



Diagnostic Role of FOB in Radiological Hilar and Parahilar Shadow of Patients Reporting at Tertiary Care Centre

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Abstract

Fiberoptic bronchoscopy (FOB) is an important procedure for diagnosis of different respiratory problems. The present study was conducted to evaluate the diagnostic role of FOB in Hilar & Parahilar shadows and also to evaluate the value of bronchial Aspirate, brushing and biopsy in final diagnosis of various lung diseases. Study was carried out on 51 patients reporting the tertiary care centre of department. of T.B. and respiratory diseases, S.P. medical college, Bikaner, Rajasthan. Among the cases included in this study, 57% cases have both (Hilar & Parahilar) shadows at left side. Vocal cord paralysis was in 1/5th (20%) cases. Endobronchial growth found in 59% cases. External compression was observed in 21.5% cases followed by inflammation in 15.6% and normal in 9.8% cases. Definite diagnostic yield of FOB for various lung diseases was 86%. Maximum cases (72%) diagnosed as lung cancer. Max. diagnostic yield in diagnosing lung cancer was through bronchial brushing (70%). Maximum diagnostic yield of procedure for malignancy was in bronchial biopsy (88%). Thus FOB technique has a high diagnostic yield in current clinical practice. Results suggested that the diagnostic yield of FOB of present study is as good as with studies performed by other centres within the country and abroad. This technique is more constructive in diagnosis when combined with a sound clinical judgment and other supportive investigations.

Keywords: *Fiberoptic bronchoscopy, Radiological, Hilar shadow, parahilar shadow, Diagnostic yield, lung cancer.*

Introduction

Fiberoptic bronchoscope was first introduced by IKEDA S in 1964. Fiberoptic bronchoscopy (FOB) is a very useful and safe procedure for diagnosis of various respiratory diseases. It is a useful method for direct visualization of pathological changes in Trachea & Bronchi. It is

commonly & widely used by pulmonologists in diagnosis & management of undiagnosed cases of lung diseases especially lung cancer. It is a universally accepted procedure both in the diagnosis and therapy of different pulmonary disorders. FOB can be performed under local anesthesia in various clinic/hospital settings

providing maximal visualization of tracheobronchial tree^[1], and if performed carefully, can be a thoroughly safe procedure^[2].

Endobronchial biopsies, aspirate and brushing were performed for the diagnosis, which is useful in diagnosis of un-common infections, neoplasm and other non infectious causes. FOB not only helps in assessing the disease area but also provides better bacteriological and histological yield thus helping to reach a definite diagnosis.

Thus FOB is immensely useful for making a conclusive diagnosis of lung cancer, especially when there is an endobronchial lesion, providing adequate tissue sample by endobronchial biopsy, endobronchial aspirate or brush cytology.

Material and methods

This retrospective study was conducted in the Deptt. of TB & Respiratory Diseases, SPMC, Bikaner from the period Jan.08 to Dec.09. 51

cases undergoing FOB for Hilar & Parahilar opacities were included in this study OLYMPUS (BF-TE2) Video Assisted Bronchoscope was used by nasal route under local anesthesia.

Endobronchial Biopsies, Aspirate & Brushing were performed for histopathological & cytological analysis.

Result

There were total 51 cases included in the study and subjected to fiberoptic bronchoscopy (FOB). The age and gender distribution of the study participants is shown in the table 2 and 3. Out of 51 cases 48 males & 3 were females. Maximum (80%) cases were in the age group of 51 yrs. & above. [51-65 -(49%)(66 &> (32%)] 3/4th cases were having hilar opacities with left. side 64%. (p value <0.02) . Among the cases included in this study, 57% cases have both (Hilar & Parahilar) shadows at left side.

