Fourth Year Medicine Lectures:

# BRONCHIAL CARCINOMA

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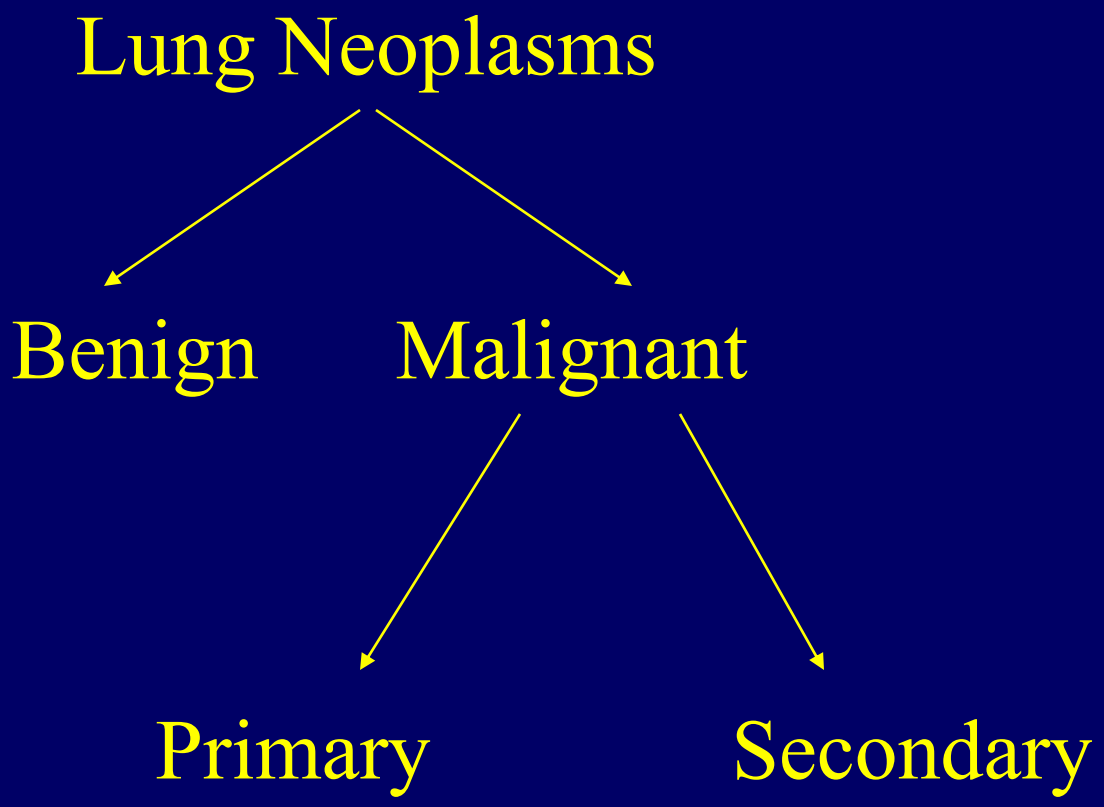
# OVERVIEW

- Epidemiology
- Pathology
- Clinical features
- Investigation
- Treatment
- Prognosis

# CLASSIFICATION



# BENIGN TUMOURS (1/2)

- 3% of primary lung tumours

(1) Pulmonary Hamartoma

– Most common,
peripheral, rounded,
slow growth.

