PATTERN OF INDICATIONS OF FLEXIBLE BRONCHOSCOPY AMONG ADULT PATIENTS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Flexible fiber optic bronchoscopy is frequently performed procedure in pulmonary medicine. **Objective:** To determine the Clinico-radiological indications of flexible bronchoscopy in a tertiary care hospital. **Materials and Methods:** This descriptive study was conducted in the bronchoscopy suit of pulmonology department post graduate medical institute(PGMI), Lady Reading Hospital, Peshawar from Jan 2008 to Dec 2010. This was a retrospective analysis of the well maintained records of patients in whom bronchoscopy was done in the above mentioned duration. All the patients above 15 years were included. All the bronchoscopies were done by expert brochoscopists under local aneasthesia. Data was analyzed by SPSS 13 to find the frequencies and percentages. **Results:** Total number of patients were 423, with a male to female ratio of 1.6:1, in which 191 had haemoptysis , 115 presented with chronic cough, 42 had shortness of breath (SOB) , 11 presented as superior venacaval (SVC) obstruction, 25 had lobar or full lung collapse on chest x rays and 9 patients had solitary or multiple nodules, 8 were scoped for removal of foreign bodies, 4 for medical fitness and 2 for persisted fever. After analysis of x-rays of proven malignancies out of 60 patients, 20 (33.33%) had right side non-resolving consolidation, 18 (30%) Left side consolidation,08 (13.4%) presented with hilar mass, 03 (5%) with multiple nodules, 04 (6.66%) with mediastinal widening , 03 (5%), with left sided lobar collapse, 02 (3.33%) with right lobar Collapse and 02 (3.33%) had either side full lung collapse. **Conclusion:** Bronchoscopy is an important tool for the diagnosis of the cause of radiological/clinical findings like haemoptysis, chronic cough, SOB, SVC obstruction, hoarseness of voice and persistent x-ray opacity, or lobar or lung collapse. Heamoptysis and chronic cough are the main indications in our setting. Bronchoscopy is minimally invasive procedure with high diagnostic yield for bronchogenic tumours especially central.

Key words. Bronchoscopy, Bronchogenic Carcinoma, Radiological

INTRODUCTION

Flexible fiber optic bronchoscopy (FOB), the most frequently performed invasive procedure in practice of pulmonary medicine has largely replaced rigid bronchoscopy in the diagnosis and management of inflammatory, infectious and malignant diseases of the lungs and air ways. This has been possible due to the comfort of the patient, greater maneuverability of the bronchoscope, improved diagnostic accuracy and safety of FOB as an out patient procedure. FOB is a useful in localization and biopsy of airway tumors, evaluation of interstitial lung disease, non-resolving pneumonia, unexplained haemoptysis and assessment of response to treatment, placement of catheters and stents for tumors and stricture management.[1]

The sensitivity of bronchoscopy is high for endobronchial lesions and poor for peripheral lesions <2 cm in diameter.[2] Walid and colleagues found that the diagnostic accuracy of FOB was 64% and 35%, for malignant and benign lesions respectively and it was directly related to the lesion size.[3] In one study by Laurent et al chest x-ray was compared with FOB and was found that chest radiograph localized 20% and FOB 40% bleeding sites and bronchogenic carcinoma was confirmed in 03% cases in which x-ray was normal.[4]

In another study, FOB was successful in removing foreign bodies from 14 out 23 patients and now it can be used for thermoplasty in asthmatic patients and florescence bronchoscopy is even able to localize and diagnose in situ lesions.[7,8] Bronchoscopy is indicated for chronic cough and about 2% cases of lung cancer present with chronic cough.[5] The principal goals of any diagnostic procedure is to identify , diagnose and stage the disease for the purpose of management, and in pulmonary medicine bronchoscopy is the safest , least invasive and least costly test for many diseases.[6]

Our study was planned to determine the pattern of indications of flexible fiber optic bronchoscopy in a tertiary care hospital because we don't have studies on this topic in Pakistan.

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MATERIALS AND METHODS

This descriptive study was conducted in the bronchoscopy suit of pulmonology department, Post Graduate Medical Institute (PGMI) Lady Reading Hospital, Peshawar from Jan 2008 to Dec 2010. This was a retrospective analysis of the well maintained records of patients in whom bronchoscopy was done. All the patients above 15 years were included. All the bronscopies were conducted by expert brochoscopists under local aneasthesia. Data was analyzed by SPSS Version 13 to find the frequencies and percentages.

