NEURO CT PROTOCOLS

BRAIN

Brain 1 – Basic
- Indications
  - Trauma, Screen for altered mental status, dementia, psychiatric disorder, headaches, hydrocephalus
- Sequences
  - Axial sections without contrast
- Comments
  - Scans should be parallel to the cantho-meatal line.
  - Scan from foramen magnum to the vertex.
  - Process images with both standard and bone algorithms.

Brain 2 – Plain & Contrast
- Indications
  - Screen for tumor, abscess/encephalitis/meningitis, new-onset seizure
- Sequences
  - Axial sections without contrast
  - Axial sections with contrast
- Comments
  - Scans should be parallel to the cantho-meatal line.
  - Scan from foramen magnum to the vertex.
  - For suspected metastatic disease, process images with both standard and bone algorithms.

Brain 3
- Indications
  - Acute stroke, Dissection
- Sequences
  - Axial sections without contrast
- Optional
  - Perfusion
  - CTA of circle of Willis
  - Neck CTA
- Comments
  - Scans should be parallel to the cantho-meatal line.
  - Scan from foramen magnum to the vertex.
  - Consult with Neurology, Neurosurgery or Neurointerventional services regarding optional sequences.
Brain 4

- **Indications**
  - Subarachnoid or cerebral hemorrhage, Suspected aneurysm or vascular malformation
- **Sequences**
  - Axial sections without contrast
- **Optional**
  - CTA of circle of Willis
  - Follow CTA with repeat axial sections (contrast scan)
- **Comments**
  - Scans should be parallel to the cantho-meatal line.
  - Scan from foramen magnum to the vertex.
  - Consult with Neurology, Neurosurgery or Neurointerventional services regarding optional sequences.

Brain – Lab Protocol

- **Indications**
  - Pre-surgical planning
- **Sequences**
  - Thin-section axial scans with contrast
- **Comments**
  - Scans should be parallel to the cantho-meatal line.
  - Scan from foramen magnum to the vertex.
  - Process images with standard algorithm.

Sella

- **Indications**
  - Pituitary tumor, cavernous sinus (if MRI contraindicated)
- **Sequences**
  - Axial sections without contrast
  - Coronal sections without contrast
  - Coronal sections with contrast
  - Axial sections with contrast
- **Comments**
  - Scans should be parallel & perpendicular to the planum sphenoidale.

Temporal Bone

- **Indications**
  - Cholesteatoma, ear anomaly, conductive hearing loss, trauma
- **Sequences**
  - Axial sections without contrast
  - Coronal sections without contrast
- **Comments**
  - Scans should be parallel & perpendicular to the hard palate.
Process right/left temporal bones separately with bone algorithm.

**Orbit 1**
- **Indications**
  - Tumor, infection, inflammation, vascular lesion
- **Sequences**
  - Axial sections with contrast
  - Coronal sections with contrast
- **Comments**
  - Scans should be parallel & perpendicular to the cantho-meatal line.
  - Coronal scans from orbital rim to sella.
  - Process images with both standard and bone algorithms.

**Orbit 2**
- **Indications**
  - Trauma, gun-shot injury, foreign body, blow-out fracture
- **Sequences**
  - Axial sections without contrast
  - Coronal sections without contrast
- **Comments**
  - Scans should be parallel & perpendicular to the cantho-meatal line.
  - Coronal scans from orbital rim to sella.
  - Process images with both standard and bone algorithms.
  - For trauma obtain 3-D surface rendering of the facial bones with frontal and both oblique views.

**Maxillo-facial 1**
- **Indications**
  - Trauma, gun-shot injury
- **Sequences**
  - Axial sections without contrast
  - Coronal sections without contrast
- **Comments**
  - Scans should be parallel & perpendicular to the hard palate.
  - Axial scans from frontal sinus to mandible.
  - Coronal scans from anterior maxilla to sella.
  - Process images with both standard and bone algorithms.
  - For trauma obtain 3-D surface rendering of the facial bones with frontal and both oblique views.

**Maxillo-facial 2**
- **Indications**
  - Tumor, infection
- **Sequences**
  - Axial sections with contrast
• Coronal sections with contrast

  • Comments
    o Scans should be parallel & perpendicular to the hard palate.
    o Axial scans from frontal sinus to mandible.
    o Additional axial scans angled to teeth.
    o Coronal scans from anterior maxilla to sella.
    o Process images with both standard and bone algorithms.

**Sinuses – Limited**

  • Indications
    o Anosmia, allergic sinusitis
  • Sequences
    o Coronal sections without contrast
  • Comments
    o Scans should be perpendicular to the hard palate.
    o Coronal scans from anterior maxilla to sella.
    o Process images with bone algorithm.

**Sinuses – Landmark Protocol**

  • Indications
    o Pre-surgical planning
  • Sequences
    o Thin-section axial scans without contrast
  • Comments
    o Scans should be parallel to the hard palate.
    o Process images with bone algorithm.

**Neck**

  • Indications
    o Tumor, infection
  • Sequences
    o Axial sections with contrast
  • Comments
    o Axial scans from skull base to clavicles.
    o Process images with both standard and bone algorithms.

**Larynx**

  • Indications
    o Tumor, infection, trauma
  • Sequences
    o First do neck protocol
    o Additional 1 mm axial sections from hyoid bone through larynx
  • Comments
    o Process images with both standard and bone algorithms.
    o Reformat 1 mm sections into coronal and sagittal planes.