Hamartoma

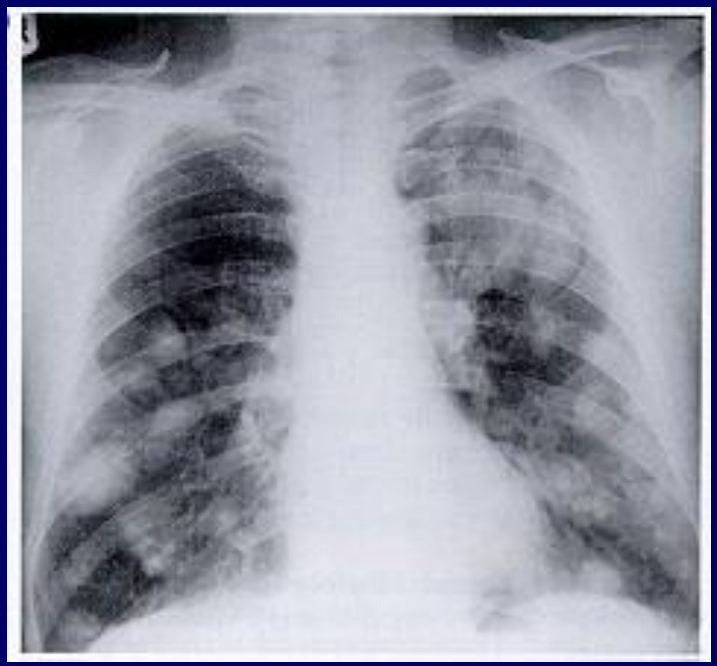
# BENIGN TUMOURS (2/2)

(2) Bronchial Carcinoid

- Rare, central, locally invasive & metastasises, highly vascular tumour (haemoptysis).
- Carcinoid syndrome rare

# MALIGNANT TUMOURS

- <u>Secondary lung cancer</u>
  - Much commoner than primary lung cancer
  - Source: breast, kidney, GIT, prostate, cervix/ovary
  - Parenchymal deposits, asymptomatic,
  - Lymphangitis carcinomatosa

