جامعة المستقبل

كلية التقنيات الصحية والطبية

قسم تقنيات البصريات

Fourth Stage 2024-2025

X-ray and Ultrasound of The Eye

Lecture Title

Standard Orbital Views

Lecture Number: 3

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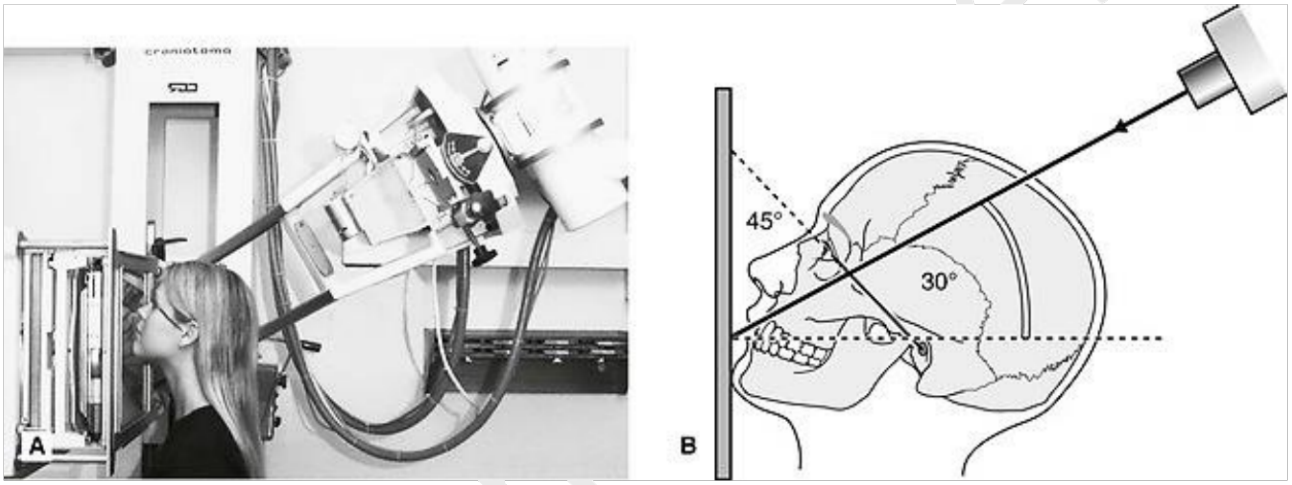
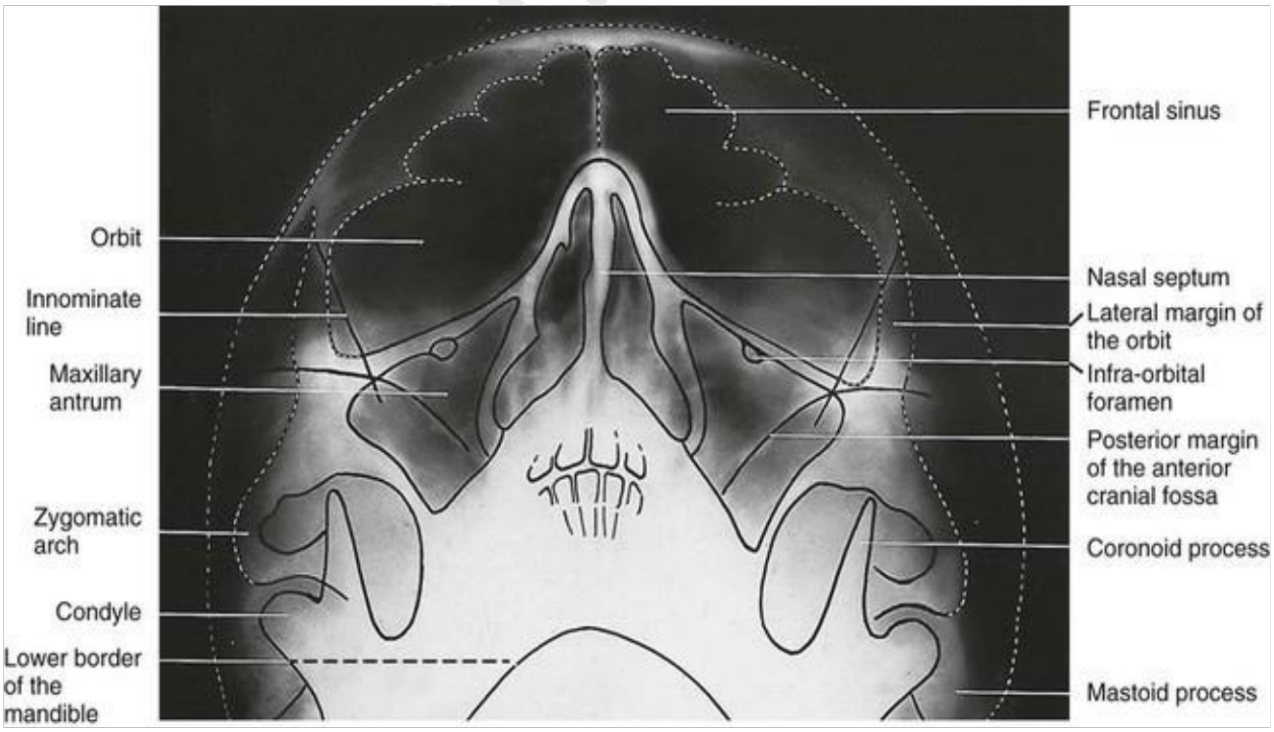
OPTOMETRIST

