Plain films of the orbit

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Why learn about orbital films?

• After all, they are no longer commonly used
• Most often indicated to assess for ocular metal fragments in a noncommunicative patient who requires MRI
• Nevertheless, studying these films provides a useful review of anatomy and is a good exercise in deducing complex 3 dimensional structure which has been collapsed to 2D
The orbit is hard to visualize!

- Very complex arrangement of curving bones

www.uth.tmc.edu/.../test/er_primer/ face/images/fct16.html
The orbit is hard to visualize!

- Petrous portion of temporal bone lies posteriorly

www.meddean.luc.edu/.../neurovasc_navigation/icpetr.htm
The orbit is hard to visualize!

- eyeballs lie in front of an intricately textured sphere of bone

[courses.washington.edu/.../amniote_skull_photos2.htm](courses.washington.edu/.../amniote_skull_photos2.htm)
Sinuses and cavities help ...

- Can use these spaces to reveal the orbits on X-ray

[Link to Anatomy page] ucsu.colorado.edu/~schutzh/Anatomy.html
5 views in the “Orbital Series”

- Lateral
- Caldwell
- Waters
- Submentovertex (aka Base)
- Rhesed (aka Oblique or Foramen)
Lateral view

- Side view of orbits and sinuses

Courtesy of Dr. Michael G. Morley
Lateral view

- Sphenoid sinus
- Sella turcica
- Cribriform plate

http://www.amershamhealth.com/medcyclopaedia/medical/volume%20ii/skull%20base.asp#Fig.12
Caldwell view

- Projects petrous portions of temporal bones just beneath the orbits

Courtesy of Dr. Michael G. Morley
Caldwell view

- Shows orbits, ethmoid sinuses, frontal sinuses
- Can demonstrate medial (ethmoid) blowout fractures

Courtesy of Dr. Michael G. Morley
Caldwell view

- Orbital floor fx extending to lateral orbital wall

Courtesy of Dr. Michael G. Morley
Waters view

- Projects petrous portion of temporal bones just beneath the maxillary sinuses

Courtesy of Dr. Michael G. Morley
Waters view

Shows:
• orbits
• maxillary sinuses
• zygomatico-frontal suture

Courtesy of Dr. Michael G. Morley
Waters view

Tripod fx:
- arch of the zygomatic bone
- zygomatic process of frontal bone
- zygomatic process of maxillary bone

Courtesy of Dr. Michael G. Morley
• Waters (notice clear view of maxillary sinuses - shows an orbital floor fx)

• Caldwell (petrous pyramids obscure maxillary sinuses)

Courtesy of Dr. Michael G. Morley
Submentovertex or Base view

- Zygomatic arch
- Lateral wall of orbit
- Sphenoid sinuses

Courtesy of Dr. Michael G. Morley
Submentovertex or Base view

Underpenetrated or “light” view is best for zygomatic arch fx

Courtesy of Dr. Michael G. Morley
Rhese/Oblique/Foramen view

- Directs beam through optic canal
Rhese/Oblique/Foramen view

• can show unilateral foramen enlargement (e.g., aneurysm, tumor, or rarely fx)

Courtesy of Dr. Michael G. Morley
Postscript: CT is much better ...

- Can better localize fragments, extent of fxs

www.uth.tmc.edu/.../test/er_primer/ face/images/fct16.html
References

• Medcyclopaedia Professional Edition online: http://www.amershamhealth.com/medcyclopaedia


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