RESULTS

A total of 423 bronchoscopies were conducted with a male to female ratio of 1.6:1. Out of these 112 (26.5%) patients had haemoptysis with fibrosis/cavity or consolidation on x-rays and 78 (18.5%) had haemoptysis with normal x-rays, 82 (19.4%) cases presented with chronic cough with opacity on x-rays and 33 (7.8%) having chronic cough with normal x-rays, 42 (9.92%) were patients with cough, fever, chest pain with or without x-ray findings, while 17 (4.01%) patients had chest pain, fever with opacity or effusion.

In 25 (5.9 %) patients had lobar or lung collapse on x-rays. Among the remaining cases 08 (1.9%) had foreign bodies, 09 (2.12%) had solitary or multiple nodules, 11 (2.6 %) SVC obstruction with hilar mass or raised hemi diaphragm, 04(0.9%) had normal people for medical fitness and 02 (04.7%) patients were scoped for persistent fever having normal x- rays and no response to treatment. (Table I)

After analysis of x-rays of proven malignancies out of 60 patients, 20 (33.33%) had right side non-resolving consolidation,18 (30%) Left side consolidation, 08(13.4%) presented with hilar mass, 03 (5%) multiple nodules, 04 (6.66%) mediastinal widening, 03 (5%), Lt. sided lobar collapse, 02 (3.33%) Rt. Lobar Collapse and 02 (3.33%) had either side full lung collapse.

Some patients had only clinical findings but majority of patients had both radiological and clinical indications.

Table I: Indication of Bronchoscopies (423)

Indications of bronchoscopy	No. of Patients	%age
Haemoptysis + x-ray findings (fibrosis/cavity/)	112	26.5%
Haemoptysis with Normal x-ray	78	18.5%
Chronic cough with persistent shadow	82	19.4%
Chronic cough with normal x-ray	33	7.8%
Chest pain fever with opacity or effusion	17	4.01%
SOB + cough with or without x-ray findings	42	9.92%
Lobar/lung collapse on x-ray	25	5.9%
Foreign body	8	1.9%
Solitary/multiple nodules	9	2.12%
SVC obstruction with hilar mass or raised hemi diaphragm	11	2.6%
Normal people for medical fitness	4	0.9%
Persistent fever with normal x-rays and no response to treatment	2	04.7%

Table II: Radiological (x-rays) presentations of histologically proven bronchogenic carcinoma (No. of patients=60)

X-ray Presentation	No. of Patients	%age
Right sided persistent consolidation	20	33.33%
Left sided persistent consolidation	18	30%
Hilar mass (any side)	8	13.4%
Single or Multiple nodules(any side)	3	5%
Mediastinal widening	4	6.66%
lobar collapse(any lobe)	5	8.33%
full lung collapse(any side)	2	3.33%

DISCUSSION

FOB is used for a number of diagnostic and therapeutic indications mainly haemoptysis, chronic cough, persistent radiological opacities, interstitial

lung disease, removal of foreign bodies (if possible), biopsy and recently thermoplasty and florescence bronchoscopy for in situ malignancies.[9] In our study the main indications of FOB were haemoptysis and chronic cough with some shadows on chest x-rays but a large number of patients had normal radiographs. In the series by sakerl and colleagues, 5-15% of patients presented with massive haemoptysis for bronchoscopy and in the same study FOB was used as the special tool for haemoptysis.[10]

In a series by Tak S et al, out of 50 patients having haemoptysis with normal x rays bronchoscopy diagnosed only 10% of cases and the remaining were diagnosed by HRCT(high resolution CT) but still haemoptysis is considered as the most important indication of bronscho scopy diagnostically and therapeutically.[11] In comparison to this series we had high percentage of haemoptysis cases, which correlates with other studies. Chronic Cough defined as > 8 weeks duration remains an important clinical problem for primary care physicians and pulmonologists specially when x-rays are normal, and bronchoscopy is indicated with the suspicion of endobronchial lesions like malignancy or TB etc.[12] Chronic Cough and haemoptysis are the major indications in the international research with or without abnormal radiology and for massive haemoptysis rigid bronchoscopy is the choice, and these were also the findings of our study.[13] Our series differs from other studies by having a good number of patients with fever, chest pain, and acute cough and normal chest x-rays. These were the patients who had repeated normal radiology of chest and sinuses, used repeated courses of antibiotics with no response and had persistent symptoms. In one study FOB was used for non productive cough in 39 patients in which 16 had normal chest x-rays with endobronchial Tuberculosis. This study also recommends that before bronchoscopy, proper history, examinations, x-ray chest and sputum evaluation should be done for these symptoms, otherwise early bronchoscopy is not indicated.[14] We had many patients with lobar or lung collapse, hilar mass on chest x-rays with either shortness of breath, SVC obstruction or hoarseness of voice or raised hemi diaphragm and these findings correlate with the international studies. The study by SU WJ and colleagues made the chest radiographic guidelines for FOB which recommends that lobar collapse, hilar abnormality, pericardial effusion, pleural effusion and mass with >4cm should be bronchoscoped.[14] Kvale etal showed that cough was a presenting feature in more than 65% of patients with any form of lung cancer.[5]

