Cases reviewed in a SRM between 28 December 2022 and 8 June 2023 were included in this analysis.

Results 2261 scans were reported in total. (5.0%, n=112/2261) were discussed in SRM. 3.1% (n=70/2261) were discussed due to previous imaging or additional history being available.

41/70 (58.6%) screening outcomes were downgraded following discussion, with 25 fewer referrals outside the programme and 12 fewer nodule follow-ups (table 1). 60.0% (n=42/70) were discussed due to possible non-lung cancer incidental findings.

Discussion Lung cancer screening may result in increased referral to both lung cancer and non-lung cancer teams. Reviewing scans within an SRM in the context of previous imaging or additional history provides a valuable opportunity to amend screening outcomes.

National pathways should reflect the importance of a SRM and include robust measures to identify participants with relevant prior imaging to minimise unnecessary referrals and imaging follow-up.

P74 EVALUATION OF SHORT-TERM FOLLOW-UP CT FOR THE MANAGEMENT OF CONSOLIDATION IN LUNG CANCER SCREENING

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Background There are no specific guidelines for the management of consolidation in lung cancer screening. BTS guidelines recommend PET-CT for solid nodules ≥300mm^3, with a Brock score >10%. At times, consolidation has a nodular or mass-like morphology (figure 1). In this situation, a PET-CT scan may be non-discriminatory as both inflammatory and malignant lesions demonstrate increased FDG uptake. An alternative approach to resolve this dilemma is a short interval (6-week) follow-up CT to check for resolution or persistence.

Methods Between January 2019-May 2023, participants in the West London Lung Screening programme undergoing baseline or incident round imaging, with consolidation >300mm^3 volume of suspected inflammatory aetiology, but where malignancy remained within the differential, were invited for 6-week follow-up CT. Those with persistent unchanged or growing consolidation at 6 weeks underwent a subsequent PET-CT +/- biopsy. Resolution rate, incidence of cancer and rate of cancer upstaging were determined.

Results Ninety-two participants had consolidation ≥300mm^3 with nodular or mass-like morphology with 6-week follow-up CT recommended. 19 patients were excluded as final outcomes were not available. A further 8 were excluded after reclassification of consolidation following expert consensus review based on morphology. Sixty-five participants (mean age 68.5 years; opacity volume median 1365mm^3, range 350–25651mm^3; diameter median 20.7mm, range 10.2–49.4mm) were evaluated. Mean time to follow-up scan was 47.7 days. Consolidation resolved or shrunk in 46/65 (71.8%) participants. In 19/65 (29.2%) participants with persistent consolidation, PET/CT was undertaken. Malignancy was diagnosed in 10 of these 19 patients (52.6%): 8 stage I lung cancer, 1 pulmonary lymphoma, 1 metastatic head and neck cancer). 8/10 had radical treatment. None upstaged in the six-week period to follow up.

Discussion In lung screening, consolidation on CT may have morphological appearances indeterminate between an inflammatory and malignant aetiology. In this scenario, a 6-week follow-up CT is a pragmatic and safe approach. Almost three-quarters of such opacities resolve or shrink on short-term follow up preventing the need for PET-CT imaging +/- biopsy. Persistent consolidation at short-term follow-up has a high risk of malignancy and warrants further investigation.

Please refer to page A289 for declarations of interest related to this abstract.

P75 A RADIOMICS PREDICTIVE VECTOR FOR DIFFERENTIATING NEW PRIMARY LUNG CANCER VS LUNG METASTASIS IN PATIENTS PRESENTING WITH PRIOR RADICALLY TREATED CANCER

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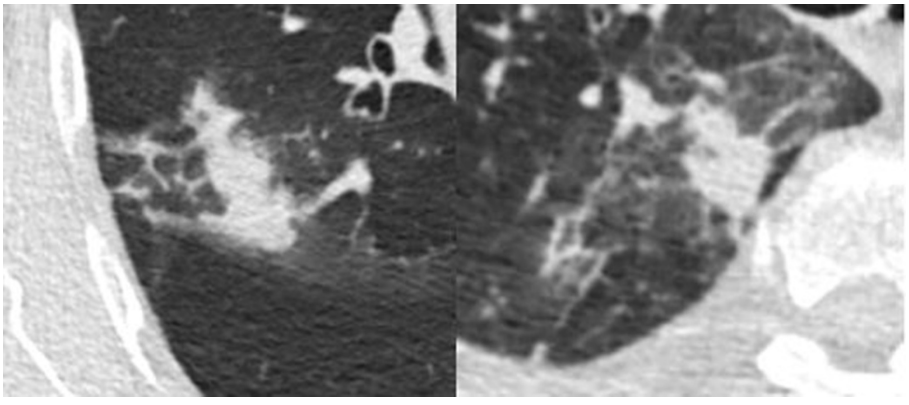

Abstract P74 Figure 1 Examples of mass-like consolidation in participants for whom 6-week follow-up CT was recommended. In both cases, the consolidation resolved at follow-up

