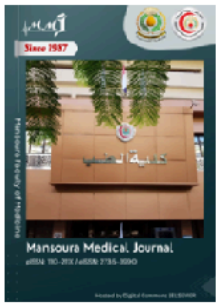
MANSOURA MEDICAL JOURNAL

ISSN - Print: 1110-211X - Online: 2735-3990

journal homepage: mmj.mans.edu.eg




Volume 30 | Issue 1 Article 9

# DIFFERENT ENTITIES OF BRONCHIAL ADENOMA CLINICO-PATHOLOGICAL ASPECTS IN RELATION TO SURGICAL RESECTIONAL OUTCOME

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# DIFFERENT ENTITIES OF BRONCHIAL ADENOMA CLINICO-PATHOLOGICAL ASPECTS IN RELATION TO SURGICAL RESECTIONAL OUTCOME

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## ABSTRACT

Bronchial adenoma is a collective name of different types of neoplasms that varies considerably in their behavior, malignant potentials and prognosis. In this study 48 cases diagnosed as bronchial adenoma (31 female and 17 male) with an age ranging between 12 and 65 years were studied. The preoperative diagnostic work up included radiological, and bronchoscopic examination and bronchoscopic biopsy. The operative procedures performed for the patients were 8 pneumonectomies, 23 lobectomies, 9 bilobectomies, 7 lobectomies with bronchial sleeve resection, and one sleeve resection of main stem bronchus without parenchymal resection. There was no operative or hospital mortalities or major complications. Pathological examination of resected specimens revealed 31 typical carcinoids, 8 atypical carcinoids, 6 mucoepidermoid carcinoma, and 3 adenoid cystic carcinoma. Of the 11 patients with enlarged hilar lymph nodes, 6 were inflammatory and 5 with metastases. Eight patients died within the first five years after operation, mostly of the adenoid cynic carcinoma and mucoepidermoid carcinoma group. Follow up period of the patients ranged between 2 and 17 years. The prognosis and survival for the typical carcinoid group was excellent, for the atypical carcinoid group was good and for the mucoepidermoid and adenoid cystic carcinoma group was poor. The factors found to be of high significance to survival and prognosis were the pathological type of the tumor and the regional lymph nodes involvement .

## INTRODUCTION

The tumor subgroups historically classified as bronchial adenomas comprises about 3-5 % of all lung tumors.(1) This incidence is diminishing owing to the increasing incidence of carcinoma of the bronchus (2,3).

-The term bronchial adenoma was first used at 1931 by Laennec to differentiate this group of tumors which differed in both morphology and behavior from bronchogenic carcinoma (4).

-It has been now over a century after Muller first description of bronchial adenoma at 1882 in an autopsy, and yet controversy still exists about the degree of malignancy of these tumors (5).

-Until recent decades, bronchial adenomas were considered as slowly growing tumors with a negligible malignancy rate. However, several studies have indicated that some of these neoplasms have a potential for local recurrence, lymph node involvement and distant metastases, thus necessitating a review of their classification, prognosis criteria, and methods of treatment. (3,6)

-It has been stated that the term adenoma of the bronchus is meaningless and should no longer be used, even though it appeared as the title of a leading articles. By definition an adenoma is a benign tumor, yet carcinoid, adenoid cystic carcinoma, muccoepidermoid carcinoma, and mucus gland cystadenoma have all been included under this heading. (2)

-Bronchial adenomas are now considered as invasive neoplasms capable of causing metastases, whatever their histology variety, however, it is necessary to separate the highly malignant forms from those having a relatively benign course. (7).

-The aim of this study is to present our experience in cases of bronchial adenomas, discuss the different classifications, and draw attention to the correlation between outcome and the clinical presentation, pathological features, diagnostic methods, and different varaities of surgical management.

## PATIENTS AND METHODS

This study was conducted at the Cardiothoracic Surgical Department , Mansoura University Hospital, throughout the period 1977-2000.

-This study included 48 patients

with bronchial adenoma. The age of them ranged between 12 and 65 years with a mean age of 36.6±8.4 year. There were seventeen male patient (35.4%), and thirty one female (64.6%) with a female to male ratio of 1.8 to 1.

- The main presenting symptoms were recurrent haemoptysis, recurrent chest infection, persistent cough, chest pain, dyspnea, and wheezes. One of our patients presented with right empyema which was proved later on to be due a bronchial adenoma occluding the right main stem bronchus and causing lung abscess distal to the obstruction.

