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THE ROLE OF FIBEROPTIC BRONCHOSCOPY IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS

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ABSTRACT

From January 1982 to April 1987, 1500 cases of fiberoptic bronchoscopy (FOB) were performed. Among these cases, 37 were suspected of having pulmonary tuberculosis but their sputum examination was either negative or they were not able to expectorate. In all these cases pulmonary TB was confirmed either by bronchoalveolar lavage (BAL) fluid examination or by biopsy. We conclude that FOB is a valuable means for detection of clinically suspected but sputum negative pulmonary TB.

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INTRODUCTION

Tuberculosis remains a major cause of mortality and morbidity in developing countries. Tuberculosis control programmes which have been suggested by the W.H.O. and other relevent organizations have led to a reduction in the incidence and annual risk of infection in areas in which they have been implemented correctly.[1]

The corner stones of these programmes include:

a) Vaccination and prevention
b) Case finding and case holding
c) Treatment of the sources of infection

In order to break the chain of transmission of disease, case finding is of special importance and usually is accomplished actively or passively.[1] In passive case finding, symptomatic individuals are subjected to a more detailed work-up including a complete physical examination, Mantoux test, chest roentgenogram and sputum smear and culture. Although these procedures seem to be quite simple, in some cases, it is almost impossible to obtain an adequate specimen for smear or culture, and in others, despite radiological and or clinical evidence of TB sputum examination is reported negative or the radiologic appearance suggests non-tuberculous pneumonia but response to therapy is nil or poor. On the other hand, it is not justified to treat all suspicious cases without bacteriological proof, as aside from excessive cost, drug reactions may also appear, and for these reasons, FOB can be utilized. In the following study, we reviewed our FOB cases retrospectively, the result of which is reported.

MATERIAL AND METHOD

Records of 1500 cases of F.O.B. performed from April, 1978 to January, 1982 were studied retrospectively. Of these cases, 37 underwent FOB because of a provisional diagnosis of pulmonary TB. 23 of these patients were male and 14 were female. Patients were between 22 and 87 years of age (mean age 25.7).

13 of these patients were smokers. Clinical symptoms of the patients are summarized in Table I.

Radiological studies

Radiological manifestations of the patients are summarized in Table II and consists of infiltrative

Table I. Frequency of symptoms of the patients.

	Cough	Sputum	Hemoptysis	Dyspnea	Fever
No. Of Patients	29	16	12	6	6
Percentage	78%	44%	33%	16%	16%

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Table II. Radiological manifestations of the patients.

	Infiltration			Consolidation			Reticulonodular			Cavitation		
	RL	LL	Both	RL	LL	Both	RL	LL	Both	RL	LL	Both
No. of Patients	14	9	4	1	2	–	–	–	3	4	1	1
Percentage	36%	23%	10%	2.5%	5%	–	–	–	7.5%	10%	2.5%	2.5%
Total / Percentage	27 / 70%			3 / 7.5%			3 / 7.5%			6 / 15%		

RL = right lung
LL = left lung

consolidative, reticulonodular, or cavitary lesions. As two of the patients had two different radiologic manifestaions, there were 39 radiologic appearances.

Bronchoscopic examination

Patients were bronchoscoped trans-orally and transnasally with an Olympus BF-3 fiberoptic bronchoscope. Biopsy specimens were obtained with alligator-jaw (FB 19-C) forceps and brushing with a disposable brush. Bronchoalveolar lavage (BAL) was performed in all cases and specimens were collected in sterile suction traps. In order to check the sterility of the instrument, the bronchoscope was washed with sterile saline before each procedure and a specimen examined directly and cultured for BK; all were reported as negative.

RESULTS

Bacteriological study of the lavages was positive in 36 of 37 cases. Of those, 35 (94%) were positive in direct smear and in one case, culture of the biopsy specimen was positive.
The final results are summarized in Table III.

Table III. Final diagnosis in patients.