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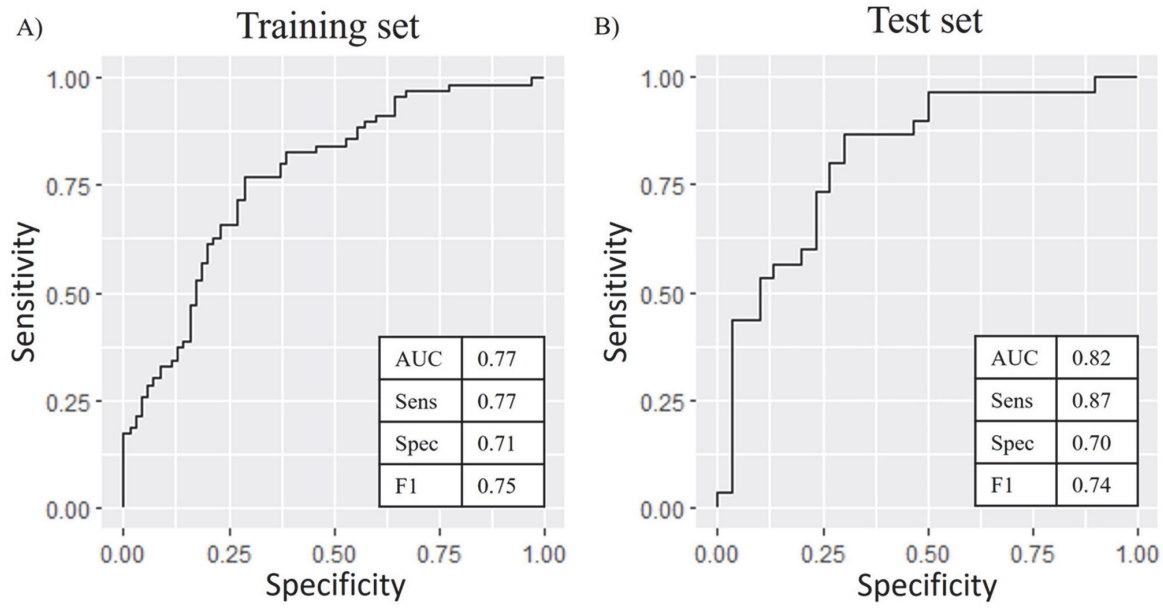

Abstract P75 Figure 1 A) Radiomics Predictive Vector (RPV) Model ROC curve for training set data (N=140) with model performance indices, B) Radiomics Predictive Vector (RPV) curve for test set data (N-60) with model performance indices (N=60). Abbreviations: AUC = Area under the curve, F1 = F1 model precision score, ROC = Receiver Operating Charaterstics Curve, Sens = Sensitivity, Spec = Specificity

Introduction New lung nodules observed after prior radical cancer treatment present a complex and increasingly common problem for lung cancer MDTs. Existing research shows lung cancer is common with previous smoking-related cancers, potentially due to shared risk factors or long-term effects of anti-cancer therapies. Radiomics involves computational high-throughput extraction of mathematical features from medical images. Study of AI and machine learning approaches using radiomics data aims to improve lung nodule stratification/malignancy prediction, but this clinical niche remains understudied.

Methods A retrospective series of CT thorax scans of patients with new lung nodules/lesions >5mm and previous radically treated cancer within 10 years curated for the AI-SONAR study, were anonymised and handcrafted manual segmentation performed. Voxel dimension parameters were standardised and 70:30 training/test set split applied. Radiomic feature extraction was performed on each nodule/lesion. Two-step feature reduction identified key radiomic features (<5) and a Radiomics Predictive Vector (RPV) generated and tested for accuracy in differentiating each malignant class. We further compared 88 different machine learning and feature selections combinations assessing for model AUC performance. Validation of both analysis approaches was performed on a public composite dataset.

Results 200 cases identified comprised 100 metastatic lung tumours (MS) and 100 second primary lung cancers (SPLC). Following feature reduction, two key radiomic features were identified to generate an RPV: 1) FOS_lmode_LLL 2) SNS_sph. The RPV achieved a training set performance AUC of 0.77, sensitivity 0.77, specificity 0.71 and F1 model precision score of 0.75. Test set RPV performance demonstrated an AUC of 0.82, sensitivity 0.83, specificity 0.70 and F1 score of 0.74. Analysis using contrast only cases (N=158) showed loss in RPV model performance, AUC 0.55/0.48 and F1 score 0.29/026 in training/test sets respectively.

Conclusion Our early work highlights that a radiomics based machine learning model may provide information to guide clinicians in timely diagnosis and management of new indeterminate lung nodules/lesions in patients with a previous radically treated cancer. Next steps involve a larger dataset analysis with additional data modalities. The scope of impact would be an opportunity to improve hospital resource use, patient anxiety and mitigate delays in early cancer diagnosis.

P76 COMPARISON OF ENDOBRONCHIAL ULTRASOUND (EBUS) FINE NEEDLE ASPIRATION (FNA) AND FINE NEEDLE BIOPSY (FNB) FOR CANCER DIAGNOSIS: A SINGLE CENTRE PROSPECTIVE STUDY

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Introduction EBUS is a key tool in the investigation of lung cancer and other metastatic malignancy. In the era of targeted treatment, acquisition of sufficient tissue for Next Generation Sequencing (NGS) is vital and fine needle biopsy (FNB) may offer an advantage over traditional fine needle aspiration (FNA).[1] More real world experience of EBUS-FNB is required.

Methods A prospective study of FNB and FNA was undertaken at a tertiary centre between 12/2019–03/2020 and 03/2023–06/2023 in patients undergoing linear EBUS for investigation of suspected pathological mediastinal/hilar lymphadenopathy or pulmonary mass with either a Franseen FNB or FNA needle or both. The histopathologist was blinded to the needle type used. Data was collected on patient demographics, EBUS nodal descriptors and pathology reports including sample quality [good, moderate or poor] and tissue adequacy for NGS.

Results 72 specimens (60 nodes, 12 lung masses) were obtained from 32 patients (23 via FNA 22G, 2 via FNA 21G and 47 via FNB 22G) (table 1). Ultrasound appearance was

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