

Fibreoptic bronchoscopy in the management of lone pleural effusion: a negative study

P. Kelly*, M. Fallouh*, A. O'Brien*, L. Clancy **

Fibreoptic bronchoscopy in the management of lone pleural effusion: a negative study. P. Kelly, M. Fallouh, A. O'Brien, L. Clancy.

ABSTRACT: In a retrospective review of 3,000 consecutive fibreoptic bronchoscopies, fifty were performed for investigation of lone pleural effusion. While 7 patients had bronchogenic carcinoma, in only one case was it visible endoscopically. In the absence of radiological or clinical features suggesting an endobronchial lesion, fibreoptic bronchoscopy is unlikely to aid in the diagnosis of lone pleural effusion.

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In the absence of other indications for fibreoptic bronchoscopy (FOB) the value of this technique in the investigation of pleural effusion has not been resolved [1-5]. The value of FOB in lone pleural effusion, defined as pleural effusion in the absence of obvious clinical cause, radiological explanation or clinical feature suggestive of an endobronchial lesion, *e.g.* haemoptysis, is unclear.

Patients and methods

A retrospective analysis was made of 3,000 consecutive patients referred for FOB. A record was compiled of patients with a diagnosis of lone pleural effusion, as defined above, to determine the final diagnosis and examine the part played by FOB in determining that diagnosis. Patients with positive sputum cytology for malignancy prior to bronchoscopy are excluded from analysis and all patients had at least one non-diagnostic pleural biopsy and thoracentesis prior to bronchoscopy.

Results

Fifty patients satisfied the criteria for lone pleural effusion and their final diagnoses are shown in table 1. A further 15 patients satisfied the criteria except that they also had haemoptysis.

Only one patient with lone pleural effusion without subsequent pleural fluid cytology or pleural biopsy positive for malignancy had an endoscopically visible tumour (squamous carcinoma). Subsequently two patients had pleural fluid positive on cytological examination for malignant cells and three patients had pleural biopsy diagnostic of malignancy. The remaining patient had a squamous carcinoma which was diagnosed on electron microscopy following thoracotomy to establish the

diagnosis. Of the 18 cases of tuberculosis, one had a positive biopsy for tuberculosis at FOB and eleven others were subsequently positive on culture (sputum or pleural fluid). All patients who had complete resolution/presumed infection or unexplained effusion have been followed for at least two years since presentation and remain well.

Table 1. - Final diagnosis of 50 patients with lone pleural effusion

| | |
|-----------------------|----|
| Complete resolution) | 16 |
| Presumed infection) | |
| Tuberculosis | 18 |
| Carcinoma of lung* | 7 |
| Empyema | 4 |
| Rheumatoid disease | 2 |
| Pulmonary embolus | 1 |
| Trauma | 1 |
| Unexplained | 1 |

*: Adenocarcinoma (2); squamous carcinoma (2); large cell undifferentiated (1); oat cell (2).

Discussion

In the absence of obvious clinical or radiological causes for pleural effusion, thoracentesis, pleural biopsy and examination of pleural fluid will frequently yield a diagnosis. Examination of pleural fluid for malignant cells is positive in 40-87% of neoplastic effusions [6-8].

Higher diagnostic yields are usual when multiple fluid specimens are examined [9]. The combined techniques give a diagnosis in approximately 90% of cases with malignant pleural effusions, particularly if repeat specimens of fluid and biopsies are obtained [8, 10-14]. This was also the case in this study, in which two patients were

positive for malignant cells and three were positive on pleural biopsy for malignancy on repeat examination following bronchoscopy.

Poe *et al.* [15] assessed the sensitivity, specificity and predictive values of closed pleural biopsy in 211 patients. In 143 (68%) of patients the biopsy showed nonspecific changes or a normal result. Malignancy or tuberculosis was eventually detected in 30 cases, excluded in 101 and no diagnosis was established in the remaining 12 patients.