X-Ray Standard Orbital Views

1. Waters' View (Occipitomental View):

- Best for visualizing orbital floor and infraorbital rim.
- Commonly used for suspected fractures.
- Patient positioning:
  - ✓ Placing the chin of the patient on the cassette
  - ✓ The canthomeatal line at 37 degrees to 45 degrees.
  - ✓ The nose of the patient is 0.5 to 1.5 cm above the x-ray plate.



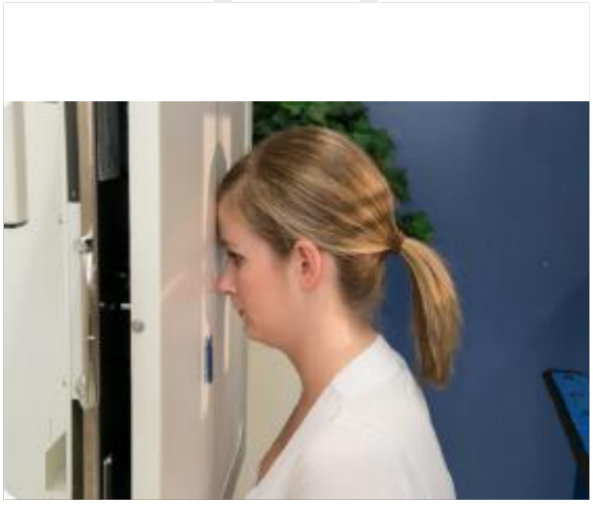


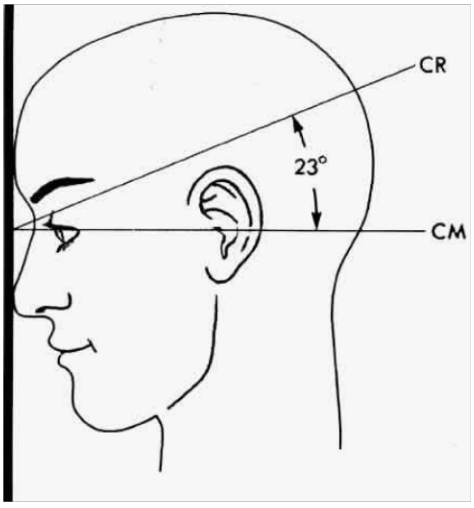
❖ **The Waters view provides the best image:**