Table 1: No. of cases

	Number	%
Total no. of cases	51	-
Diagnostic yield of FOB	44	86.22
No diagnosis was made in	07	13.73

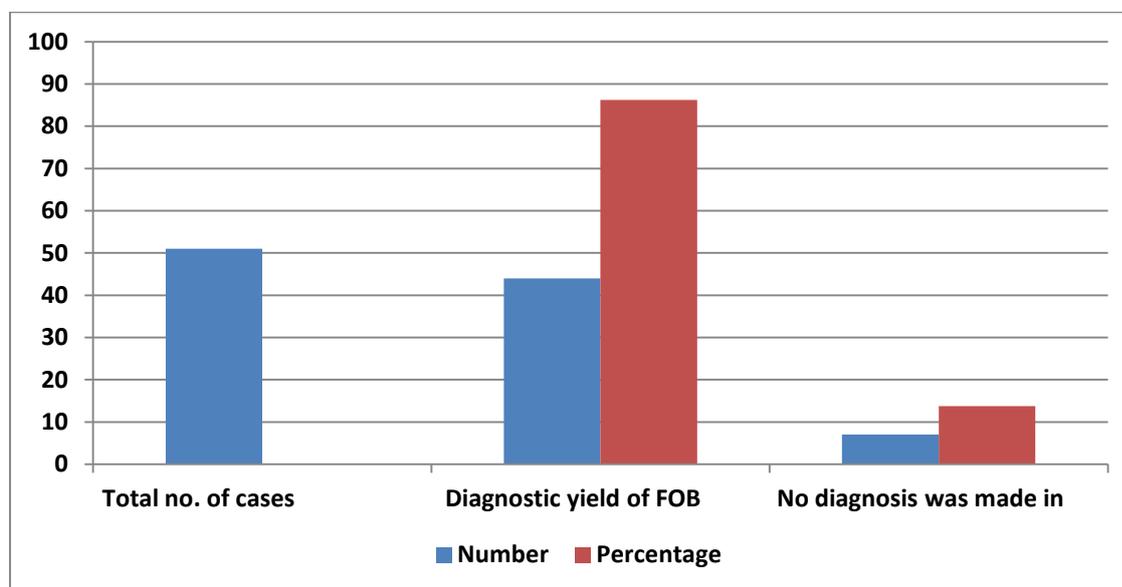


Table no 2: Gender wise distribution of cases

Gender	No.of cases	Percentage
Male	48	94.11
Female	3	5.89
Total	51	100

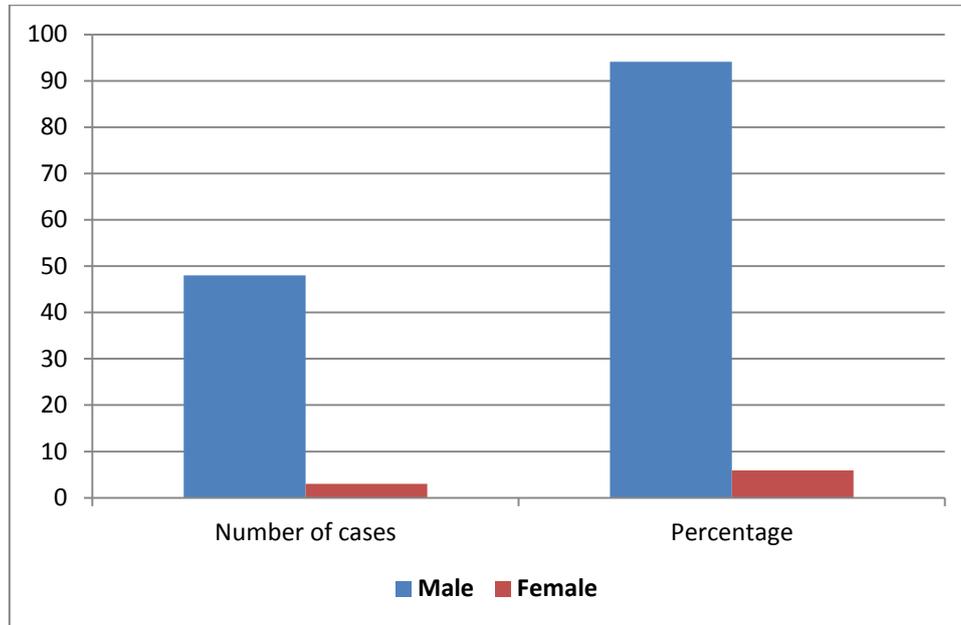


Table no. 3: Age wise distribution of cases

Age group (years)	No. of cases	%
35-50	10	19.60
51-65	25	49.01
66 & above	16	31.39
Total	51	100

