

Lung Carcinoma

I. GROSS DESCRIPTION

Specimen

- exfoliative cytology/aspiration cytology or needle biopsy (percutaneous/transbronchial/CT guided)/bronchial biopsy/thoracoscopic biopsy/wedge resection/ sleeve resection/segmentectomy/(bi-)lobectomy/pneumonectomy (standard/extrapleural/extra-/intrapericardial) \pm en bloc resection.
- resection can be either open or thoracoscopic (VATS: video-assisted thoracoscopic surgery).
- size (cm) and weight (g)/number of fragments.
- lung cancer may present due to ulceration (haemoptysis), obstructive effects (pneumonia), local infiltration (pleural effusion, chest wall pain/mass, hoarseness, Horner's syndrome due to apical Pancoast's tumour, superior vena cava syndrome), systemic effects (finger clubbing, paraneoplastic syndromes, weight loss) or as an incidental finding on radiology for other reasons. Investigation is by chest X-ray and staging by CT scan to assess spread to locoregional lymph nodes, liver, adrenal glands and brain. MRI can detect invasion into the vertebral column and spinal cord and CT/PET has a role in defining small (<1–2cm) metastases. High resolution CT (HRCT) can demonstrate lymphangitis carcinomatosa. Tissue diagnosis is obtained in a high percentage (>90%) of cases by a variety and combination of techniques depending on the tumour site, local infiltration and type, viz, sputum cytology, bronchial brushings/washings/biopsy, transbronchial or image guided percutaneous FNA/needle core biopsy, open lung wedge or thoracoscopic biopsy. Thoracoscopic sampling of mediastinal lymph nodes is also used for staging purposes due to lack of sensitivity in CT scan assessment. In bronchogenic carcinoma diagnostic yield increases with the number of biopsy fragments, transthoracic FNA/needle biopsy being of particular use for peripheral lesions, and transbronchial biopsy for lymphangitis carcinomatosa and cancers causing bronchostenotic extrinsic compression. Where a preoperative diagnosis of a peripheral lesion has not been obtained intraoperative frozen section is indicated as a prequel to opting for either a more radical cancer resection operation or a lung sparing wedge resection.

- peripheral wedge or segmental resection can be by either open surgery or a closed video-assisted technique but recurrence rates tend to be higher than for more radical operations. Sleeve resections (bronchial or lobectomy) are lung sparing aimed at removal of the lesion and reanastomosis of the proximal major airway to the distal bronchial tree. Pneumonectomy is indicated when there is tumour involvement of hilar structures or the oblique fissure is traversed. Segmentectomy, sleeve resections and pneumonectomy can all be extended to include en bloc excision of involved contiguous thoracic structures. Extrapleural pneumonectomy encompasses removal of visceral and parietal pleurae, lung, ipsilateral hemi diaphragm and pericardium. Definition of an intrapericardial or extrapericardial plane of vascular resection is important in distinguishing T3 and T4 tumours.

Tumour

Site

- central (main/segmental bronchus): <2 cm or ≥2 cm from carina; RUL/RML/RLL/LUL/LLL.
- peripheral (parenchymal/pleural).

Size

- length × width × depth (cm) or maximum dimension (cm).
- Squamous carcinomas can attain a large size and remain localized, whereas small cell carcinomas can be small primary lesions but with extensive local and distant spread.

Appearance

- necrosis/haemorrhage/mucoid/cavitation.
- polypoid/nodular/ulcerated/stenotic.
- endobronchial/bronchial/extrabronchial.

Squamous cell carcinoma frequently cavitates, central carcinoid is polypoid or nodular, small cell carcinoma is submucosal and bronchostenotic or shows extrinsic compression.

Edge

- circumscribed/irregular.

Pulmonary changes

- scar: peripheral adenocarcinoma.
- fibrosis/asbestosis.
- partial and hilar or total: atelectasis/obstructive pneumonitis, the extent of which helps determine the pT stage.

2. HISTOLOGICAL TYPE

Crucial therapeutic distinction is made between small cell carcinoma and non-small cell (squamous/adenocarcinoma/large cell) carcinoma.