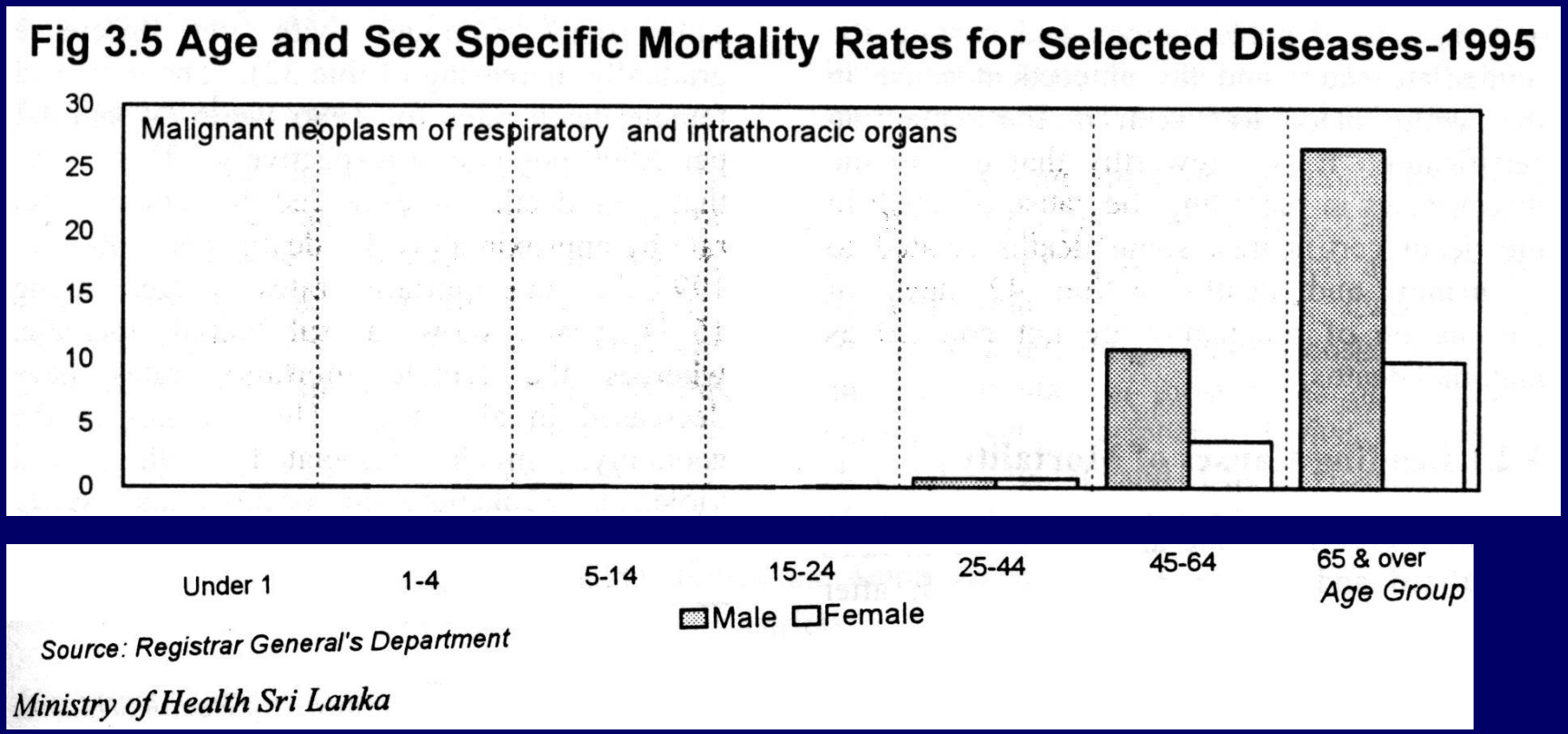


Multiple secondary deposits

# EPIDEMIOLOGY

## Primary lung cancer

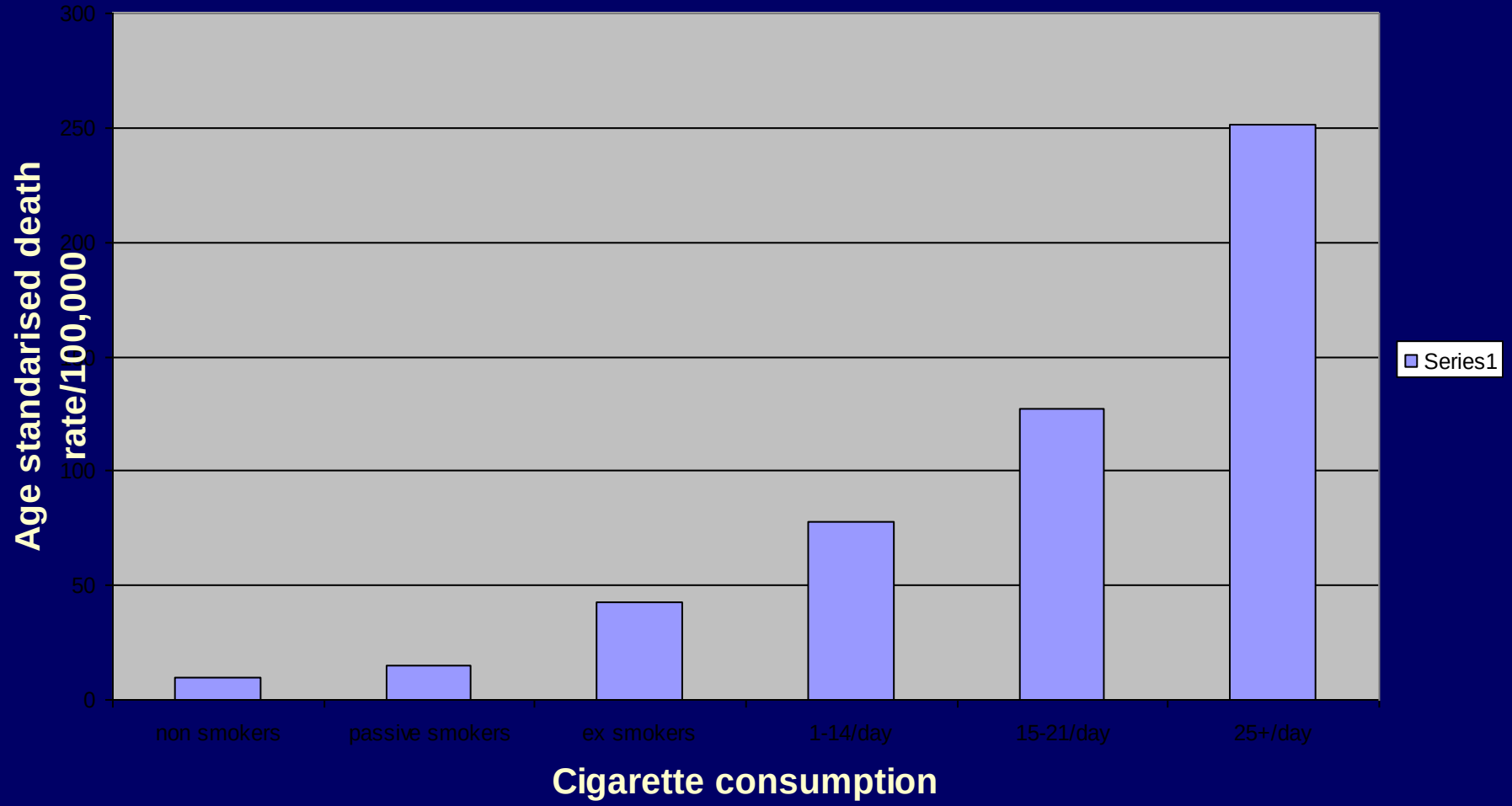
SMR's / 1000 patients



# AETIOLOGY (1/2)

- Cigarette smoking
- Cigarette smoking
- Cigarette smoking
- Other causes

# Association between cigarette smoking status and lung cancer in male British doctors




From Doll and Hill BMJ

# AETIOLOGY (2/2)

- Other causes
  - Asbestos,
  - chromium,
  - petroleum and
    coal combustion

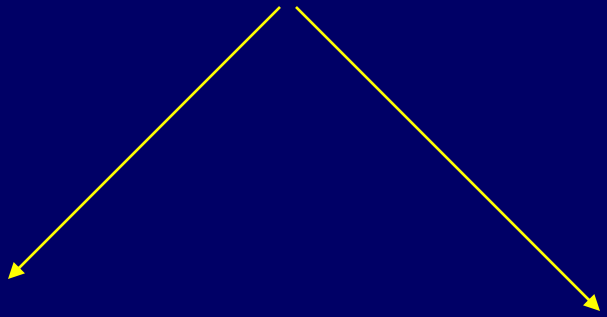
