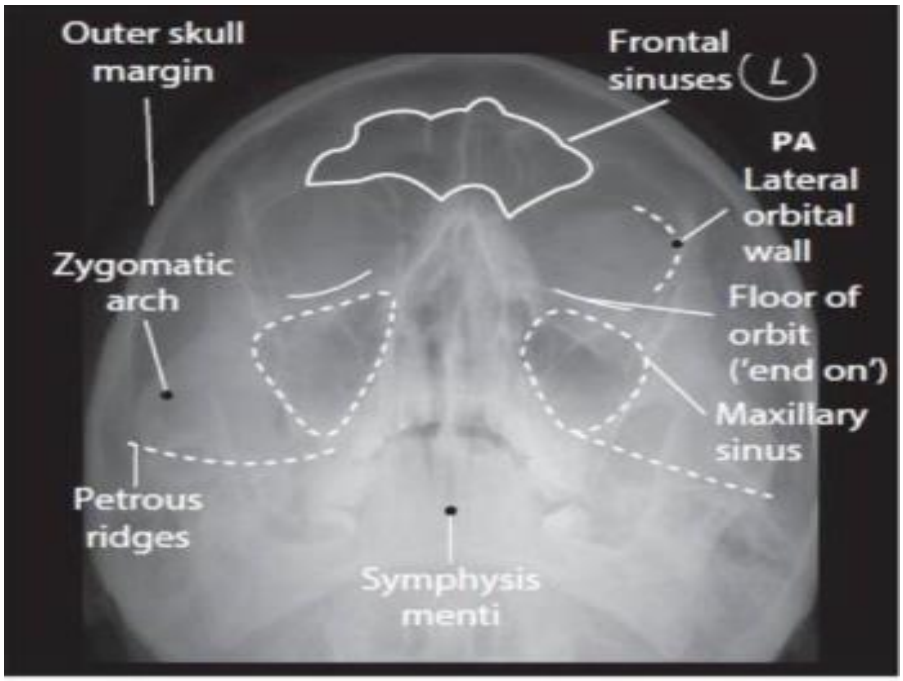

Fig (8-26a) Labelled radiograph showing important structures.

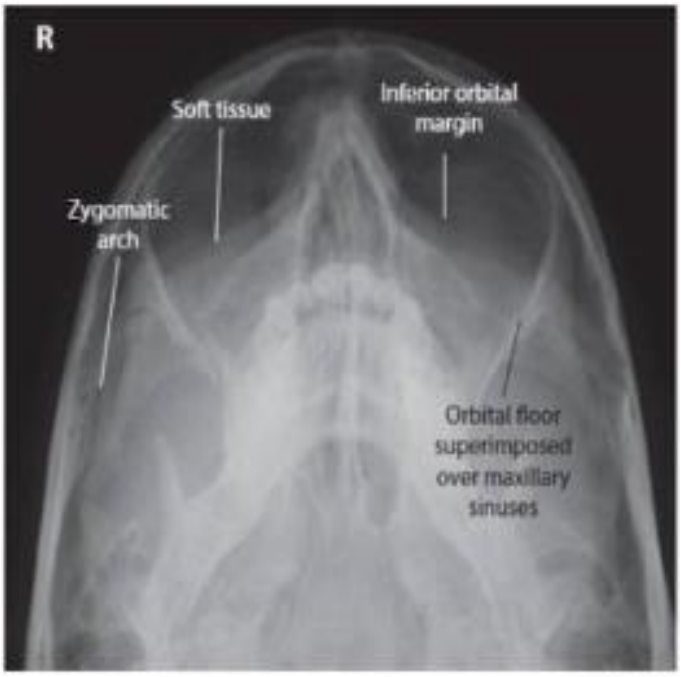

Fig (8-26b) Labelled radiograph showing important structures.

