ORIGINAL ARTICLE

TO STUDY THE HOSTOPATHOLOGICAL PATTERN OF BRONCHIAL BIOPSIES TAKEN IN PATIENTS SUSPECTED OF BRONCHOGENIC CARCINOMA

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ABSTRACT

OBJECTIVE:

To determine the histopathological pattern of bronchial biopsies taken in patients in whom bronchogenic carcinoma was suspected on the basis of clinical and radiological findings.

STUDY DESIGN:

All patients above 15 years with clinical/and/or radiological findings suggestive of bronchogenic carcinoma were included from January 2007 to December 2008.

SETTING:

This is a descriptive study conducted in Pulmonology department PGMI/LRH Peshawar receiving patients from the same departments and other wards of the hospital.

METHODS:

With overnight fasting, local anesthetic (Xylocaine 2%) was used intra-nasally. Bronchial biopsies were taken by expert bronchoscopist (3 – biopsies) fixed with formalin and sent for histopathology to the same lab.

RESULTS:

Out of total 423 bronchoscopies performed during two years were analyzed, among them 134 underwent bronchial biopsies for suspected bronchogenic carcinoma. Males were 90 (67%) and 44 (33%) were female patients, smokers were 60/134 (45%) and 74 (55%) were non smokers. There was no female smoker. Malignancy was confirmed in 60/134 (45%). The histopathological types were Squamous Cell Carcinoma 22 (37%), Adenocarcinoma 20 (33%), Small Cell Carcinoma 14 (23%), Large Cell Carcinoma 03 (05%) and Adenosquamous variety only 01 case (<2%).

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In 74 (55 %) patients, where malignancy was not confirmed the histology report showed chronic non specific inflammation in 38 (29%), chronic granulomatous inflammation 18 (13%), benign bronchial mucosa in 06 (04%) and non-diagnostic biopsy in 04 (03%). Acute pyogenic infection, necrotic material, dysplasia (in situ ca) each was found in 02 cases (<02%) and one case was lymphocytic infiltration (01 %).

Key words: Bronchogenic carcinoma, histopathology, Bronchial biopsies.

INTRODUCTION

Bronchogenic Carcinoma is a lethal malignancy and kills 3 million people each year worldwide and continues to be the leader in cancer deaths in the USA. Smoking is responsible as a causative factor in most of the cases[1]. In a Spanish study the incidence of bronchogenic Carcinoma was 22.4 per 100,000 population and 98% men and 44%Women were smokers[2].

In a large Indian study the mean age for bronchogenic carcinoma was 57 years with a male to female ratio of 4**.**3**:**1 and 71% were smokers[3].

In the same study Squamous Cell Carcinoma was 46%, Adenocarcinoma 18% and Small cell Carcinoma 18%[3]. The histopathologic pattern in another study was Squamous Cell Carcinoma 33% and Adenocarcinoma 30%. Among them 56% male and 38% female were smokers[4]. Fiber-optic bronchoscopy is minimally invasive procedure and was able to diagnose even 60% of peripheral lesions in a local study[5]. Present study was an effort to find out histopathological pattern of bronchogenic carcinoma in Pakistani population and to make future planes for the control of this deadly disease in the country.

MATERIAL AND METHODES:

This study was conducted in the bronchoscopy unit of Pulmonology department post graduate medical institute lady reading hospital [PGMI / LRH], Peshawar from January 2007 to December 2008. Authors have taken the data from the record of patients properly maintained in Pulmonology unit.

All patients above 15 years with suspicion of malignancy and stable hemodynamics after overnight fasting were bronchoscoped and any suspected lesions were biopsied and sent to the same histopathologist.

RESULTS:

A total of 423 bronchoscopies were done and 134 biopsies taken from suspected lesions like abnormal mucosa, stricture, granulation and modularity. Out of 134 cases 60(45%) were malignant 38(29%) Ch. Non-specific inflammation, 18(13%) bronchial mucosa and 04(03%) were non-diagnostic biopsies. Acute pyogenic inflammation, dysplasia and necrotic material each were found in 02 (<02%) cases. One biopsy (02%) was only lymphocytic infiltration of mucosa. Age, Sex and smoking relationship are given in tables.

Among the 60 malignant cases 22 (36%) were Squamous Cell Carcinoma, 20 (33%) Adenocarcinoma, 14 (23%) small cell carcinoma, 03 (05%) large cell Carcinoma and one case (<02%) was Adenosquamous carcinoma. The age range was 26 to 82 years (mean 54 years). Among 134 cases 80 (67%) were males and 44 (33%) were female. 60 (45%) were smokers and all of them were males. Results are given in tables-01, 02 and 03.