  - Fibrosing alveolitis

Mostly adenocarcinoma

Asbestos body in sputum

# CELL TYPE (1/5)

Bronchial carcinoma



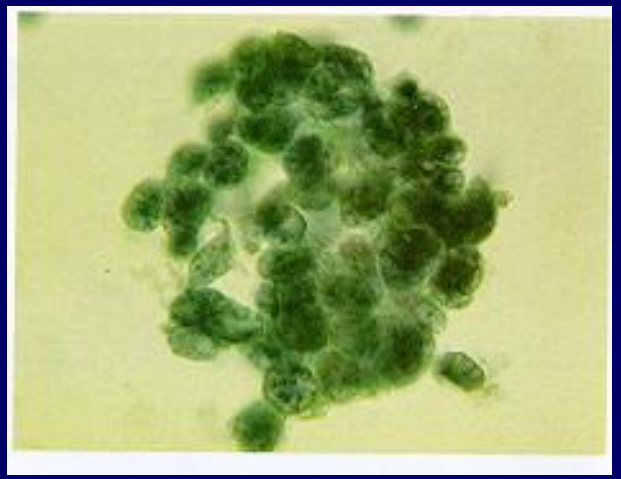
Small cell

Non-small cell

- Squamous
- Large cell
- Adenocarcinoma (alveolar cell Ca)

# CELL TYPE (2/5)

- Small Cell
  - 30% of primary tumours
  - Arise from endocrine APUD cells
  - Highly malignant, disseminated disease at presentation
  - Sensitive to chemotherapy



Small cell - cytology

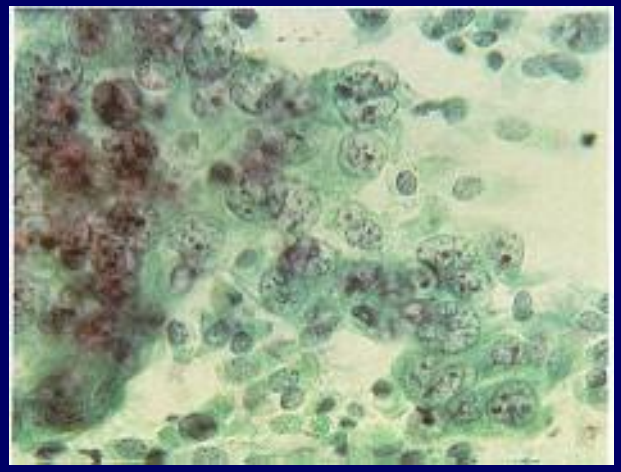
# CELL TYPE (3/5)