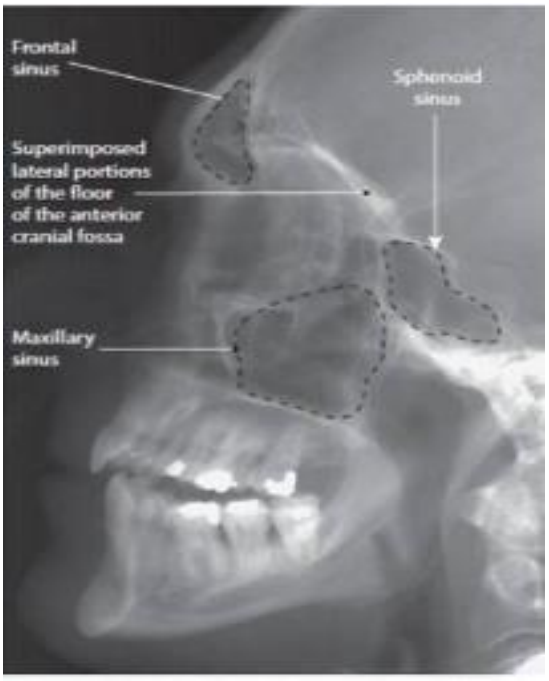

Fig (4-26c) Labelled radiograph showing important

Facial bones

Occipito-mental (Fig 8-28a)

The occipito-mental (OM) projection shows the floor of the orbits, nasal region, the maxillae, inferior parts of the frontal bone and the zygomatic bone. The OM projection is designed to project the petrous parts of the temporal bone (which overlies the region and would cause unwanted 'noise' on a facial bone image) below the inferior part of the maxilla.

Position of patient and image receptor

- The projection is best performed with the patient erect, seated facing the Bucky/receptor.
- The patient's nose and chin are placed in contact with the midline of the Bucky/receptor and then the head is adjusted to bring the orbito-meatal baseline to a 45°angle to the Bucky/receptor.
- The horizontal central line of the Bucky/receptor should be at the level of the lower orbital margins.
- Ensure the median sagittal plane is at right-angles to the Bucky/receptor by checking the outer canthus of the eyes and the EAMs are equidist

Direction and location of the X-ray beam

- The collimated horizontal beam is centred to the Bucky/ receptor before positioning is undertaken.
- To check the beam is centered properly, the crosslines on the Bucky/receptor should coincide with the patient's anterior nasal spine.

Fig (8-28a) patient positioning

Essential image characteristics

- The petrous ridges should be demonstrated inferior to the floors of the maxillary sinuses.
- There should be no rotation. This can be checked by ensuring the distance from the lateral orbital wall to the outerskull margins is equidistant on both sides.

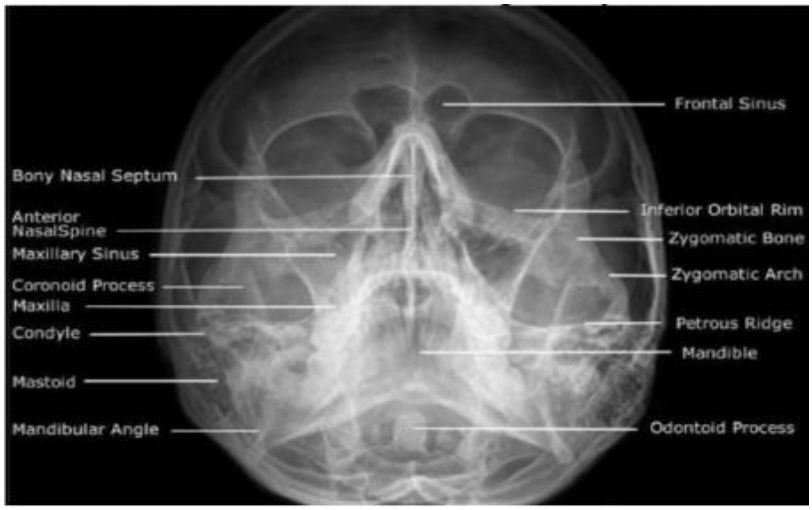

Fig (8-28b) OM radiograph

Modified mento-occipital

(Figs 8-29a . 8-29c)

Patients who have sustained trauma will often present supine on a trolley, Modifications in technique will therefore be required by imaging the patient in the antero-posterior position and adjusting the beam angle to ensure the petrous bones are projected away from the facial bones.

Position of patient and image receptor

- The patient will be supine on the trolley and should not be moved. The CR cassette/receptor is placed either in the cassette tray in the trolley or under the patient.
- The top of the CR cassette/receptor should be at least 5 cm above the top of the head to allow for any cranial beam angulation.

