Lung cancer is responsible for 20% of cancer-related deaths. Small cell lung cancer (SCLC) accounts for 13% of all lung cancers. Characterised by an aggressive nature, rapid doubling time and early metastasis, SCLC carries the worst prognosis of all lung cancers (5 year survival <5%). The imaging appearance of SCLC is not often described in literature but it is typically seen as a large hilar or perihilar mass, with mediastinal widening caused by the primary tumour, bulky lymphadenopathy or both. 90% of SCLC are central and arise within lobar and main bronchi but in some cases a peripheral primary tumour may not be visible and widespread lymphadenopathy is the main finding. This study further describes the imaging appearance of SCLC with particular focus on SCLC occurring solely within the mediastinum.

### Aims

1. To describe the **imaging appearance** of small cell lung cancer
2. To assess how often small cell lung cancer may occur **solely within the mediastinum**

### Methods

- Retrospectively reviewed CT scans of 151 consecutive patients with pure SCLC in Lancashire Teaching Hospitals Trust.
- Scans were reviewed looking at mass **size, edge and location**
  - Mass edge was either smooth or spiculated
  - Mass location was either: intra-mediastinal (type 1), intra-mediastinal and intra-pulmonary (type 2) or intra-pulmonary (type 3).

### Results

150 patients had a visible mass on CT scan which could be reviewed. The median survival length was 243 days. 89 (58.9%) patients had cancers arising in the right side of the chest and 61 (40.4%) in the left which is statistically significant (p=0.0272). More than half were type 2. Fewer occurred only within the lung tissue (type 3) and some SCLC masses were type 1, occurring only within the mediastinum (Chart 1) 72 (47.7%) had a smooth edge while 78 (51.7%) were spiculated. Type 3 masses had the greatest proportion of spiculated masses while type 1 had none. Mass size ranged from 10-182mm with a median value of 56mm.

### Conclusion

- **Intra-mediastinal and intra-pulmonary mass** most common
- **Size and edge vary** with mass location
- **Right sided masses** are more common

Small cell lung cancer can occur **solely within the mediastinum**

1. This finding questions the histological origin of these tumours
2. This finding could aid radiological diagnosis