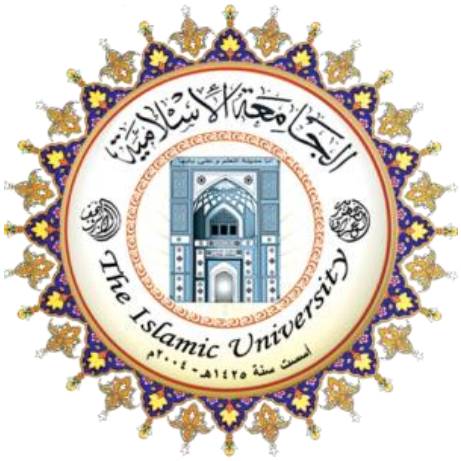

Radiographic Techniques 2

lecture 9

Thoracic Projections

By

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Master of Radiography Techniques /2021

Antero-posterior (Basic)

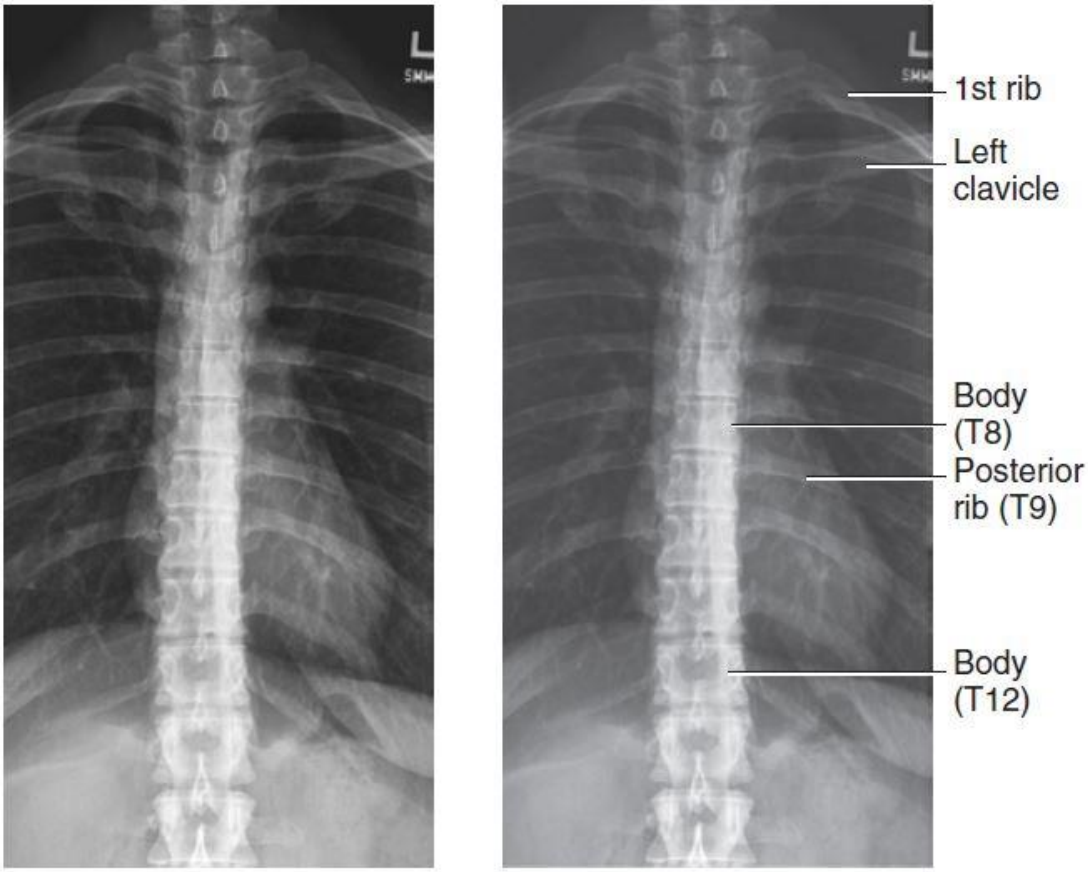
A table Bucky direct digital radiography (DDR) system is employed or alternatively **a 35 ×43 cm** CR cassette.

Position of patient and image receptor

1. The patient is positioned supine on the X-ray table, with the median sagittal plane perpendicular and coincident with the midline of the Bucky/ image receptor.
2. The upper edge of the cassette or image receptor should be at **least 40 cm** in length and, should be at a level just below the prominence of **the thyroid cartilage** to ensure that the upper thoracic vertebrae are included.
3. Exposure is made on arrested inspiration; this will cause the diaphragm to move down over the upper lumbar vertebra. Thus, reducing the chance of a large density difference appearing on the image from superimposition of the lungs.
4. The arms should be away from the spine.
5. The head can be supported with a pillow for the patient's comfort.

Direction and location of the X-ray beam

1. The vertical beam is **collimated** tightly to the spine.
2. **Centre** at point 2.5 cm below the sternal angle.



AP thoracic spine

Essential image characteristics

1. The image should include the vertebrae from C7 to L1.
2. The image should be good density to demonstrate bony detail of upper and lower thoracic vertebrae.

Common faults and solutions

• The image receptor and beam are often centred too low, thereby excluding the upper thoracic vertebrae from the image.

• The lower vertebrae are also often not included. L1 can be identified easily by the fact that it usually will not have a rib attached to it.

• High radiographic contrast causes high density over the upper vertebrae and low density over the lower vertebra.