- Squamous cell (epidermoid)
  - Commonest 40%
  - Commonly cavitates
  - Slow growing

Squamous cell - cytology

# CELL TYPE (4/5)

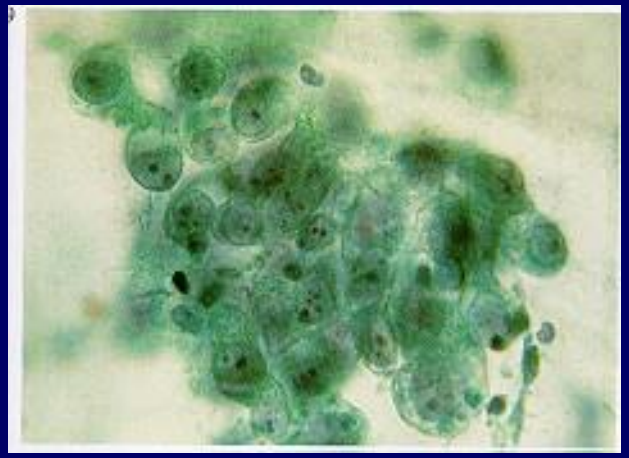
- Large cell (anaplastic)
  - 25%
  - Poorly differentiated
  - Metastasises early



Large cell - cytology

# CELL TYPE (5/5)

- Adenocarcinoma (odd one out)
  - 10%
  - Arises in peripheral bronchi
  - Occupational form
  - Commoner in females, non-smokers, elderly



Adenocarcinoma cells - cytology

- Alveolar cell carcinoma

# CLINICAL FEATURES (1/6)

- (1) General features of malignancy
  - Anorexia, malaise, weight loss, fever

- (2) Features of secondary spread
  - Jaundice
  - bone pain
  - headache
  - (adrenal)

Brain metastases

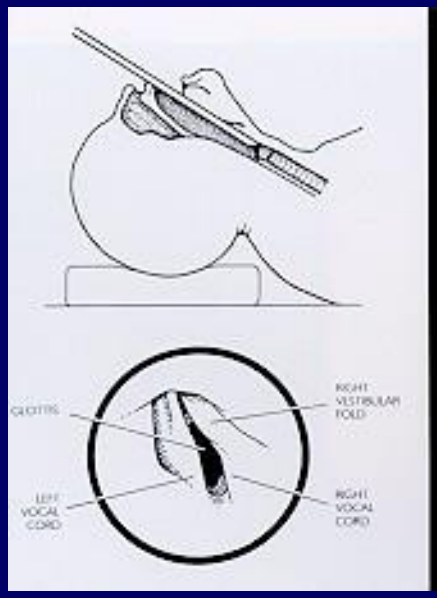
# CLINICAL FEATURES (2/6)

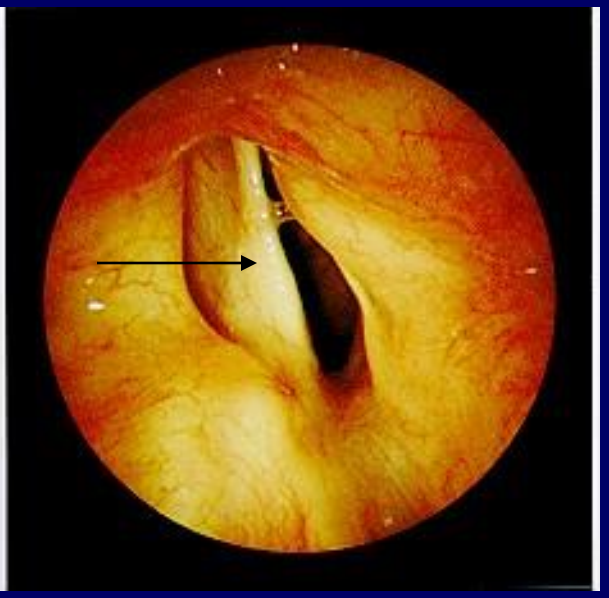
(3) Features of primary tumour

Symptoms (N.B. CXR abnormality)