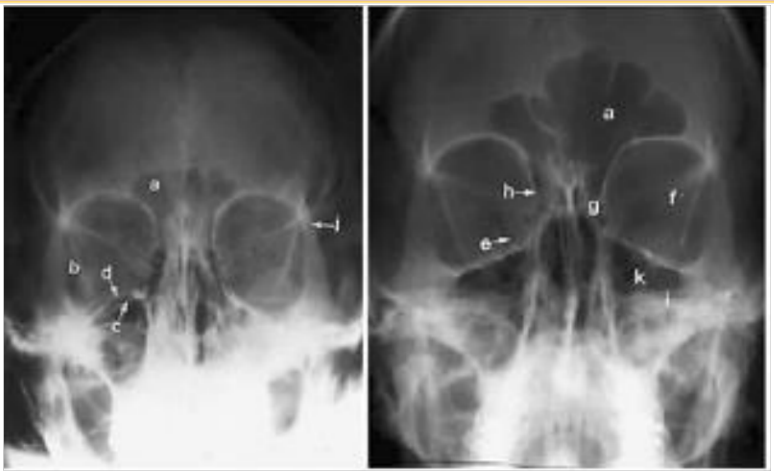
- → maxillary antrum (sinus)
- → orbital rim
- → orbital floor
- → zygomatic bones and arches
- → lesser wing of the sphenoid
- → infraorbital foramen

2. Caldwell View (Occipitofrontal View):

- Ideal for superior orbital rim and frontal sinuses.
- Helps visualize foreign bodies in the orbit.
- Patient positioning:
  - ✓ Both the nose and forehead on the x-ray cassette
  - ✓ The x-ray beam is directed downward 15° to 23° to the canthomeatal line.
  - ✓ The petrous bones inferior to the orbit, thus avoiding obscuration of the orbital structures.



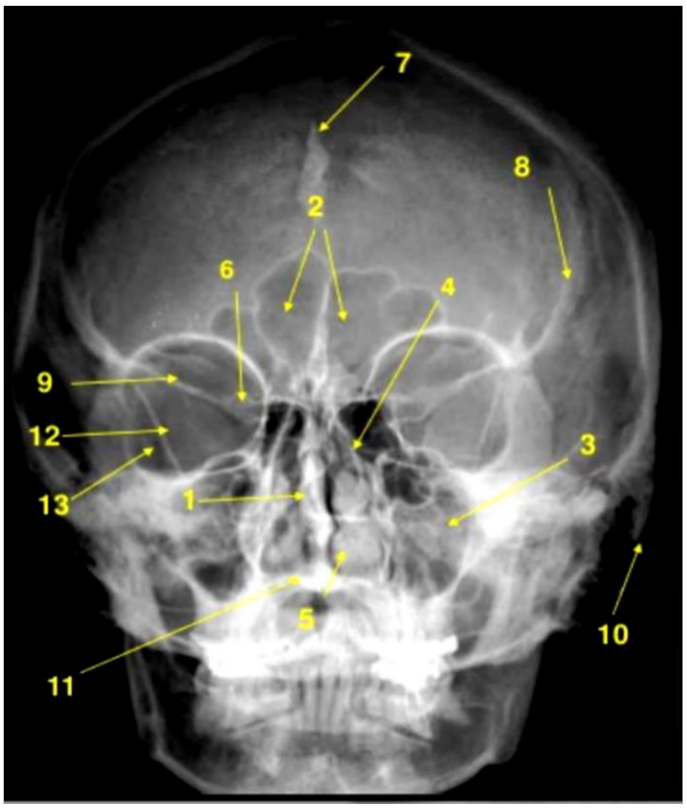




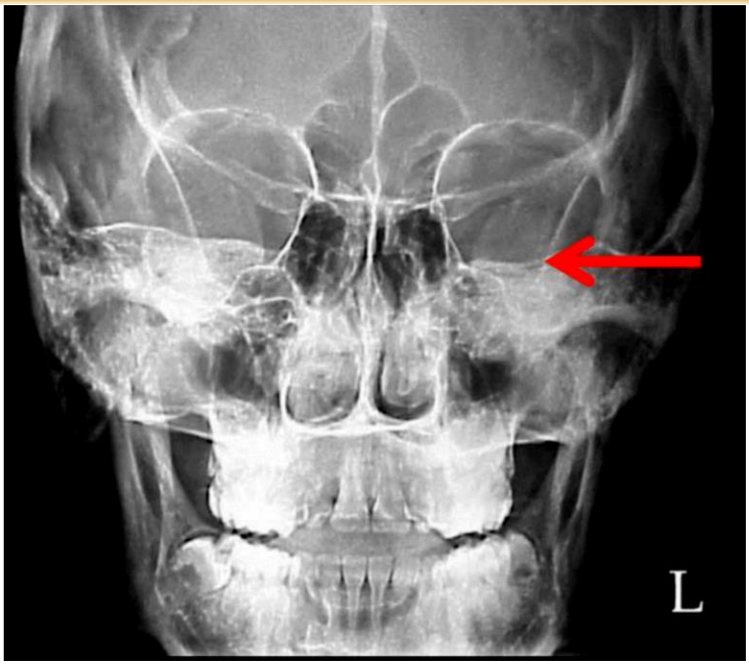
a: frontal sinus
b: innominate line
c: inferior orbital rim
d: posterior orbital floor
e: superior orbital fissure
f: greater wing of sphenoid
g: ethmoid sinus
h: medial orbital wall
i: petrous ridge
j: zygomatic frontal suture
k: foramen rotundum

