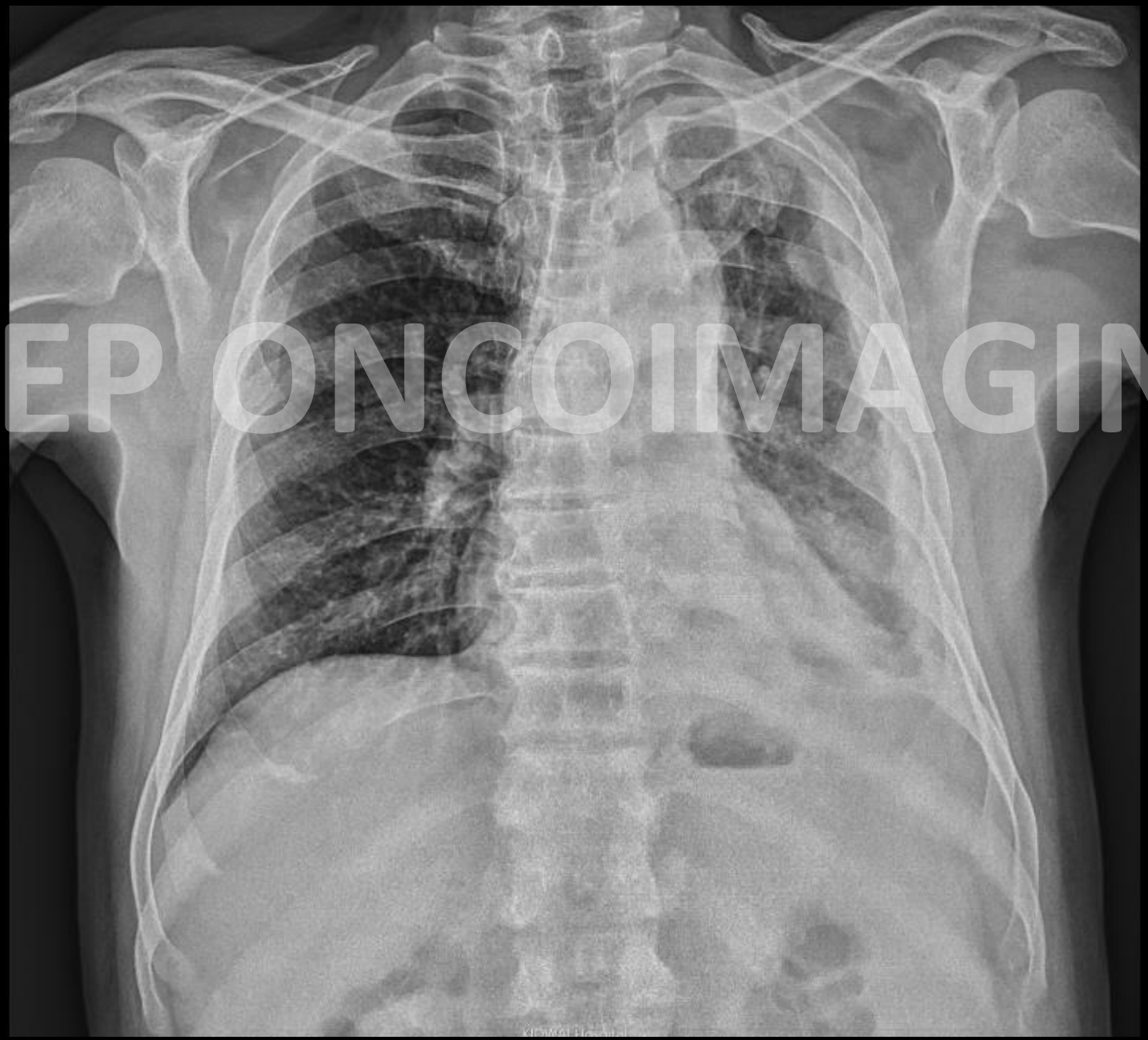