In our series bronchoscopy was done for foreign bodies in small number of patients but the percentage is more in international research. In one study FOB was successful in 60% of cases of adults for FB removal while rigid bronchoscopy had success rate of 97%. It shows that foreign body patients mostly present to rigid bronchoscopy units as compared to FOB. In our study a good percentage of patients were scoped for medical fitness, which is not done internationally. These patients had bronchoscopy as a requirements for visa to some countries, otherwise they were normal young adults. The number of patients scoped for multiple nodules were similar to other studies. The radiological presentations of bronchogenic carcinoma were mainly right or left sided persistent consolidation and in the study by Fensilver SH and colleagues, they diagnosed 86% of non resolving consolidations via bronchoscopy.[15] Hilar mass and collapse of lobe or lung are considered important radiological markers of tumors and in our series a good number of patients had these findings. In a local study hilar mass was present in 62% of cases diagnosed as bronchogenic carcinoma. The radiographic findings can help the physician in better suspicion and diagnosis of lung tumor.[16]

CONCLUSION

Bronchoscopy is an important tool for the diagnosis of the cause of radiological/clinical findings like haemoptysis, chronic cough, SOB, SVC obstruction, hoarseness of voice and persistent x-ray opacity, or lobar or lung collapse. Heamoptysis and chronic cough are the main indications in our setting.

REFERENCES

1. Bale mugesh T,Agarwal A.N Guptha D Behera D Jindal S.K. Profile of replant FOB. Indian J chest Dis Allied Sci 2005; 47:181-185.
2. Schrebier G, Douglas Sc, Crory MC. The sensitivity of FOB in lung lesions. Chest 2003,123:1155-1289.
3. Walid A, Baakini, Mauricio A, Remiso, Arnold B, Gurin, Kanesh AS, Manian P. FOB in localization of lung lesions. CHEST 2000; 117: 1049-1054.
4. Laurent F, Martins M, Santy A. Hemoptysis Methods of localization. Rev Med Suisse 2005 Nov 16; 41: 2659-63.
5. Kvale PA: Chronic cough due to tumor; ACCP evidence based clinical practice guidelines. Chest 2006

Jan;129:1475 - 1535.
6. Young RC. Tissue diagnosis of suspected lung cancer. Respire care CLin NA2003 Mar; 9:51-76.
7. Bourkew, Meilstein D, Gura R, Dough M, Robin AN, Smith LJ et al. Lung cancer in adults chest 1992 Dec; 102: 1723-29.
8. Limper AH, Parkash UB. Tracheo bronchial foreign bodies in adults, Am Intern Med 1990;112: 604.
9. Cox G, Miller JD, Mec Williams A, et al. Bronchial thermoplasty for Asthma. Am J resp Crit care Med 2006;173:965.
10. Sarkr l, Dutav H. Massive hemoptysis an update on the role of bronchoscopy in diagram and treatment. Respiration 2010; 80(1): 38-58.
11. Tak S, Ahuvalia G, Sluruva SK. Haemoptysis in patients with normal chest radiograph. Astralus Radiol.1999 Nov;43(4):451-5.
12. Authour(unknown). Is there any role of bronchoscopy in the workup of cough? J Respiratory diseases, 1st June 2008.
13. Vishumu SM, Pradeed NP Anuparo N, Mithra PP. Bronchoscopic evaluation and final diagnosis in patients with Chronic non Productive cough with normal x-rays. Journal of health and allied sciences, 2010.
14. SU WJ, LEE Py, Pering RB. Chest radiographic guidelines in the selection of patients for FOB. Chest 1993 Apr; 103(4):1198-201.
15. Fensilver SH, Fevin AM, Neiderman MS et al. Utility of FOB in non-resolving Pneumonia chest 1990;98:1322.
16. Suleman MI, Ali B, Majeed H. Qureshi F. Chest radiological findings in Bronchogenic carcinoma in Pakistani population. Pak J Med Res Vol.47, no.4, 2008.