Final Diagnosis	No. of cases	Percentage
Pulmonary T B	30*	80%
Bronchogenic Carcinoma + T B	3	8%
Pulmonary Lymphoma + T B	1	3%
Wegener's Granuloma + T B	1	3%
Pulmonary Fibrosis + T B	1	3%
Hemophilia + T B	1	3%
Total	37	100%

* One case had M. Kansasii

DISCUSSION

The use of the fiberoptic bronchoscope in an attempt to diagnose tuberculosis in patients with suspicious radiographic lesions but negative sputum has not been widely reported.[3] Only one other paper has described its value in any detail.[4] Of 1500 bronchoscopies which were performed for different reasons, 2.5% proved to have pulmonary tuberculosis, but considering the fact that in only 37 cases, pulmonary T B was provisional diagnosis, the value of this procedure becomes obvious. Although diagnosis of T B may be made by gastric lavage especially in cases unable to expectorate adequate sputa, bronchoscopy and bronchoalveolar lavage (BAL) is preferred for the following reasons:

1) There is definitely a greater chance to obtain a positive smear or culture by directly brushing and washing the lesion.
2) Bronchoscopy is a non-invasive tool and can be performed as easy as gastric intubation.
3) It is possible to biopsy all suspicious mucosal lesions.
4) It is possible to diagnose diseases which mimic T B radiologically and/or clinically. The simultaneous presence of bronchogenic carcinoma especially in male smokers could be of importance because anti-tuberculosis chemotherapy should exceed surgery or radiation therapy,[5] and bronchoscopy proved to be an effective tool for this circumstance.[4] Thus, fiberoptic bronchoscopy and transbronchial biopsy is a useful procedure in evaluating patients with negative smears who are clinically suspected of having tuberculosis.[6]

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Recently, the results of ten years' experience with fiberoptic bronchoscopy for mycobacterial isolation has been published,[7] and confirms the sensitivity of FOB in the isolation of mycobacteria other than *M.tuberculosis* from bronchoscopic specimens.

We conclude that fiberoptic bronchoscopy with bronchial brushing and lavage and transbronchial biopsy is a valuable and easy method which should be performed in all clinically or radiologically suspected cases of pulmonary tuberculosis. This procedure is also very helpful in diagnosing simultaneous disease, especially bronchogenic carcinoma.[8]

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REFERENCES

1. Toman K: Tuberculosis; case finding and chemotherapy. World Health Organization, 1979.
2. Uddenfeldt M, Lundgren R: Flexible fiberoptic bronchoscopy in the diagnosis of pulmonary tuberculosis. Tubercle 62 (3): 197-9, 1981.
3. Willcox PA, Benatar SR, Potgieter PD: Use of flexible fiberoptic bronchoscope in diagnosis of sputum-negative pulmonary tuberculosis. Thorax 37 (8): 598-601, 1982.
4. Danek SJ, Bower SJ: Diagnosis of pulmonary tuberculosis by flexible fiberoptic bronchoscopy. Am Rev Respir Dis 119 (4): 667-9, 1979.
5. Welinsky E: Tuberculosis. In: Baum GL, Wolinsky E. eds. Textbook of Pulmonary Disease, Boston, Little, Brown and Company, 507-72, 1983.
6. Wallace JM, Beutsch AL, Harrell JH, Moser KM: Bronchoscopy and transbronchialbiopsy inevaluation of patients with suspected active tuberculosis. Am J Med 70 (6): 1189-94, 1981.
7. Russell DM, Torrington KG, Tenhold MF: A ten-year experience with fiberoptic bronchoscopy for mycobacterial isolation. Am Rev Respir Dis 133: 1069-71, 1986.
8. Jett JR, Cprtese DA, Dines DE: The value of bronchoscopy in the diagnosis of mycobacterial disease. A five-year experience. Chest 80 (5): 575-8, 1981.
9. Sarkar SK, Sharma GS, Gupta PR, Sharma RK: Fiberoptic bronchoscopy in the diagnosis of pulmonary tuberculosis. Tubercle 61(2): 97-9, 1980.

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