In the present study, FOB was diagnostic in only two patients (one malignancy and one tuberculosis). Whilst FOB gives a low diagnostic yield it should be considered after complete investigation of the pleura, including thoracoscopy and perhaps computerized tomography scanning of the chest. FOB is safe with minimal morbidity and a very low mortality. For completeness it will frequently be included in the investigations of patients with lone pleural effusion but clinicians should anticipate a low diagnostic yield.

Lone pleural effusion is an uncommon reason for referral for fiberoptic bronchoscopy and the procedure gives a low diagnostic yield. These patients would be more appropriately managed by repeated thoracentesis and pleural biopsy and failing a diagnostic result they should be managed either expectantly or by thoracoscopy.

References

1. Williams T, Thomas P. – The diagnosis of pleural effusion by fiberoptic bronchoscopy and pleuroscopy. *Chest*, 1981, 80, 566–569.
2. Feinsilver TIS, Barrows AA, Braman SS. – Fiberoptic bronchoscopy and pleural effusion of unknown origin. *Chest*, 1986, 90, 516–519.
3. Larda JF. – Indications for bronchoscopy. *Chest*, 1978, 73, 686–690.
4. Sackner M. – State of the art: bronchofiberscopy. *Am Rev Respir Dis*, 1975, 111, 62–68.
5. Straddling P. – *In: Diagnostic bronchoscopy* (5th edn). Churchill Livingstone, London, 1986.
6. Jarvi OH, Kummas RJ, Laitio MT, *et al.* – The accuracy and significance of cytologic cancer diagnosis of pleural effusion. *Acta Cytol*, 1972, 16, 152–157.
7. Grunze H. – The comparative diagnostic accuracies and specificity of cytologic techniques used in the diagnosis of malignant neoplasm in serous effusions of the pleural and pericardial cavities. *Acta Cytol*, 1964, 8, 150–164.
8. Salyer WA, Eggleston JC, Erozan YS. – Efficacy of pleural needle biopsy and pleural fluid cytopathology in the diagnosis of malignant neoplasm involving the pleura. *Chest*, 1975, 67, 536–539.
9. Light RW, Erozan YS, Ball WC. – Cells in pleural fluid. Their value in differential diagnosis. *Arch Intern Med*, 1973, 132, 854–860.
10. Frist B, Kahan AV, Koss LG. – Comparison of the diagnostic values of biopsies of the pleura and cytological evaluation of pleural fluids. *Am J Clin Pathol*, 1979, 72, 48–51.
11. Larsen K, Axelsen F. – Closed pleural biopsy and fluid cytology in the diagnosis of suspected pulmonary cancer with pleural involvement. *Thorac Cardiovasc Surg*, 1982, 16, 197–199.
12. Scerbo J, Keltz H, Stone DJ. – A prospective study of closed pleural biopsies. *J Am Med Assoc*, 1971, 218, 377–380.
13. Von Hoff DD, Livolsi V. – Diagnostic reliability of needle biopsy of the parietal pleura. *Am J Clin Pathol*, 1975, 64, 200–203.
14. Yam L. – Diagnostic significance of lymphocytes in pleural effusions. *Ann Intern Med*, 1967, 66, 972–982.
15. Poe RH, Israel RH, Utell MJ, *et al.* – Sensitivity, specificity and predictive values of closed pleural biopsy. *Arch Intern Med*, 1984, 144, 325–328.

Broncho-fibroscopie pour l'approche des épanchements pleuraux isolés. Une étude négative. P. Kelly, M. Fallouh, A. O'Brien, L. Clancy.

RÉSUMÉ: Lors d'une étude rétrospective de 3,000 broncho-fibroscopies consécutives, l'on en a repéré 50 qui furent exécutées pour investiguer un épanchement pleural isolé. Alors que 7 patients souffraient de carcinome bronchique, il n'a été visible à l'examen endoscopique que dans un seul cas. En l'absence de signes cliniques ou radiologiques suggestifs d'une lésion endo-bronchique, la broncho-fibroscopie n'est guère susceptible d'aider au diagnostic des épanchements pleuraux isolés.

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