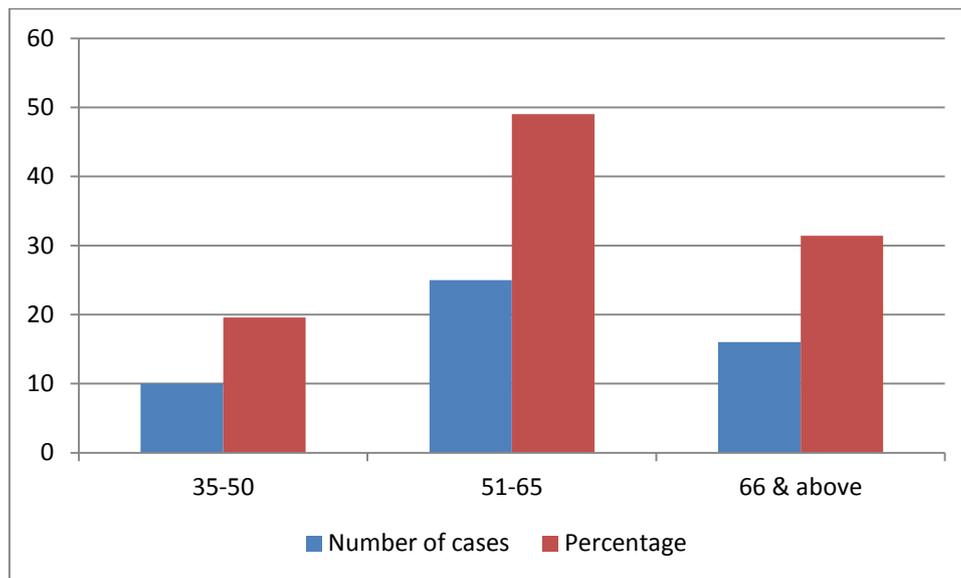
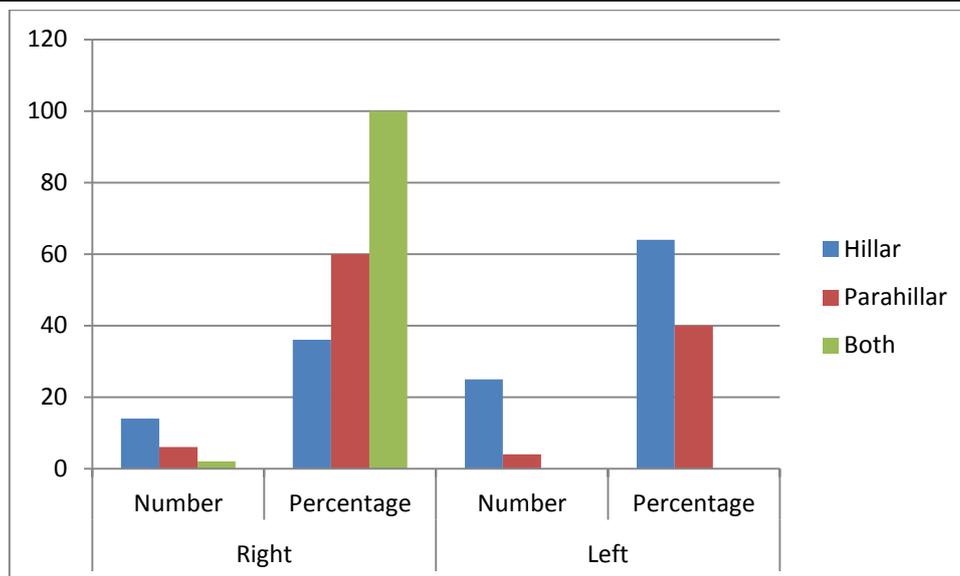


Table no. 4: Distribution of cases according to Radiological shadow

Radiological shadow	Right		Left		Total		P value <
	No.	%	No.	%	No.	%	
Hillar	14	36	25	64	39	76.47	0.02
Parahillar	6	60	4	40	10	19.60	0.65
Both	2	100	0	-	2	3.93	0
Total	22	43	29	57	51	100	



Vocal cord paralysis was in 1/5th (20%) cases. Endobronchial growth found in 59% cases. External compression was observed in 21.5% cases followed by inflammation in 15.6% and normal in 9.8% cases. Definite diagnostic yield of FOB for various lung diseases was 86%.

Maximum cases (72%) diagnosed as lung cancer. Maximum diagnostic yield in diagnosing lung cancer was through bronchial brushing (70%). Maximum diagnostic yield of procedure for malignancy was in bronchial biopsy (88%).