- Haemoptysis
- Hoarse voice:

  L recurrent laryngeal palsy



# CLINICAL FEATURES (3/6)

Signs

- Finger clubbing (30%)

- Hypertrophic pulmonary osteoarthropathy (HPOA): clubbing + wrist/ankle periostiitis + gynaecomastia

# CLINICAL FEATURES (4/6)

- Pancoast syndrome
  - Apical tumour locally invading brachial plexus (C8, T1, T2)

Pain inner aspect of arm and wasting of small muscles of the hand

# CLINICAL FEATURES (5/6)

- Horner's syndrome
  - Interruption in sympathetic supply to the eye
    - ptosis,
    - miosis,
    - enopthalamus,
    - anhydrosis

- Cervical or axilliary lymphadenopathy

# CLINICAL FEATURES (6/6)

- Superior vena caval obstruction (SVCO)
  - Mediastinal lymphadenopathy
    - Headache, oedema of face, arm and chest, raised JVP
    - collateral chest veins
- Pleural effusion

SVCO

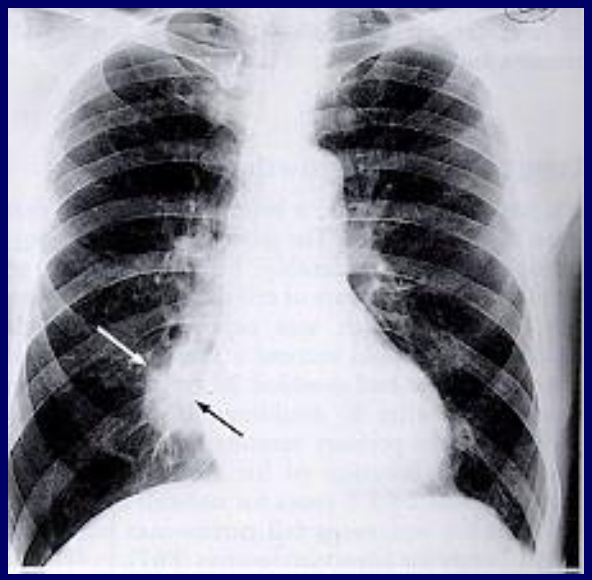
# NON-METASTATIC EXTRAPULMONARY DISEASE

- Endocrine
  - Usually small cell:ectopic ACTH, SIADH
  - Squamous: PTHRH
- Neurological
  - Cerebellar degeneration
  - Myasthenic syndrome

# INVESTIGATION (1/5)

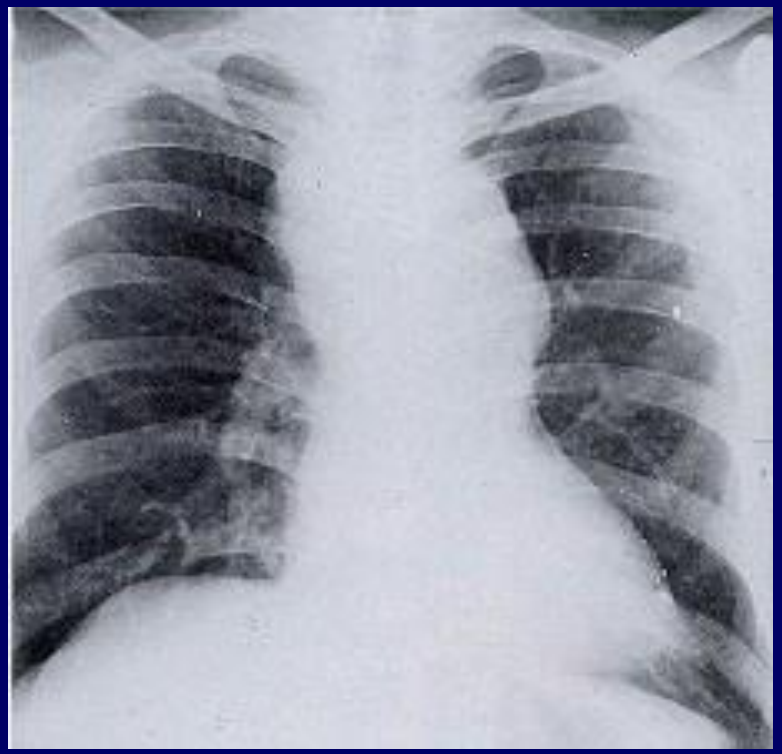
<u>Confirmation of diagnosis</u>

- (1) CXR/CT thorax:
  - Rounded shadow, spiculated margin, mass at least 1-2 cm in size