❖ **Caldwell Projection has an excellent view of:**

- → Frontal and ethmoid sinuses.
- → Orbital rims and medial orbital wall.
- → Greater and lesser sphenoid wings.
- → Lacrimal gland fossa.
- → Superior and inferior orbital fissures
- → The innominate line



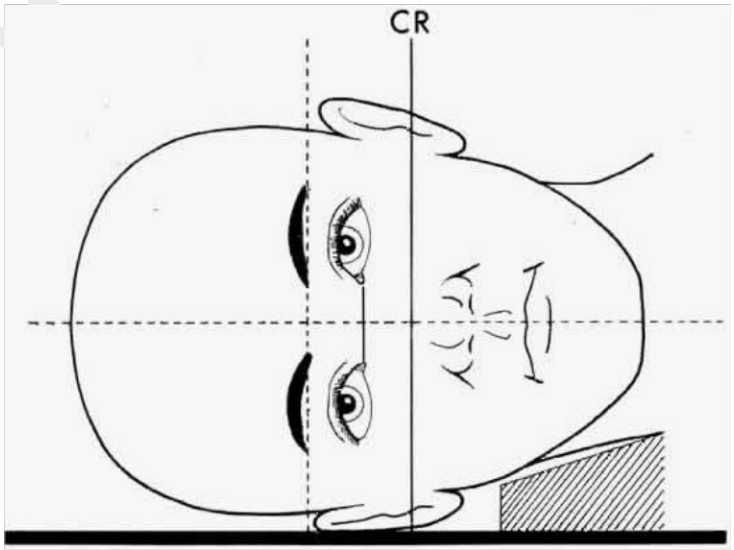
2. frontal sinus
3. maxillary sinus
4. ethmoid sinus
12. innominate line

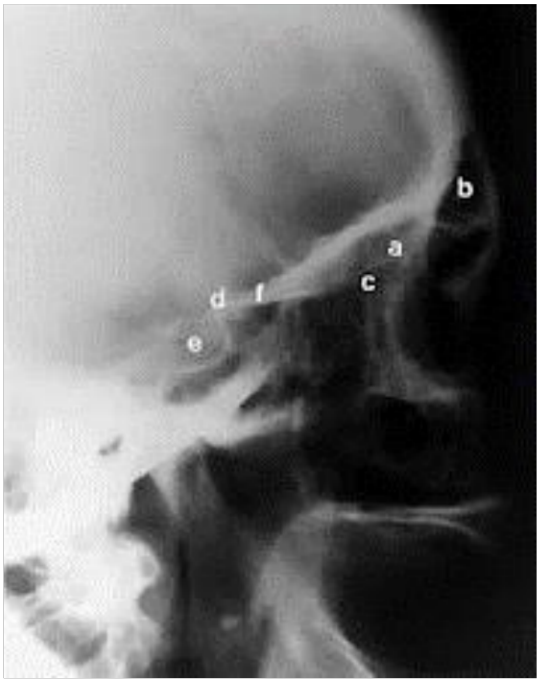


Petrous ridge is positioned at the orbital floor (the lower 1/3 of the orbits)