Direction and location of the X-ray beam

- The patient should be assessed for position (angle) of the orbito-meatal line in relation to the receptor and obviously any modifications must be made to the tube angulation and the patient not moved

- If the baseline makes an angle of 45° back from vertical (chin raised), then a perpendicular beam can be employed centred to the midline at the level of the lower orbital margins.
- If the orbito-meatal baseline makes an angle of less than 45° with the cassette/receptor then the difference between the measured angle and 45° should be added to the beam in the form of a cranial angulation. The centring point remains the same.
- For example, if the orbito-meatal baseline was estimated to be 20° from vertical as the chin was raised, then a 25° cranial angulation would need to be applied to the tube to maintain the required angle (see image).
- The beam is collimated to the area of interest.

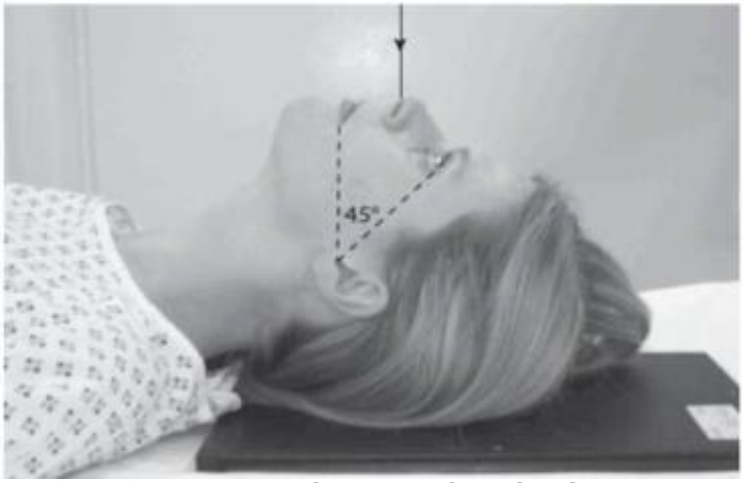

Fig (8-29a) patient imaged supine with 45º baseline

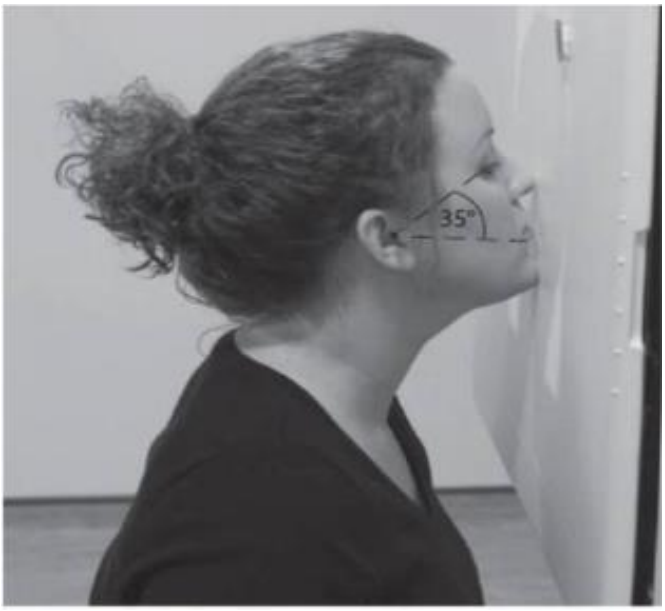

Fig (8-34a) patient positioning

Fig (8-34c) radiograph of orbits

Nasal bones - lateral (Figs 8-35a, 8-35b)

Position of patient and image receptor

- The patient sits facing an 18 X 24 cm CR cassette supported in the cassette stand of a vertical Bucky.
- The head turned so the median sagittal plane is parallel with the image receptor and the interpupillary line is perpendicular to the image receptor.
- The nose should be roughly coincident with the centre of the image receptor.

Direction and location of the X-ray beam

• A horizontal central ray is directed through the centre of the nasal bones and collimated to include the nose.

Fig (8-35a) patient positioning

Fig (8-35b) lateral radiograph of the nose

Posttest:

Q What is Position of patient and image receptor of Zygomatic arches

References :

1-Lampignano, J.. & Kendrick, L. E. (2021). Bontrager's Handbook of Radiographic Positoning and Techniques: 10e. South Asia Edition-E-Book Eisevier Health Sciences.

4- Rollins, J. H. Long, B. W.. & Curtis, T. (2022), Mernil's Allas of Radiographic Posionng and

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