REFERENCE

1 Pleural procedures and thoracic ultrasound: BTS guideline 2010.

P6 SIGNIFICANCE OF MINIMAL PLEURAL EFFUSION IN NON-SMALL CELL LUNG CANCER

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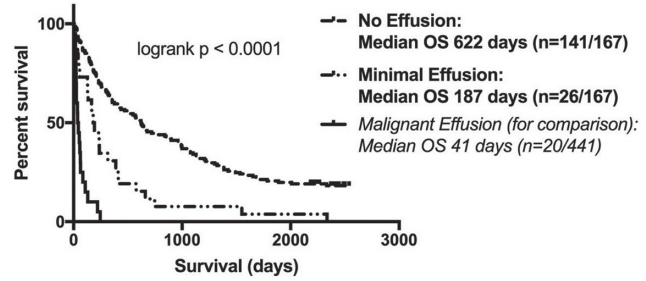
Introduction and objectives Recent publications report a significant survival disadvantage associated with minimal pleural effusion (MiniPE) at presentation of non-small cell lung cancer (NSCLC). MiniPE is defined when an effusion is too small for thoracentesis or where aspiration cytology is negative. Occult pleural metastases (OPM), indirect pathophysiology or comorbidity may cause MiniPE, but staging beyond thoracentesis is rarely performed. Assumption of OPM and therapeutic nihilism may contribute to poor outcomes. We assessed the prognostic impact of MiniPE in potentially radically-treatable NSCLC (Stage I-IIIA), oncologists' attitudes to treatment planning and the final treatment delivered.

Methods Electronic records and baseline imaging were reviewed retrospectively in 441 consecutive diagnoses of NSCLC made over 6 months in 2009. Stage I-IIIA patients were dichotomized into: No effusion and MiniPE. Malignant effusion (Stage IV) cases were recorded for comparison. The impact of effusion status on overall survival (OS) was estimated using Kaplan-Meier methodology. The probable cause of MiniPE was assessed indirectly using follow-up imaging/records. 3 Clinical Oncologists were surveyed for theoretical treatment plans in 8 randomly-selected MiniPE Stage I-IIIA cases based on anonymised imaging and history. These 24 plans were compared to the treatment delivered in MiniPE patients.

Results 103/441 (23%) patients had MiniPE. 167/441 (38%) were Stage I-IIIA; 26/167 (16%) of these had MiniPE. OS based on effusion status (Stage I-IIIA) is shown in Figure 1. 28/103 (17%) MiniPE patients survived <30 days and had limited post-diagnosis imaging. These were excluded from probable cause analyses. Of the remaining 75/103, 20 (27%) had radiological evidence of progressive pleural malignancy. Radical treatment was delivered in 4/26 (15%) Stage I-IIIA MiniPE cases but advocated in 17/24 (71%) theoretical plans, which showed significant inconsistencies.

Conclusions These retrospective data confirm the negative prognostic impact of MiniPE and suggest the prevalence of OPM is at least 27% in Stage I-IIIA NSCLC. This is likely an underestimate given our limited data in poor prognosis patients. Radical treatment was rarely delivered despite aggressive treatment plans. A prospective study utilising thoracoscopic staging could define the true prevalence of OPM in MiniPE. Objective staging might improve decision-making, radical treatment rates and OS in this context.



Abstract P6 Figure 1 Stage I-IIIA NSCLC Survival by Effusion Status

P7 CLINICIANS' PERSPECTIVES OF HEALTH RELATED QUALITY OF LIFE AND PRIORITIES IN DECIDING MANAGEMENT FOR MALIGNANT PLEURAL EFFUSION

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Introduction Malignant pleural effusion (MPE) management has dramatically changed in the last decade with the increasing use of indwelling pleural catheters (IPC) and thoracoscopy. Although treatment is aimed at improving health related quality of life (HRQOL), data on outcomes are limited, with management guided by clinician perspectives and experiences.

Aims We sought clinician perspectives of HRQOL for patients with MPE and its impact on decision making worldwide. We present the UK data.

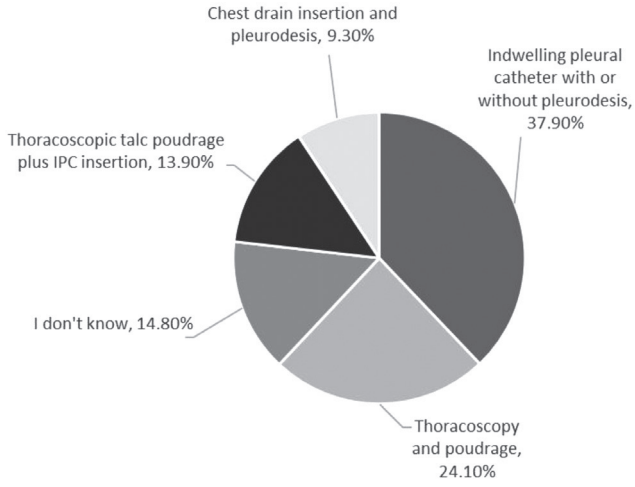
Methods We invited all respiratory doctors in the UK to complete an online survey advertised in the British Thoracic Society newsletter and by e-mail. Responses to questions with ranked options were assigned consecutive integers with lower values indicating a more favoured or higher prioritised response. Responses to best answer questions are presented as frequencies and percentages.