3. Lateral View:

- Shows lateral orbital wall and orbital soft tissues.
- Used to detect trauma or foreign bodies in the orbit.
- Patient positioning:
  - ✓ The patient's head against the x-ray cassette
  - ✓ The cassette is centered on the lateral canthus
  - ✓ The x-ray beam is directed perpendicularly to the midpoint of the cassette and enters the patient's head at the lateral canthus remote from the cassette.





a: orbital roof
b: frontal sinus
c: ethmoid sinus
d: anterior clinoid process
e: sella turcica
f: planum sphenoidale

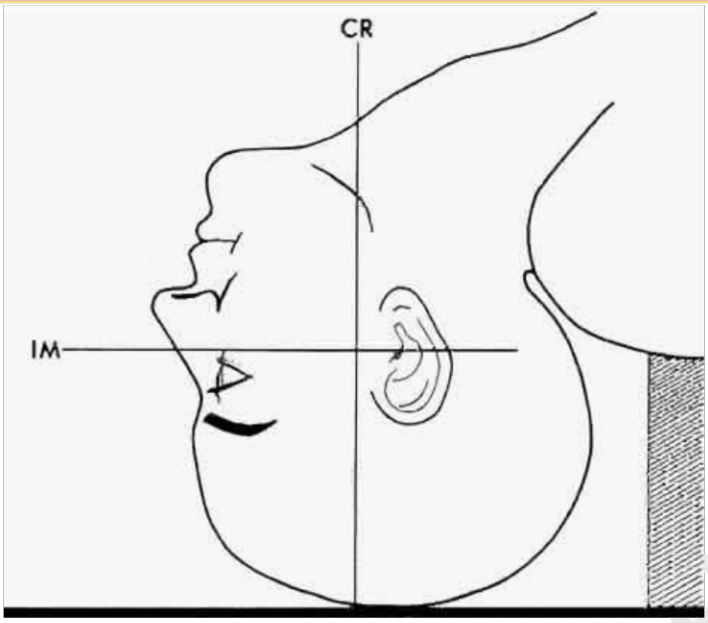
4. Basal View (submento-vertex)

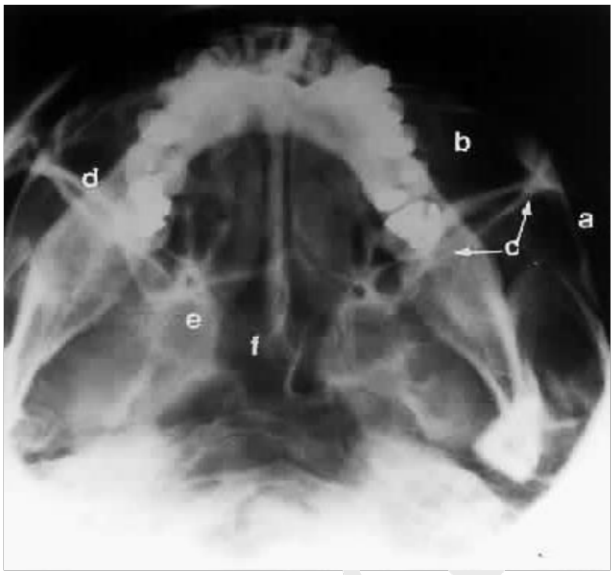
- Used to visualize the zygomatic arches, orbital floors, and the foramina at the base of the skull.
- Useful for detecting orbital fractures, especially involving the orbital roof and zygomatic arch.
- Clinical use: Commonly used in trauma cases to evaluate orbital fractures and in cases of suspected zygomatic complex injuries. Also useful for detecting foreign bodies.
- Patient positioning:

✓ The patient's neck extended either in the supine or upright position.

✓ The top of the head is placed so that the infraorbitomeatal line is parallel with the x-ray cassette.

