tracheobronchial tree during bronchoscopy, including normal bronchial epithelium, dysplastic mucosa and hilar lung cancer.

Methods The newly developed integrated-type ECS for the bronchoscope has a built-in two imaging system with a conventional mode and a high-power endocytoscopic mode. ECS has a high magnification of 570×. Thirty-seven patients including 9 hilar lung cancer, 6 abnormal sputum cytology, 19 squamous dysplasia, and 3 after photodynamic therapy were entered into the study and underwent white light, narrow band imaging and autofluorescence imaging bronchoscopy. Both the abnormal area of interest and surrounding normal bronchial mucosa were stained with 0.5% methylene blue and examined with ECS. Histological examinations with haematoxylin and eosin stain were performed using the biopsied specimens. The ECS imaging was analysed and correlated with the corresponding histological examination.

Results ECS imaging could distinguish between different types of bronchial epithelium including normal bronchial mucosa, squamous dysplasia, and hilar lung cancer. Squamous dysplasia and hilar lung cancer were predictive with sensitivity of 85.7% (12/14) and 90.9% (10/11) and specificity of 100% (12/12), respectively. These ECS images corresponded well conventional histology.

Conclusion ECS was useful for the discrimination between normal bronchial epithelial cells and dysplastic cells or malignant cells during bronchoscopy in real time. This novel technology has an excellent potential to provide *in vivo* diagnosis during bronchoscopic examinations.

S37 COMPARISON OF DYNAMIC CONTRAST ENHANCED MRI (DCE-MRI) PARAMETERS WITH INTEGRATED PET-CT AND SERUM MESOTHELIN IN THE BASELINE ASSESSMENT OF MALIGNANT PLEURAL MESOTHELIOMA

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Integrated PET-CT scans and serum mesothelin measurement have shown early promise in predicting prognosis and evaluating treatment response in malignant pleural mesothelioma (MPM) but may be less reliable with sarcomatoid histology or prior talc pleurodesis. Dynamic Contrast Enhanced-MRI (DCE-MRI) with pharmacokinetic analysis is a novel metabolic imaging modality providing a measure of tumour blood flow and angiogenesis. We prospectively examined the relationship between pharmacokinetic parameters on DCE-MRI with PET-CT, serum mesothelin and histological subtype in MPM patients at diagnosis.

Method 30 pre-treatment patients with a histologically proven MPM underwent DCE-MRI and integrated PET-CT and serum mesothelin assay (MESOMARK) at a single visit. SUVmax and total glycolytic volume (TGV) were reported from PET-CT scans with TGV calculated using MIM software version 4.2.2 (MIMvista corp.). Gadolinium washout rate (GWR) on DCE-MRI was defined at a region of interest from a straight line fit to the kinetic curve data (CAD software—ViewForum R6.3 V1L3, Philips Medical Systems) between peak enhancement in the first 2 min and the last data point.

Results 70% (21/30) epithelioid and 30% (9/30) sarcomatoid histology. 43% (13/30) had undergone prior talc pleurodesis. Histology did not statistically significantly affect SUVmax, TGV or GWR. Serum mesothelin was significantly greater in the epithelioid group (3.2 nM/l (2.0, 6.3) vs 0.6 nM/l (0.5, 0.8) p<0.001). There was no significant difference in mesothelin, SUVmax, TGV or GWR between talc pleurodesed and non-pleurodesed patients in the whole group, but in the epithelioid sub-group there was a trend to significantly higher TGV with talc pleurodesis (talc: 2799 (1931,11257) no talc: 955.5(146.8,2354) p=0.053) that was not observed with GWR (p=0.4179). While SUVmax strongly correlated to TGV (r=0.725, p<0.001), there was no correlation between GWR and TGV (r=0.203, p=0.282) or between mesothelin levels and any of the imaging values.

Conclusion Metabolic imaging has been proposed as an important component of the assessment and management of patients with malignant pleural mesothelioma. Gadolinium washout rate on DCE-MRI may be less sensitive to talc pleurodesis than PET-CT parameters and MRI is a cheaper, more readily available modality that involves shorter patient appointment times, warranting further study in MPM prognostic evaluation and treatment response monitoring.

S38 FOURIER TRANSFORM INFRA-RED (FTIR) SPECTROSCOPY ON SPUTUM FROM LUNG CANCER PATIENTS, HEALTHY CONTROLS AND A HIGH-RISK COHORT

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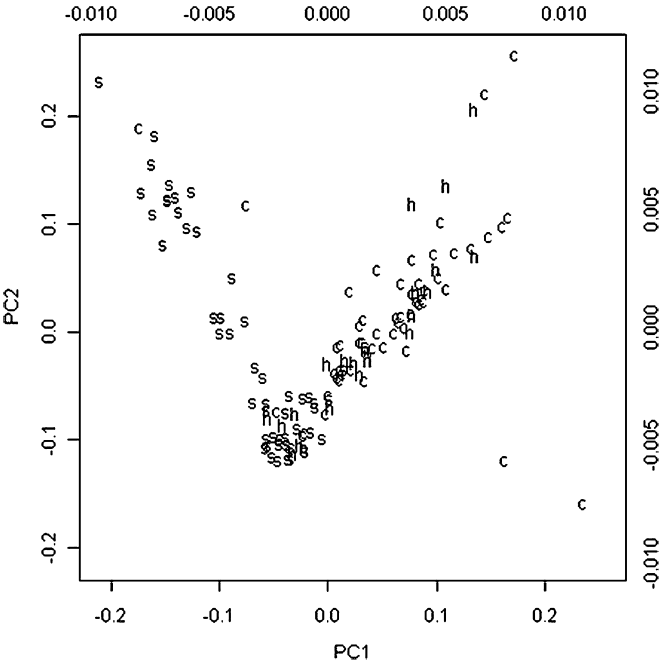
Introduction New cheap and high throughput technologies may allow earlier diagnosis and cost-effective screening programmes for lung cancer (LC). We have shown that sputum is a feasible biofluid for FTIR spectroscopy analysis[1] and now further evaluate FTIR in diagnosing LC.

Methods Sputum was taken from three groups: a) 54 patients (mean age 66.6±8.7 years) with a histological diagnosis of LC (39 NSCLC, 9 small cell, 1 carcinoid, 5 clinical diagnosis). b) 24 patients (mean age 65.1±13.6 years) having bronchoscopy for possible LC



Abstract S38 Figure 1 Principal component analysis of cancer (c), healthy control (s) and high-risk (h) spectra.