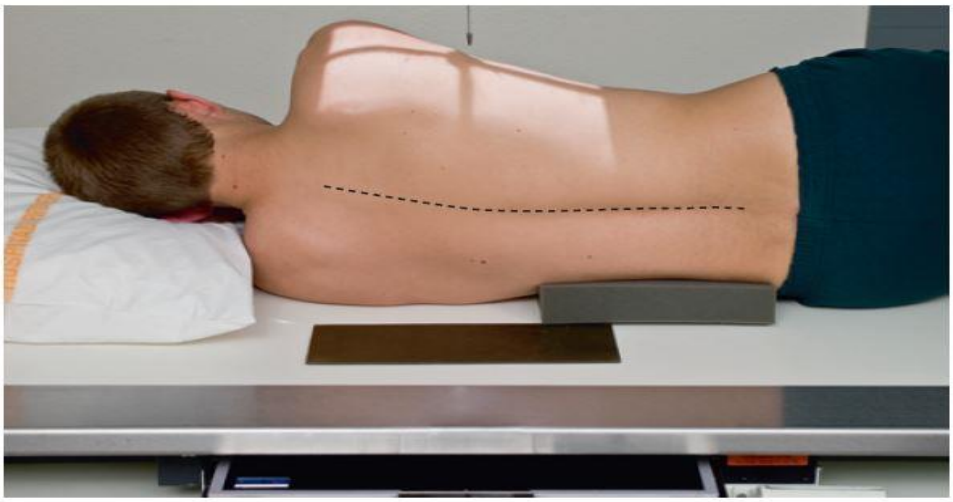
Lateral (Basic)

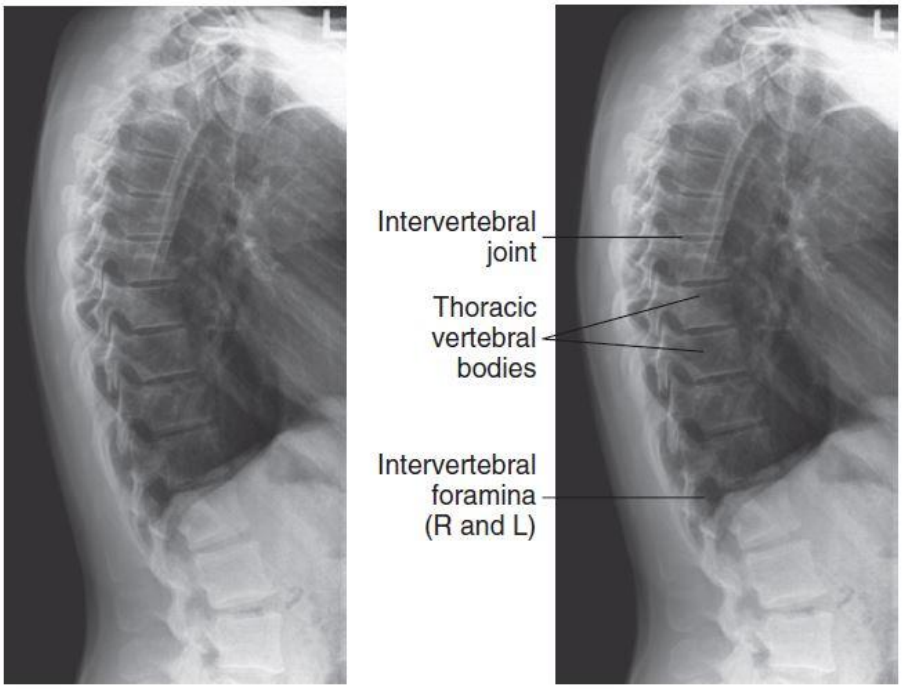
Position of patient and image receptor

1. The patient is positioned the lateral erect or lateral decubitus on the X-ray table, with the median sagittal plane parallel to the Bucky/ image receptor.
2. The upper edge of the cassette or image receptor should be at least **40 cm in length** and should be positioned 3–4 cm above the spinous process of C7 to ensure that the upper thoracic vertebrae are included.
3. Exposure is made on arrested inspiration; this will cause the diaphragm to move down over the upper lumbar vertebra. Thus, reducing the chance of a large density difference appearing on the image from superimposition of the lungs.
4. The arms should be away from the spine.
5. The head can be supported with a pillow for the patient's comfort.

Direction and location of the X-ray beam

1. The vertical beam is collimated tightly to the spine. (this may require a caudal angulation).
2. **Centre** at point 5 cm anterior to the spinous process of T6/7, **just below the inferior angle of the scapula**. (assuming the arms are raised), which is easily palpable.





Left lateral thoracic spine

Essential image characteristics

1. The image should include the vertebrae from C7 to L1.
2. The image should be good density to demonstrate bony detail of upper and lower thoracic vertebrae. The use of a widelatitude imaging system/technique is therefore desirable in conventional screen/film system and an appropriate software algorithm selected for digital radiography.
3. The upper two or three vertebrae may not be demonstrated due to the superimposition of the shoulders.
4. The posterior ribs should be superimposed, thus indicating that the patient was not rotated too far forwards or backwards.
5. The trabeculae of the vertebrae should be clearly visible, demonstrating an absence of movement unsharpness.

Common faults and solutions

• If the exposure is made on arrested inspiration, then the rib shadows will be superimposed over the vertebrae and detract from the image quality. The use of autotomography should resolve this problem.