-After thorough clinical examination and routine laboratory investigations , plain chest x-ray films were done for all the patients both in posteroanterior and lateral views. Bronchography was performed for eight of our patients early in the study. CT scan was performed for the remaining forty patients (83.3%) .

-Bronchoscopic examination was performed for all of our patients. Rigid bronchoscope was done for 13 patients (27.1%) and fibreoptic bronchoscope for 35 patients (72.9%) Bronchial lavage cytology and brush biopsy were taken from all the patients Bronchoscopic punch biopsies were taken from 41 patients (85.4%)

-All of our patients underwent one or another form of resectional surgery after confirmation of the diagnosis of bronchial adenoma The surgical procedures performed were 8 pneumonectomies (16.7%) , 23 lobectomies (47.5%),9 bilobectomies (18.7%),7 lobectomies with bronchial sleeve resection (14.6%) , and in one case (2.1%) sleeve resection of a main stem bronchus without parenchymal resection

-Parabronchial and hilar lymph nodes were found to be enlarged in 11 patients. (22.9%) , and these were all excised during the operation . The resected lung tissue, bronchi, and lymph nodes were all sent for pathological examination with special stress on the involvement of the resectional margin of the bronchus and metastases to the lymph nodes

-The patients were followed up in the out patient clinic every six months . The follow up period ranged between two and seventeen years with a mean follow up period of 8.6 ± 3.2

years . Forty two patients completed the follow up till the end of the study or till they died ,and the other six patients were lost throughout the follow up after a period ranging between 2 and 7 years with a mean of 3.6 ± 1.7 years. Complete clinical and radiological examination of the chest was performed for the patients in each follow up visit .CT. scan of the chest and bronchoscopy were performed whenever local recurrence of the tumor or lymph node metastases were suspected (5 cases -10.4%). Complete systemic examination was performed whenever distant metastases were suspected (2 cases -4.2 %)

## STATISTICAL ANALYSIS

All data were analyzed statistically using Statistical Package for Social Science( SPSS).Values were represented as percentage or mean ± standard deviation. Chi-square test and X-square test were used to study the relationship between each different variable (age, sex, duration of symptoms, bronchoscopic biopsy result, site, tumor pathology and lymph node involvement) and the postoperative outcome (local recurrence, lymph node metastases and distant metastasis). P value was considered significant if less than 0.05 and highly significant if less than 0.01.Survival was estimated by the Kaplan-Meir method.

## RESULTS

The age of our 48 patients with bronchial adenomas varied considerably with a higher incidence occurring between the ages of 30 and 50 years . (Table 1) . the youngest of our patients was 12 years old, and the oldest was 65 years. The mean age was 36.6 ± 8.4 year. The age was found to be of no statistical significance (P. value > 0.05) in relation to survival.

The female to male ratio in our series was 1.8:1 with 31 female (64.6%) and 17 male (35.4%). The sex distribution of the patients was also found to be of no statistical significance (P. value > 0.05) in relation to survival .

-All of our patients were symptomatic. The frequency of the symptoms is show in Table 2 .

The association of more than one symptom was observed in the studied group. There was no cases presenting with carcinoid syndrome.

-A considerable period of time elapsed between the onset of the symptoms and the accurate diagnosis, this period ranged between 2 mo-

nths and 13 years with a mean of 48 month. There was no statistical significance (P. value > 0.05) for the duration of symptoms in relation to survival of bronchial adenoma patients

-Forty five patients (93.7%) had an abnormal chest radiograph with only three (6.3%) reported as free chest x.ray film. Other radiological findings are shown in Table 3.

-Bronchography was performed early in our study for 8 cases and it was free in 2 of them, showed partial or complete bronchial blockage in 2 cases, and distal bronchiectatic changes in the other four cases.

-CT scan of the chest was performed for 40 patients for more accurate delineation of the plain radiological findings and for assessment of the lymph node involvement. The CT scan findings are shown in Table 4.

-Bronchoscopic examination was performed for all the patients. Rigid bronchoscope in 13 cases (27.1%), and the fibreoptic bronchoscope in 35 cases (72.9%). The endobronchial mass was well visualized in all the patients (100%), and in 25 of them (52.1%) there was a suppurative discharge coming from the distal bronchi. Bronchial lavage was taken from all the patients and bronchoscopic punch biopsy from the mass was done for 41 patients (85.4%). The results of pathological examination of the specimens are shown in Table 5.