Table no. 5: FOB Findings in Hilar & Parahilar shadows

Findings	No. of cases	Percentage
Vocal cord paralysis	10	19.60
Left	9	90
Right	1	10
Endobronchial growth	29	56.86
External compression	11	21.56
Inflammation	8	15.68
Normal	5	9.80

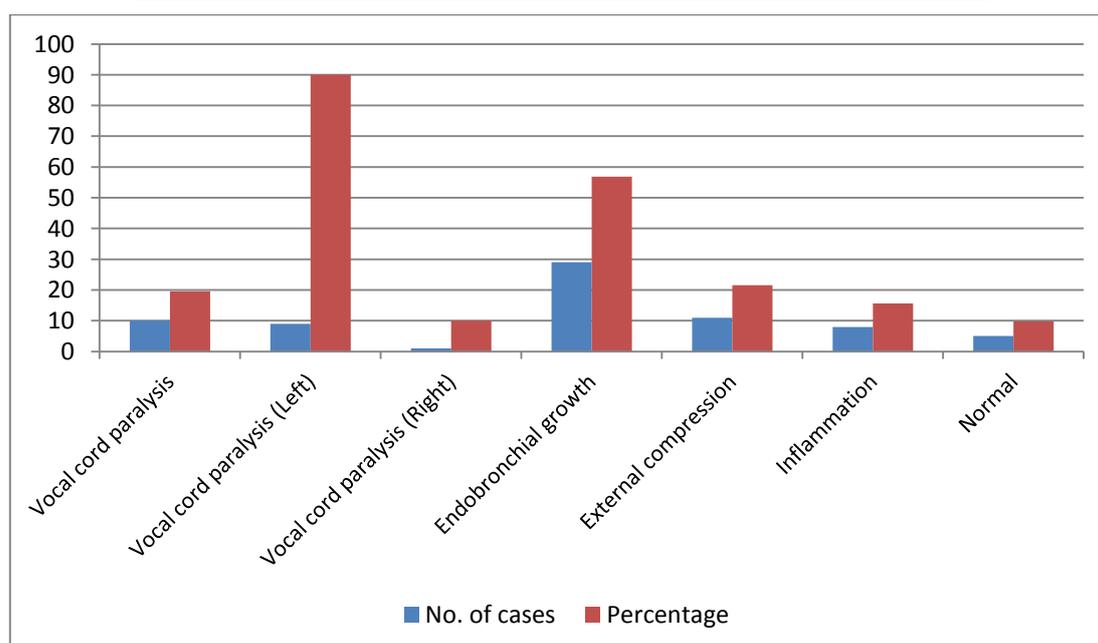


Table no. 6: Diagnostic yield of FOB

Diagnosis	No. of cases	Percentage
Malignancy	37	72.54
Tuberculosis	3	5.88
Infections	4	7.85
No diagnosis	7	13.73
Total	51	100

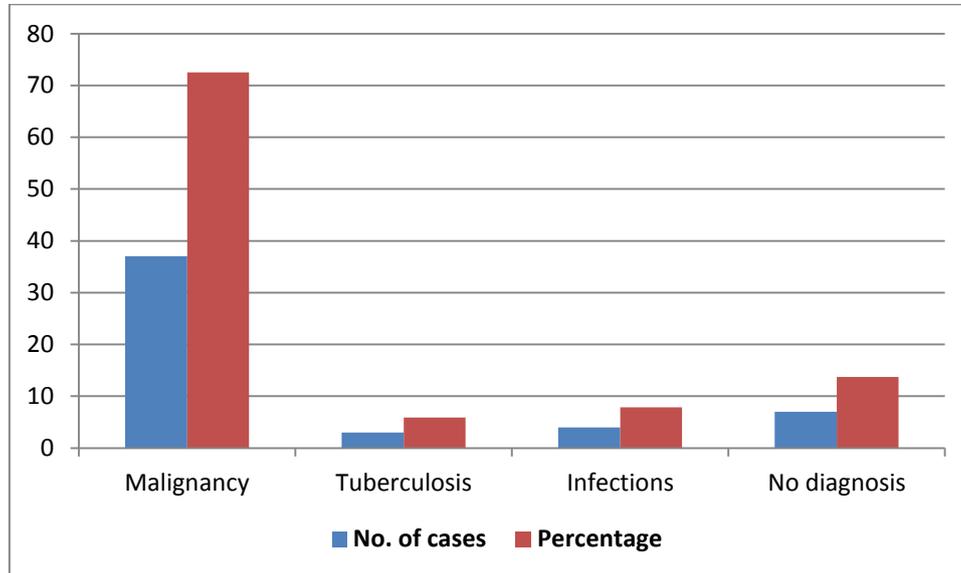


Table no.7: Over all diagnostic yield of procedures in diagnosing lung diseases (n51)