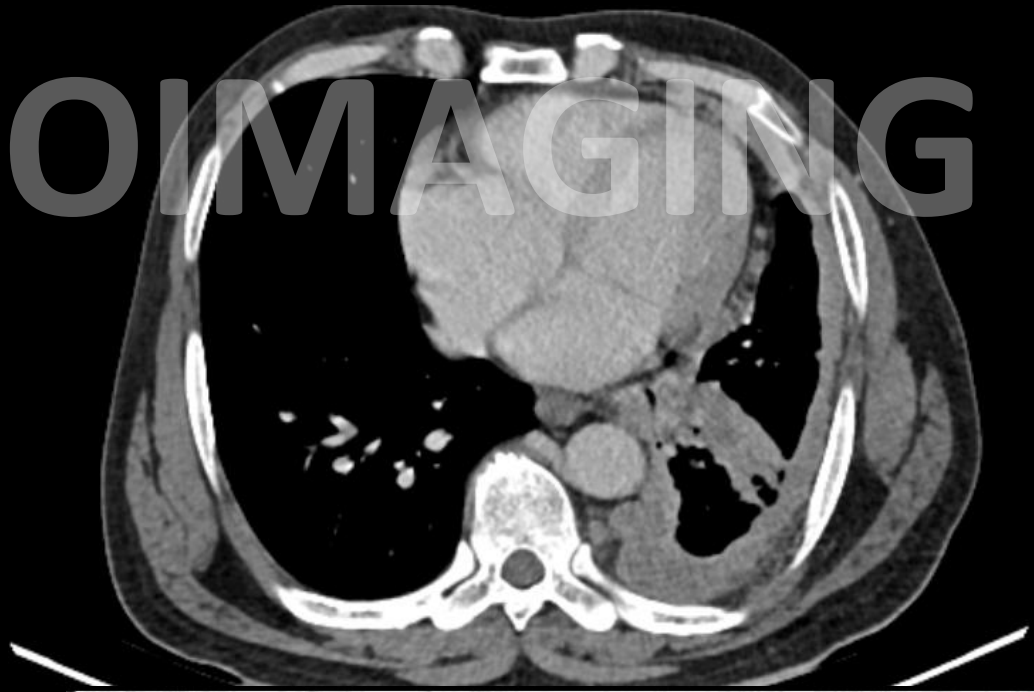
2025

