CH 7 Lung cancer

Lung cancer

Chest radiograph usually has been obtained

Staging of lung cancer
- Plan for radical treatment (surgery, chemoirradiation (chemoRT), stereotactic body radiation therapy (SBRT))
  - CT thorax, upper abdomen (liver + adrenals)

Bone symptoms
- Bone scan or MRI +/- biopsy

Neurological symptoms
- CT/MRI brain or spine

Indications for MRI thorax
- Evaluation of direct mediastinal invasion
- Evaluation of chest wall invasion
- Local staging of superior sulcus tumor

PET-CT scan
REMARKS

1 Plain radiograph
   1.1 Many primary lung cancers are initially detected on chest radiograph.
   1.2 In certain instances, the chest radiograph alone is sufficient for staging, e.g. when
       an obvious metastatic bone lesion is detected or when large bulky contralateral
       mediastinal lymph nodes are present.
   1.3 Chest X-ray (CXR) can be used to monitor treatment response if CT is not available.

2 CT
   2.1 CT is the main imaging modality of choice for evaluating patients with bronchogenic
       carcinoma.
   2.2 CT has limitations in staging since there are no morphologic criteria to distinguish
       between benign and malignant lymph nodes, with low sensitivity and specificity in
       detecting nodal metastasis.
   2.3 CT should include the adrenal glands.
   2.4 CT has limited value in detecting chest wall and mediastinal invasion.

3 Fluorodeoxyglucose (FDG) PET-CT
   3.1 Whole body FDG PET-CT is the preferred imaging modality for staging of non-small
       cell lung cancer in patients who are planned to be treated with curative intent.
   3.2 FDG PET-CT has better sensitivity and specificity than CT alone in identification of
       nodal metastases with an overall sensitivity of 80–90% and specificity of 85–95%.
   3.3 FDG PET-CT detects ~24% occult extrathoracic metastases in patients who are
       initially planned to undergo curative resection.
   3.4 It decreases the number of futile thoracotomy by an additional 21%.
   3.5 FDG PET-CT is an excellent tool for monitoring of treatment response.

4 Bone scan
   4.1 Bone scintigraphy has high sensitivity (93.3%) for detecting osseous metastases.
   4.2 Routine bone scintigraphy is not warranted, and is only reserved for symptomatic
       patients or those with biochemical abnormalities.
   4.3 If whole body FDG PET has already been performed, additional bone scintigraphy is
       not necessary in most circumstances.
5 MRI

5.1 MRI is particularly useful in determining certain parameters of unresectability for superior sulcus cancer such as invasion into vertebral body, spinal canal, neural foramina, subclavian artery or brachial plexus.

5.2 MRI is useful in assessing chest wall and mediastinal invasion.

5.3 Using Cine MRI during free breathing, presence of sliding between the tumor and mediastinum or chest wall has been shown to be diagnostic of lack of invasion; the converse however may not necessarily indicate invasion since adhesion from local inflammatory changes may also restrict tumour motion.
REFERENCES