# INVESTIGATION (2/5)

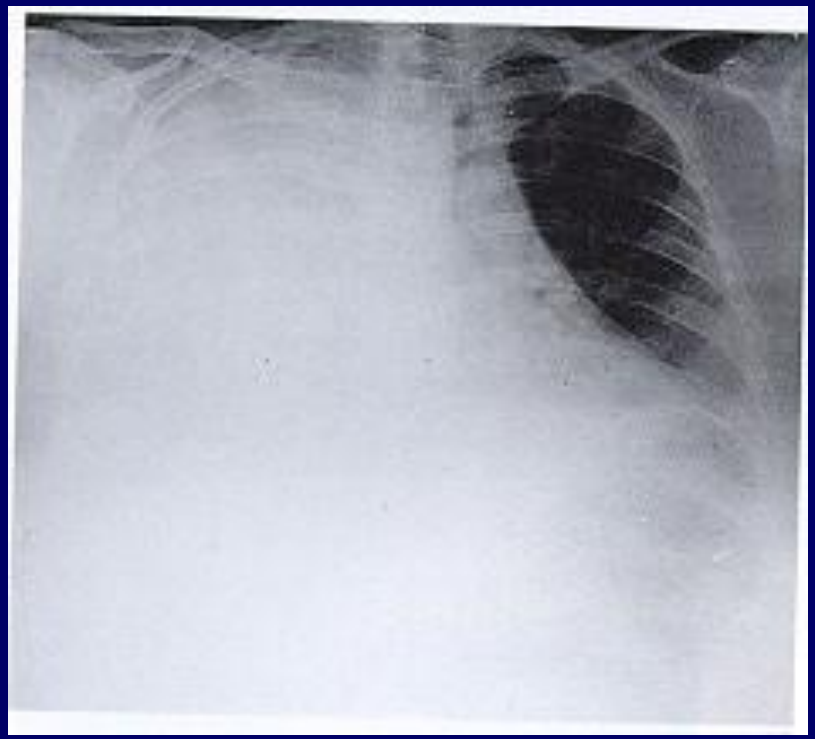
– Hilar enlargement or superior mediastinal widening



Mediastinal adenopathy

# INVESTIGATION (3/5)

– Unilateral pleural effusion



R pleural effusion

– Elevated hemi-diaphragm

# INVESTIGATION (4/5)

- (2) Fibre-optic bronchoscopy
  - Tissue diagnosis from bronchial epithelium:
    - biopsy for histology/brush or wash for cytology

Normal LLL

Tumour Occluding LLL

# INVESTIGATION (5/5)

- (3) Transthoracic fine needle aspiration
  - Under CT or USS guidance
  - Sample for cytology
  - Pneumothorax common

- (4) Mediastinoscopy
  - Transthoracic procedure to sample mediastinal lymph nodes

# TREATMENT (1/7)

- Treatment of any cancer
  - Curative, or
  - Palliative

- In bronchial carcinoma depends on cell type
  - Non small cell = surgery for cure
    radiation for palliation
  - Small cell = chemotherapy for palliation

# TREATMENT (2/7)

Non small cell lung cancer (NSCLC)

1 year survival 20%

(1) Can we offer cure?

- Is there evidence of metastatic spread?
- If so, palliation only

# TREATMENT (3/7)

- Clinically:
  - Local invasion: hoarse voice, SVCO, Pancoast, Horner's, mediastinal glands, pleural effusion
  - Secondary spread: jaundice, bone pain

Ascites

# TREATMENT (4/7)

- By investigations
  - Bronchoscopy
    - Vocal cord movement
    - Tumour close to carina
  - Radionuclide bone scan
  - CXR/CT
    - Mediastinal adenopathy, pleural effusion
    - CT brain and abdomen (liver & adrenals)

Vertebral and rib deposits

# TREATMENT (5/7)

(2) Is the patient fit for surgery?