Diagnosis	Brushing		Biopsy		Aspirate	
	No.	%	No.	%	No.	%
Malignancy	36	70	24	47	4	8
Infection	4	8	1	2	7	14
Tuberculosis	1	2	-	-	-	-
No diagnosis	5	10	2	4	40	78

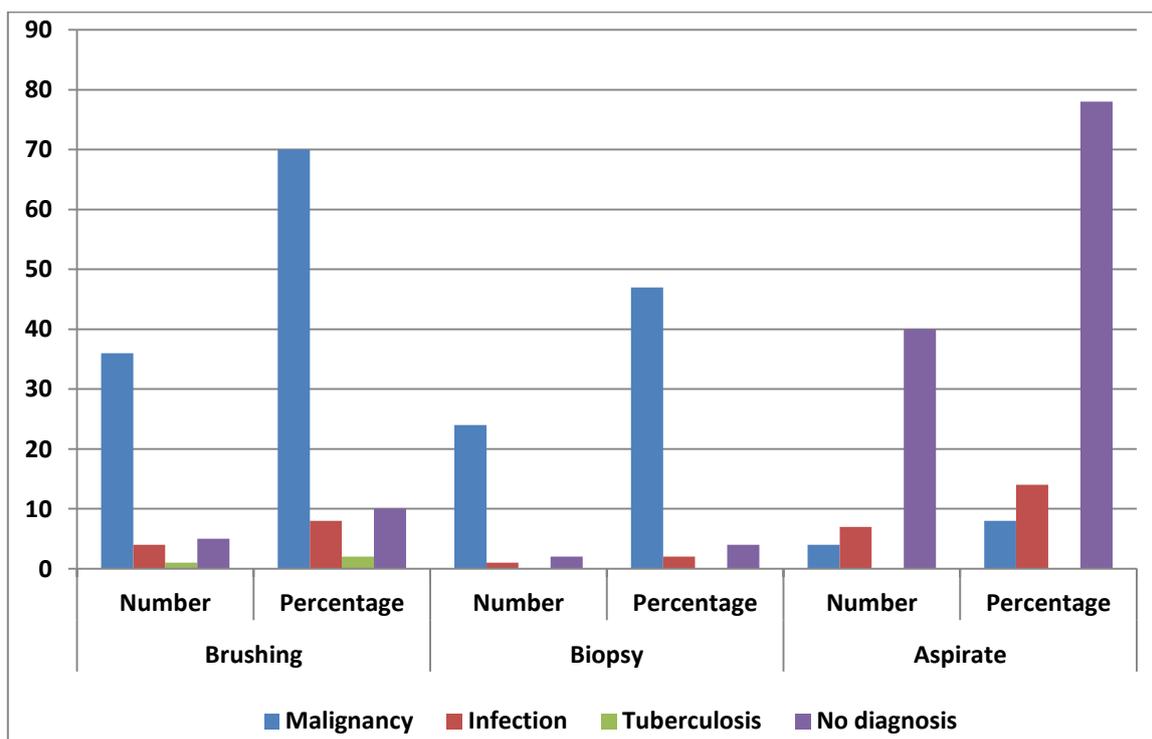
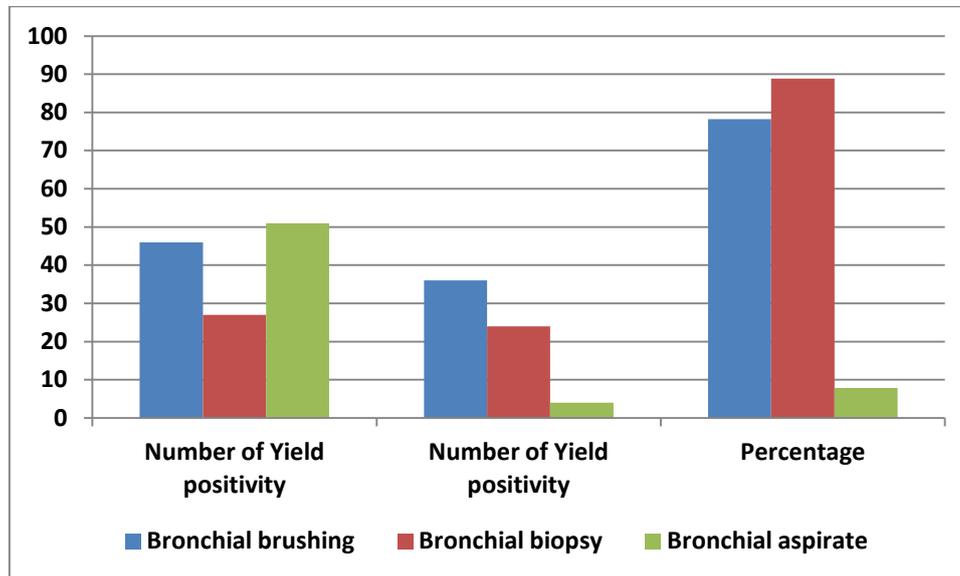