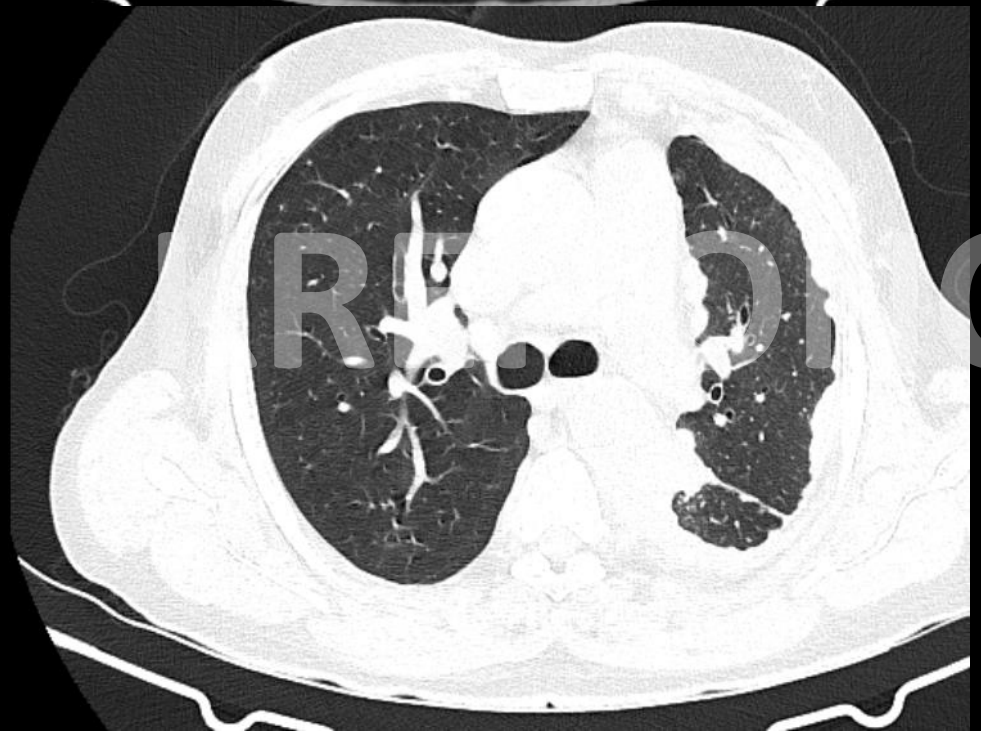
KARNATAKA RADIOLOGY EDUCATION PROGRAM


KREP ONCOIMAGING

- There is apparent left lung volume loss due to a peripheral opacity with nodular contours extending from the left apical region to the lower zone along the pleural surfaces. The left CP angle is obscured.
- Left diaphragm silhouette is lost.
- No evidence of mediastinal shift.

The above findings raise suspicion for pleural thickening or a pleural-based mass.






KREP ONCOIMAGING

- Diffuse nodular pleural thickening involving the left hemithorax, with extension along the oblique fissure.
- The thickening encompasses the mediastinal, costal, and diaphragmatic pleural surfaces, resulting in circumferential encasement of the left lung, producing a characteristic 'rind-like' appearance.
- Post-contrast imaging demonstrates heterogeneous enhancement of the pleural thickening.

These imaging findings are characteristic of malignant pleural mesothelioma, particularly the diffuse, rind-like pleural involvement with enhancement following contrast administration.

MALIGNANT PLEURAL MESOTHELIOMA

1. Epidemiology:
   - Male: Female- 4:1
   - Peak incidence is in the sixth to seventh decades of life.
2. Asbestos and MPM
   - 40% to 80% of MPM patients have a history of occupational exposure to asbestos.
   - MPM can develop after a latent period of up to 50 years from exposure to asbestos.
   - Crocidolite asbestos exposure has the highest risk of MPM, while chrysotile asbestos alone has a lower risk.
3. Other risk factors :
   - Simian virus 40 (SV40), a DNA virus, has been implicated as a cofactor in the cause of MPM.
   - Radiation exposure.

CT IMAGING

- CT is the primary imaging modality for the evaluation of MPM.

➢ Key CT findings

- Nodular pleural thickening
- Interlobar fissure thickening
- Tumoral encasement of the lung with a rind like appearance.
- Unilateral pleural effusion
- Calcified pleural plaques (20%)
- Chest wall invasion
  - Obliteration of extrapleural fat planes
  - invasion of intercostal muscles
  - displacement or bony destruction of ribs

ROLE OF MR IMAGING

MR imaging is superior to CT in revealing two types of invasive growth of MPM:

- Invasion of the diaphragm.
- Invasion of endothoracic fascia.
- Questionable areas of local tumor extension at CT.

ROLE OF PET IMAGING

Identifying Metabolically Active Areas:

- Patients with MPM may have diffuse pleural thickening, but only focal areas of malignancy.
- FDG PET can provide information about metabolically active areas not always apparent in CT scans.

Determining Biopsy Site:

- FDG PET can help determine the most suitable biopsy site for obtaining positive results when correlated with CT information.

Prognosis Prediction:

- Higher FDG uptake is associated with significantly shorter survival time.

TUMOUR SPREAD

- Local spread involves the parietal and visceral pleura, extends to interlobar fissures, and along the diaphragm, mediastinum, and pericardium.
- Lymphatic spread can occour to the extrapleural, internal mammary, diaphragmatic, and upper abdominal regions. Mediastinal nodal disease is seen in 50% of cases.
- Transdiaphragmatic invasion can result in spread to the Peritoneum, Liver, and Spleen.
- Hematogeneous dissemination occurs in 50% to 80% at autopsy.

Contributors

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