✓ The x-ray beam is directed at right angles (perpendicular) to the infraorbitomeatal line.





a: zygomatic arch
b: orbit
c: lateral orbital wall
d: posterior wall of maxillary sinus
e: pterygoid plate
f: sphenoid sinus

5. Rhese View or optic foramen (Parieto-orbital Oblique View)

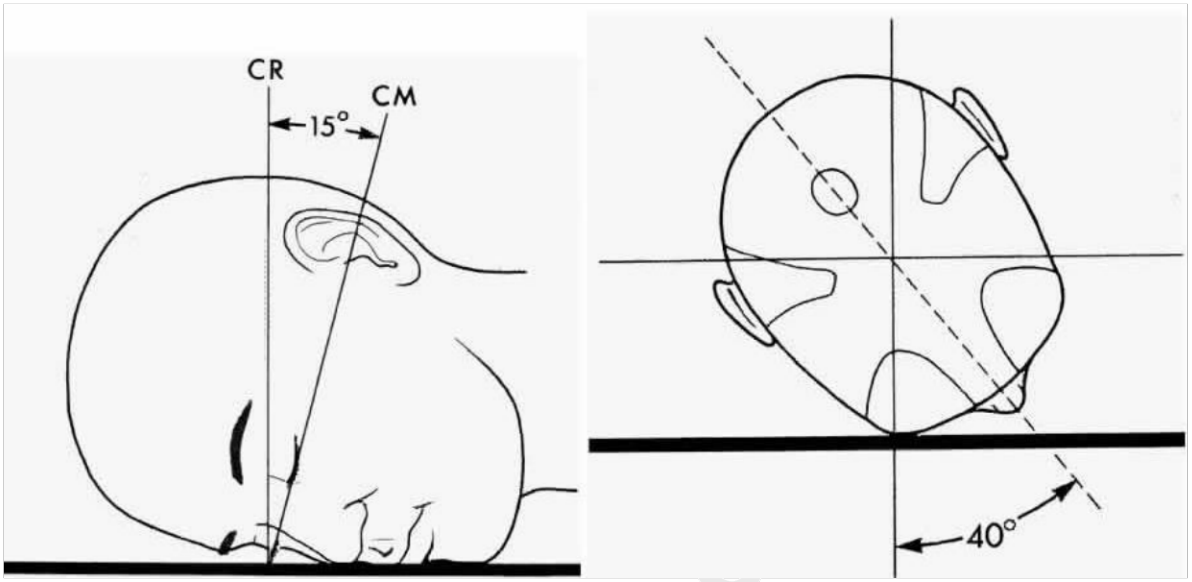
- Specialized view to assess the optic canal and orbital structures.
- Used to evaluate optic nerve pathology, particularly optic canal fractures or tumors compressing the optic nerve.
- Clinical use: Provides a clear view of the optic foramen and the optic canal. Important for diagnosing optic nerve injuries or foreign bodies near the optic canal.

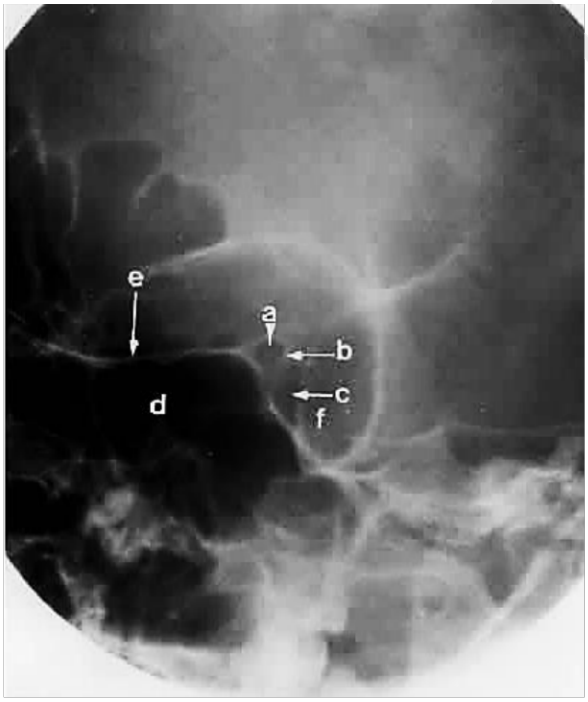
- Patient positioning:

✓ Zygoma, nose, and chin should touch the cassette.

✓ X-ray beam is directed posterior-anteriorly at 40° to the midsagittal plane.

✓ Optic canal is in the inferolateral quadrant of the orbit and oriented perpendicular to the x-ray.





a: right optic canal
b: optic strut
d: ethmoid sinus