Co-existent COPD common

- Lung function
  - FEV1 > 1.0l for lobectomy
  - FEV1 > 1.5 l for pneumonectomy

Only 15% of NSCLC fit for surgery

30% 5-year survival

# TREATMENT (6/7)

Pneumonectomy specimen of upper lobe squamous cell carcinoma

(3) Palliation of symptoms

- Local radiotherapy for bone pain, SVCO, haemoptysis

# TREATMENT (7/7)

Small Cell Lung Cancer SCLC

Disseminated disease at presentation (micrometastases)

Chemotherapy sensitive, doubles survival from 3 to 6 months

Combination regimens: vincristine, cyclophosphamide, doxorubicin, MTX, etoposide

# Asbestos

- Naturally occurring metal silicate
- Naturally occurs as a fibre
- Remarkably resistant to heat, acid and alkali
- Two forms
  - White asbestos: less fibrogenic
  - Blue asbestos: much more toxic

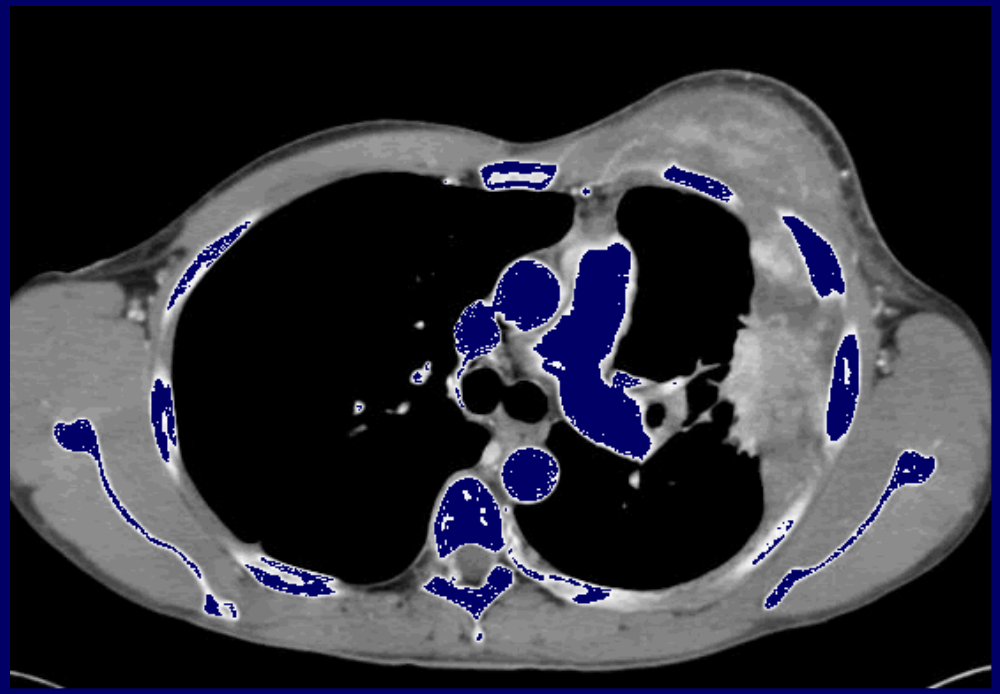
# Asbestos related lung disease

- Pleural plaques – light exposure
  - Pleural thickening, restrictive lung disease, effort dyspnoea
- Asbestosis – heavy exposure
  - Interstitial lung disease, severe restriction, poor prrognosis

# Asbestos related lung disease (cont'd)

- Mesothelioma
  - Light exposure, 20-40 year lag, unilateral pleural effusion, pain and dyspnoea, 2 year survival
- Bronchial carcinoma
  - Synergistic relationship to cigarette smoking, 7 times more frequent, fatal

# Mesothelioma



# CONCLUSION

- Epidemiology
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- Clinical features
- Investigation
- Treatment
- Prognosis