Table no. 8: Yield of special procedures in diagnosing lung diseases

Procedure		Yield of positivity	
Name	No.	No.	%
Bronchial brushing	46	36	78.26
Bronchial biopsy	27	24	88.88
Bronchial aspirate	51	4	7.84



Hilar and Parahilar shadow in a middle & elderly person should be investigated by fiberoptic bronchoscopy to rule out malignant pathology.

Discussion

Development of the flexible FOB and various accessory instrument that can be inserted via the working channel has extended bronchoscopic exploration to the lung periphery. The instrument permits acquisition of tissue biopsy specimen, selective mucosal brushing, and bronchoalveolar washings. Bronchoscopy is currently the primary means for diagnosis pulmonary malignancies^[3].

In a normal person hilum shadows are caused by pulmonary artery and veins, and there is also a small contribution from airways and lymphnodes. The right hilum is opposite the horizontal fissure at the 6th rib in the axilla or at the level of 3rd rib anteriorly. On the left side centre of hilum is 1.0-1.5 cm higher than right.

In the present work diagnostic yield of FOB in lung diseases was 86% (51 cases) of patients whereas in the study conducted by Fein and Feinsilver^[4] the FOB was diagnostic in 12 out of 14 (86%) patients. The study population was less as compared to present study.

Foos et al^[5] observed the retrospective data of 616 bronchoscopy procedures and recorded 57% of diagnostic yield of FOB whereas the diagnostic yield of bronchoscopy for detection of malignancy was 66.6%. Foos et al^[5] give the highest diagnostic yield of 92% in the cases with a macroscopically visible tumor, while another study^[6] reported a diagnostic yield of 51% for peripheral lesions. Similarly, Anandan et al^[7] also reported the highest yield in the diagnosis of malignancy by endobronchial biopsy (85%) followed by bronchial brushings (34%) and washings (12%). Wong and colleagues evaluated biopsy, brushings and washings in the diagnosis of lung cancer and the overall diagnostic yield of FOB were 98.1%, 61.5% and 58.5% for the endoscopically visible, endoscopically not visible and endoscopically not visible fluoroscopic guidance cases respectively^[8].

In our study, yield of special procedures was 88.88% and 78.26% for bronchial biopsy and brushing respectively. Recent era is looking at the role of fiberoptic bronchoscope beyond diagnosis in intensive care units for therapeutic interventions. It is useful for removal of thick

tenacious secretions in patients with atelectasis on mechanical ventilation as well as for difficult endotracheal intubation^[9]. Thus the morbidity due to bronchiectasis or destroyed lung which can occur due to untreated lobar or lung collapse can be avoided with early intervention^[10].

Conclusion

The diagnostic yield of FOB with routine and basic procedures like endobronchial biopsy, endobronchial aspirate and brush cytology is satisfactory at our tertiary care unit. Routine flexible bronchoscopy technique continues to have a high diagnostic yield in current clinical practice in common lung conditions like pulmonary tuberculosis, lung cancer and pneumonia.

Thus the FOB is more constructive in diagnosis when applied with a sound clinical ruling and suitable compassionate investigations.

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