TABLE: 01: Results of all biopsies (134) among 423 bronchoscopies

	Biopsy results	**Number (out of 134)**	**Percentage**
1	Malignancy	60	45%
2	Chronic granulomatous inflammation	18	13%
3	Chronic non-specific inflammation	38	29%
4	Benign mucosa	06	04%
5	Non-diagnostic biopsy	04	03%
6	Acute pyogenic inflammation	02	01%
7	Necrotic material	02	01%
8	Dysplasia	02	01%

9	Lymphocytic Infiltration	01	02%

TABLE: 02: Break up of malignancy in 134 cases (biopsies)

Total 60 (45%)

Cell type	**Total No.**	**Percentage** (134 total cases)	**Percentage** (60 malignant cases)
Squamous cell carcinoma	22	16%	36%
Small cell carcinoma	14	10%	23%
Adenocarcinoma	20	15%	33%
Large cell carcinoma	03	2%	05%
Adenosquamous	01	01%	02%

TABLE: 03: Relationship of age, sex and smoking with different types of bronchogenic carcinoma

Cell type	Smokers		Non Smokers		Age breakup	Total with %age
	Male	Female	Male	Female		
Squamous cell Ca	18	00	02	02	<40rs= 01 40-60Yrs= 8 >60Yrs= 13	22 36%
Small cell Ca	10	00	01	03	<40Y= 01 40-60Y= 07 >60Yrs= 06	14 23%
Adeno. Ca	02	00	01	17	<40Yrs= 00 40-60Yrs= 13 >60Yrs= 07	20 33%
Large Cell Ca	00	00	00	03	<40Yrs= 00 40-60Yrs= 03 >60Yrs= 00	03 05%
Adeno Squamous Ca	00	00	01	00	<40Yrs= 00 40-60Yrs= 01 >60Yrs= 00	01 02%

DISCUSSION:

Lung Cancer represents a global health problem and its surge in Incidence is due to increase consumption of tobacco related products[6]. Lung cancer is increased in Western females due to increased use of tobacco[7]. Lung cancer continues to be the leader in cancer deaths in the US and tobacco smoking is responsible in about 80-90% of cases of bronchogenic carcinoma[8]. Examination of tissues is the only mean for definitive diagnosis of malignancies which can be obtained easily by bronchoscopy in end bronchial lesions[9]. Flexible bronchoscopy is minimally invasive procedure with high diagnostic yield and 94% cases with clinical impression of bronchogenic carcinoma can be diagnosed[10]. In this study out of 134 biopsies patients 60 (44.77%) were smokers and all of them were males which is totally against the Western studies in which females are also in high number.

The age range in our patients was 26-82 year with a mean of 54 years, which closely resembles international studies in which mean age was 55 years and 57 years[11, 12]. Among 134 patients 90 (67%) were males and 44 (45%) were females. Results are given in tables.

In malignant cases 35 were male and 25 females and out of 35, smokers were 30 which are higher than the international studies[11, 12]. In coming future malignancy may be increased in Pakistan female due to increase in smoking in young people[13]. In our study Squamous cell carcinoma was very much related with smoking that is 18 out of 22 patients were smokers.

The Squamous cell carcinoma was high (46%) in Indian study by Prasad and colleagues compared to this study i.e. 36%. On the other hand Adenocarcinoma was more 33% in this study as compared to studies in which it was 18% and 30% conducted by Prasad et al and Santos et al respectively[3].

In Adenocarcinoma only 02 males out of 20 were smokers and 85% were females. The next cancer was small cell carcinoma having 14 (23%) patients. Among them 10 were smokers 11 were male and 03 were female.

We had 03 (05% cases of large cell carcinoma as compared to the series of Estrada et al in which 29% were large cell carcinoma with 91% men and only 09% women and the mean age was 66 years[14]. This study had one case of Adenosquamous variety which relates to the international research where only 01% cases were adenosquamous[14]. Author did a lot of search for Adenosquamous variety but except a few very small series no big data was found.

In this study 45% were malignant cases predominantly males but it is on increase in women in many western and American studies due to changes in smoking habits. In the

series by Pirina et al the incidence was higher in women and in another study it was 35% and at each stages of the disease the survival was better in women[15]. In this study there was a high number of chronic non-specific inflammation and chronic granulomatous inflammation, which may be due to high incidence of tuberculosis in our country as compared to western world. Benign bronchial mucosa, non-diagnostic biopsy, acute pyogenic Infection, necrotic material and dysplasia each consisted a small number and only one case was lymphocytic infiltration. These cases have to be followed for a long time. The histopathological pattern of bronchogenic carcinoma in this study is comparable with international research but different from some local studies[3,13,14.]

The smoking pattern is different in Adenocarcinoma in our series in females . It is lower due to the low smoking trends in females in our rural population as compared to multinational studies. But it may be increased with the passage of time due to rising smoking habits in our young girls as shown by some local studies[15].

CONCLUSION:

The increasing smoking trends in youth population are alarming for future, regarding malignancies. Bronchogenic carcinoma is a lethal malignancy and its incidence should be reduced by reducing smoking by creating awareness and banning smoking by Government especially in public places.

Biopsy and histopathology must be performed in any suspected bronchial lesion to diagnose bronchogenic carcinoma as early as possible.

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