Correct patient positioning and scanning range reduces radiation dose
Caryn Damits, RT (R) CT

POSITIONING AND LANDMARKS

WHY IS THIS IMPORTANT?
1. Dose
2. Isocenter
3. Consistency with Stanford CT Scans

Isocenter
- In imaging physics and radiation oncology, the ‘isocenter’ is the point in space through which the central ray of the radiation beams passes
- Why is this important?
- Influences the MA table

XY axis
Centering Importance
Useful when using SMART MA with GE Scanners

MA Table demonstrating X Y Axis

Perfect Head RX
Scan Range: Skull base to vertex
Angle: Base of skull to Supra-orbital Meatal Line
POSITIONING AND LANDMARKS

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The Perfect Head Scan

AVOID THE LENS

Worse Case Scenario

- The KYPHOTIC Head

What can you do?

- Do your best to CENTER and Stabilize patient
- Scan an AP and LAT scout *
- Large Scan FOV
- Revert FOV Back to 25
- Use Tools available

Options

Tools available to stabilize patient: tape, sponges, wedges

Example of wedge
POSITIONING AND LANDMARKS

C-spine
Range: IAC's to T2
No Angle
Coronal/Sag Reformat

HEAD AND CSPINE SCOUT
Long
COLLIMATED

C-spine Coronal and Sagittal Reformats
- Defining True Coronal and True Sagittal
- Reformats to the body part not the table
- Collimation of the Reformat
- Sagittal aligned with spinal column
- Coronal aligned with the dens
- Iac's seen on the same image

Alignment and Collimation
Reformatted to the Table
Reformatted to the Anatomy

C-spine
Reformatted to the Table
Reformatted to the Anatomy

Overkill
How many slices?

Soft Tissue Neck
Range: Frontal Sinus to Clavicles
Coronal/Sagittal Reformat
Reformat to body part
POSITIONING AND LANDMARKS

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Head and Neck Angio
Scan Range: Aortic Arch to Vertex
Coronal/Sagittal Reformats

Facial/Orbits
Range: Frontal sinus to mid Maxillary/Chin
Bone/Soft tissue if contrast.

Reformat Option Windows GE Scanners

Head/Neck Angio Reformats
True Sag: Align falx with Dens
True Cor: Align to angle of Neck

Facial/Orbit Reformats
Coronal
Sagittal

Soft Tissue in a Bone Setting
- IV Contrast
- Soft Tissue of interest (swelling/edema)
- Infection
- Cellulitis
POSITIONING AND LANDMARKS

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Chest
- Scan Range: Apices to the Adrenal Glands
- Reformats: Coronal/Sagittal & MIPS

Adrenal Glands

PE Chest
- Range: Lung Base to Apices
- Coronal/Sag/MIPS

Pacer/Defibrillator
- Limit if applicable
- May not be avoidable

Breasts
- Infom, Educate, Respect
- Tape, Sheet, Strap
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Abdomen and Pelvis
Scan Range: Diaphragm to Pubic Symphysis
Coronal Reformats

Scout Ranges
CT1
S 0 - 1500
CT2
S 50 - 1700

Scout Ranges
A/P Default Range
A/P Adjusted Range

Upper Extremities
Forearm: Supinate and Center

Lower Extremities
Stable • Centered • Defined

POSTAGE STAMP
USA FIRST-CLASS FOREVER
POSITIONING AND LANDMARKS

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FOV Comparison

What Can You Do
- Examine the Reason
- Define the Frame
- Collimate Appropriately

Collimate to the Frame

Did you know?
- Initial scan from tableside?
- Scan in a Decube position
- Tables have Markers
POSITIONING AND LANDMARKS

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Decube scanning

Table Marker

Gantry Buttons

What have we learned
  • Isocenter
  • Utilize tools available
  • True Coronal and Sagittal
  • Scan Ranges
  • Positioning of large Breasts (Smart mA)
  • Collimation
  • Initiate scan from Tableside
  • FOV’s

What happened?

What do you see?
POSITIONING AND LANDMARKS

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BRA = Streak artifact

What is this?
POSITIONING AND LANDMARKS

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THANK YOU!