Results 121 UK-based doctors (104 consultants, 1 associate specialist, 16 respiratory registrars) completed the survey.

Factors determining HRQOL (rank 1–9): shortness of breath and chest pain (mean rank 1.48) and functional status (mean rank 2.57) were ranked the most important. Social set up – mean rank 5.16, depression/anxiety – mean rank 5.22, tumour type and stage – mean rank 5.78, distance to travel for medical care – mean rank 5.86, age – mean rank 6.59, financial difficulties from treatment – mean rank 8.27.

Factors in the decision to offer intervention for MPE (rank 1–6): breathlessness ranked highest (mean rank 1.83) followed by the risk of significant harm from procedure vs chance of benefit (mean rank 2.73).

Perspectives on which interventions most improve HRQOL are presented in Figure 1.



Abstract P7 Figure 1 Which intervention most improves quality of life in malignant pleural effusion? (n = 108)

Conclusion Shortness of breath and chest pain ranked highly in the perspective of HRQOL with shortness of breath a key factor in offering intervention. There is a lack of consensus on the ideal treatment to maximise HRQOL, which may reflect the paucity of data. Robust clinical trial evidence on HRQOL outcomes is therefore required to guide management decisions of patients with MPE. This should be complemented by a patient survey to ascertain differences in clinician and patient perspectives of quality of life and care.

P8 NEGATIVE PLEURAL BIOPSIES – DO WE NEED EARLY FOLLOW UP AND IMAGING?

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Background Primary pleural or secondary malignancy is a common cause of pleural effusion. The incidence is about 200000 cases per year. Pleural biopsy remains gold standard investigation of choice. Those with negative biopsies are either discharged or have follow up depending on the multidisciplinary team decision.
Objective To review the outcome of all patients with negative pleural biopsy including any follow up imaging for up to two years.
Methods Retrospective analysis of 162 consecutive patients who underwent video-assisted thoracoscopic surgery (VATS) (100) and local anaesthetic thoracoscopy (62) between January 2011 and December 2012 across two large UK tertiary referral centres. Patients referred from peripheral centres were excluded.
Results Of the 162 patients, male:female ratio was 109/53; average age was 69. Pleural biopsy histology was malignant in 63% (100); mesothelioma 43%, lung cancer 35%, extra pulmonary 22%. Granulomatous inflammation 6% (9). Benign 31% (53); chronic inflammation 28, fibrosis/thickening 8, reactive 13 and others 4. See Table 1.

Of the 53 benign, 11 (21%) developed malignancy before 2 years. 6 (55%) required repeat biopsy. Patients alive at the end of 2 years – 1 Malignant and 26 benign of the 53.

Abstract P8 Table 1 VATS and Thoracoscopy Pleural Biopsies

	Centre 1	Centre 2	
Data from 2011 to 2012	VATS	Thoracoscopy	Total, n(%)
Number	100	62	162
Malignant on biopsy	60	40	100 963%)
Granulomatous	5	4	9 (6%)
Benign	35	18	53 (31%)
• Chronic inflammation	16	12	28
• Fibrosis/thickening	8	0	8
• Reactive	8	4	12
• Others	3	2	5
Malignant progression	8	3	11 (21%)

Imaging performed during 2 years follow up at 6, 12, and 24 months: plain chest radiograph 22 (42%), 12 (23%), 13 (25%) and CT scan was done at 5 (9%), 8 (16%), 2 (4%) respectively.
Conclusion Our data suggests that 21% of patients were diagnosed as malignant within 2 years of initial negative biopsy, which is higher than expected.[1] There is a need for early follow up and imaging in patients with negative pleural biopsy. Further studies are required to establish the follow up interval and imaging modality.

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P9 THE UTILITY OF P16 FISH IN DIFFERENTIATING MALIGNANT MESOTHELIOMA AND BENIGN MESOTHELIAL PROLIFERATIONS

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Introduction One of the commonest genetic abnormalities in malignant mesothelioma is deletion of the 9p21 locus which harbours the p16/CDKN2A gene. Homozygous deletion of p16/CDKN2A can be identified with Fluorescence in situ hybridization (FISH) and may be a useful diagnostic tool where there is difficulty separating malignant from benign mesothelial cell proliferations, e.g. where a lack of invasion into adipose tissue prevents a confident diagnosis of mesothelioma.
Methods The University Hospital of South Manchester is a regional mesothelioma centre in the North West of England. p16 FISH has been in clinical use since 2013 for cases of abnormal mesothelial cell proliferation without conclusive evidence of malignancy. This retrospective study analysed the diagnostic performance of p16 FISH using clinical follow-up and post-mortem studies to clarify final diagnoses.
Results 75 pathological samples underwent p16 FISH analysis 2013–2015; 16 cytology samples (14 pleural fluid, 2 ascitic fluid), 36 VATS pleural biopsies, 16 local anaesthetic thoracoscopy pleural biopsies and 7 percutaneous pleural biopsies. There was one failed test. A final diagnosis based on subsequent definitive pathological sampling, definitive radiological surveillance or post-mortem findings were available for 99% of patient (74/75). 71 patients were ultimately proven to have mesothelioma (39 epithelioid, 13 sarcomatoid, 7 biphasic and 12 NOS), 2 patients were diagnosed benign pleural disease and 1 with metastatic lung cancer. The diagnostic performance of p16 FISH was as follows: