Appendix 2; Diagnostic criteria for pleural effusions

Malignant

a/. Malignant pleural fluid cytology or biopsy

or

b/. Histologically confirmed pulmonary/extra-thoracic malignancy with radiographic evidence of metastasis to ipsilateral pleura on CT.

or

c/. Radiological changes meeting Leung's criteria which have progressed in keeping with malignancy on interval CT scan in the correct clinical context.

or

d/. Autopsy confirming pleural malignancy

Complicated Parapneumonic Effusion

- Clinical presentation suggestive of sepsis

And

a/. Pleural fluid pH ≤7.2 or pleural fluid loculation on ultrasound and follow up for at least 6months inconsistent with pleural malignancy.

or

b/. Pleural fluid gram stain or culture positive

Or

c/. Frank pus

Or

d/. Pleural infection confirmed by pleural biopsy histology and/or microbiological culture.

Or

e/. CT scan consistent with pleural infection with radiological resolution following treatment with antibiotics.

Simple Parapneumonic effusion

- Clinical presentation suggestive of sepsis with appropriate chest radiology and pleural fluid which is gram stain and culture negative with a pH >7.2 and an absence of loculation on thoracic ultrasound

And

- Resolution of effusion on CXR after antibiotics or clinical progression to pleural infection (see above)

Connective tissue disease (including RA)

- Systemic features or known diagnosis of connective tissue disease

And

- chest radiology (including CT imaging) showing benign features (eg doesn't meet any of Leung's criteria)with at least 6 months follow-up and /or pleural biopsy negative for malignancy.

Pulmonary embolism

- Evidence of PE on CTPA

And

- No alternative explanation for pleural effusion on cross sectional imaging or pleural fluid analysis. (NB the CT shows no evidence of pleural thickening – which would suggest another cause)

BAPE or diffuse pleural thickening due to asbestos

- History of asbestos exposure or evidence of pleural plaques on CT

And

a/. Stable or improving CT appearances with follow-up for at least 12 months.(The development of enfolded lung is allowed)

Or

b/. Negative thoracoscopy (benign pleural biopsy)

Congestive Cardiac Failure

a/.History and examination features of CCF

or

b/. Evidence of at least moderate LV systolic or diastolic failure or severe valvular disease on echo

Or

c/. Improvement of effusion and symptoms with diuretic therapy

CABG

- CABG in 3 months prior to development of pleural effusion in the absence of an alternative cause

Hepatic hydrothorax

- Known history or clinical presentation consistent with liver disease
  And
- Recurrent transudative pleural effusion
  And
- Negative cytology

Renal failure or hypoalbuminaemia

- Biochemical confirmation of renal failure or hypoalbuminaemia in the absence of clinical, radiological or pleural fluid analysis suspicious of an alternative cause.

TB pleuritis

- Culture or AAFB positive sputum, pleural fluid or pleural tissue

And

- Resolution of pleural effusion with anti TB therapy at 6 month follow-up.

Inflammatory pleuritis (Non-specific pleuritis)

Demonstration of non-specific inflammatory pleuritis on pleural biopsy
And
Follow-up for 12 months without progression that would suggest a malignant cause.

Undiagnosed

Exhaustive investigations including 12 months follow-up with interval CT scans has not demonstrated a diagnosis

Or

Patient unfit for further investigation and follow up

Or

Patient died without definitive diagnosis and no post mortem examination conducted