sensitivity 69%, specificity 100%, positive predictive value 100%, negative predictive value 8%, and diagnostic accuracy 69%. All positive p16 FISH results were in cases of mesothelioma. The sensitivity of p16 according to specimen type was as follows: fluid cytology 88%, VATS 59%, medical thoracoscopy 57% and percutaneous biopsy 50%. The sensitivity as per histological subtype for p16 FISH was 66% in epithelioid mesothelioma and 73% in sarcomatoid mesothelioma.

Discussion p16 FISH is a useful diagnostic tool to confirm cases of suspected malignant mesothelioma. A positive result is consistent with mesothelioma but a negative result does not exclude it. This data shows promising diagnostic yield in fluid cytology which may be especially relevant in those patients unsuitable for invasive biopsies due to technical or clinical reasons.

P10 LIGHT MAY BE USED TO DIFFERENTIATE MESOTHELIOMA FROM BENIGN PLEURAL DISEASE AT THE BEDSIDE

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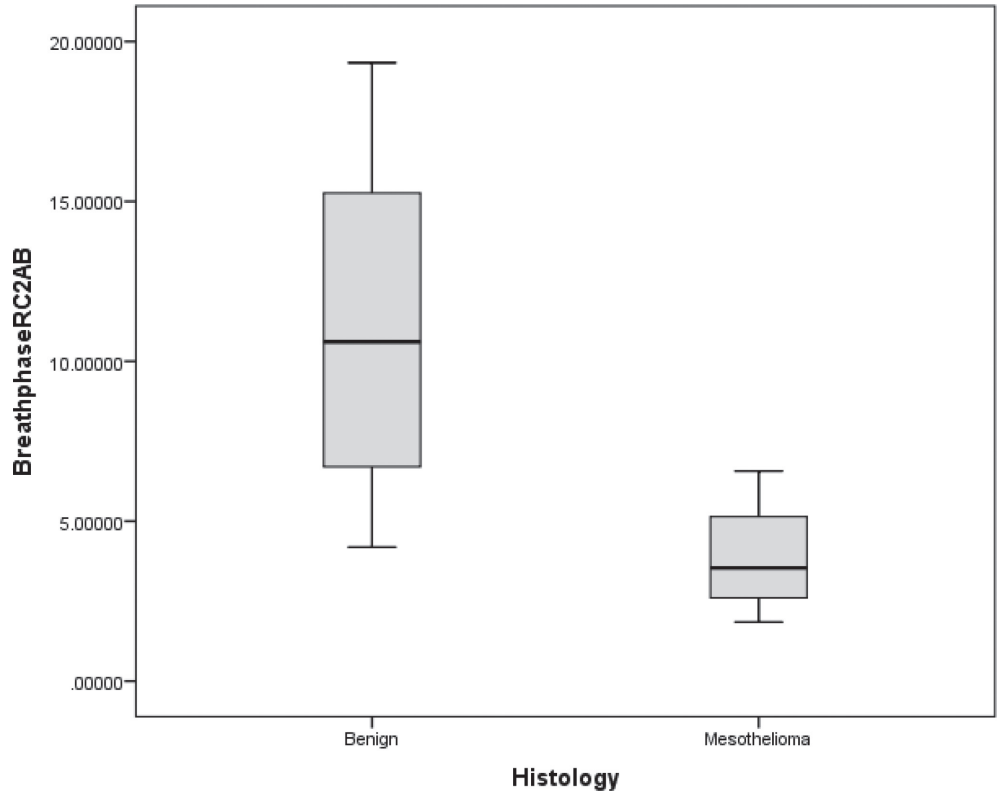
Introduction Monitoring patients at risk of mesothelioma, earlier diagnosis and improving diagnostic tests are top research priorities set by the James Lind Alliance. Chest wall motion (CWM) can be quantified using structured light plethysmography (SLP). During SLP a single source of visible light projects a chequerboard grid onto the anterior chest wall of a patient; two spaced cameras record changes in the contours of the grid to calculate thoracic volume changes. This study aimed to assess whether there are quantifiable differences in CWM between benign pleural disease and mesothelioma using SLP.

Methods Patients attending the preoperative assessment clinic for an elective diagnostic pleural biopsy were prospective recruited. After giving consent, patients underwent a timed 5 minute SLP recording of tidal breathing whilst resting in an upright seated position. Recordings were done prior to surgery and analysis of the SLP recording was performed by a blinded technician. Histology results were collected after surgery and Mann Whitney U two tailed tests of SLP values performed.

Results Fifteen patients were recruited with a median age 71 (23–93 range), 90% were male. Patients subsequently diagnosed with mesothelioma (n = 4) had significantly different values in three measurements: the inspiratory to expiratory time ratio (Ti/Te, p = 0.009), breath phase between ribcage and abdomen (breath phase RC2AB, p = 0.013) and the variation in ratio of inspiratory flow at 50% of tidal motion to expiratory flow at 50% of tidal motion (IE50 IQR, p = 0.004). Median and interquartile ranges for breath phase (a measure of CWM synchrony) are shown in Figure 1. The recording process was highly acceptable to patients.

Conclusions Mesothelioma affects the ratio of time for inspiration and expiration as well as synchrony in CWM and variability of the breathing pattern. SLP is rapid, portable, non-invasive, requires minimal operator training and involves no radiation. The differences found indicate that CWM measurement is a promising tool to diagnose or exclude mesothelioma and potentially to monitor patients at risk of mesothelioma, further studies using SLP in this context are indicated.



Abstract P10 Figure 1 Difference in ribcage to abdomen movement synchrony between benign pleural disease and mesothelioma