-Complications of the bronchoscopic examination occurred in 6 of our patients (12.5%) in the form of bleeding in 3 patients (6.25%), hypoxia in two(4.2%) and hypersensitivity to the local anaesthetic agent in one (2.1%).The bleeding was not that severe and it was controlled by compression of the biopsy site with a piece of gauze soaked in diluted adrenaline solution.

The sites of the tumors after radiological and bronchoscopic examination are shown in Table 6.

-Different procedures of surgical resection performed for our patients are shown in Table 7.

-There was no operative or hospital mortalities in all of our patients. No major complications occurred, and minor wound infection happened in only five of our patients (10.4%) who were easily managed with n o

consequences.

-All the resected specimens (lung tissue, bronchi, and lymph nodes) were sent for pathological examination.

-The results of pathology are shown in Table 8.

- The resected bronchial margins were found to be free from tumor cells in all of our patients. Of the resected lymph nodes in the 11 patients which were enlarged, 6 were inflammatory, while the other five (10.4%) were found to have metastases. Two of these patients were having atypical carcinoids, another two were having mucoepidermoid carcinoma, and the last one was due to adenoid cystic carcinoma.

-Throughout the follow up period there were 3 cases of local recurrence (2 due to mucoepidermoid ca, and one due to atypical carcinoid) after 3,6, and 7 years respectively and 2 cases of new development of hilar lymph node metastases (in the atypical carcinoid group), after 2 and 4 years. Distant hepatic metastases occurred in 2 patients (one mucoepidermoid ca, and one adenoid cystic ca) after 3 and 4 years.

-Eight of our patients died because of the original tumor within the first 5 years of follow up. (1 typical carcinoid, 2 atypical carcinoid, 2 mucoepidermoid ca, and the 3 adenoid cystic ca) and of the 40 surviving patients, six have been lost to follow up after 2-7 years. The actuarial 5,10, and 15 years survival for the typical carcinoid group was 96.8%, 93.5%, and 83.9%.respectively. The actuarial 5,10, and15 years survival for the atypical carcinoid group was 87.5%, 75% and 62.5% respectively. Four patients of the mucoepidermoid ca. were alive after 5 years and only one was alive after 10 years. The 3 cases of adenoid cystic ca. died after 1,2 and 3 years.

-The overall actuarial survival for the whole group of bronchial adenoma for 5,10, and 15 years was 89.5%, 81.3%, and 70.8%. which is statistically highly significant with a P. value of 0.001.

*Table 1: Age Distribution in Bronchial Adenoma.*

| Age | No. of Patients | % |
|---|---|---|
| < 30 | 12 | 25 % |
| 30 – 39 | 17 | 35.4 % |
| 40 – 49 | 8 | 16.7 % |
| 50 – 59 | 7 | 14.6 % |
| > 60 | 4 | 8.3 % |

*Table 2 : Presenting Symptoms of Bronchial Adenoma.*

| Symptom | No. of Patients | % |
|---|---|---|
| Recurrent haemoptysis | 35 | 72.9% |
| Recurrent chest infection | 17 | 35.4% |
| Persistent cough | 12 | 25% |
| Chest pain | 8 | 16.7% |
| Dyspnea | 7 | 14.6% |
| Empyema | 1 | 2.1% |

*Table 3: Radiological Findings in plain chest x-ray films .*

| Radiological finding | No. of Patients | % |
|---|---|---|
| Free | 3 | 6.3 % |
| Central mass | 23 | 47.9 % |
| Total lung collapse | 6 | 12.5 % |
| Lobar or segmental collapse | 18 | 37.5 % |
| Emphysema of lobe or lung | 3 | 6.3 % |
| Peripheral lung mass | 2 | 4.2 % |
| Empyema | 1 | 2.1 % |

*Table 4 : Chest CT. Findings in Bronchial Adenoma.*

| CT Finding. (40 cases) | No. of Patients | % |
|---|---|---|
| Central mass | 23 | 57.5% |
| Peripheral mass | 2 | 5% |
| Endobronchial mass | 3 | 7.5% |
| Distal collapse | 18 | 45% |
| Bronchiectasis | 12 | 30% |
| Distal emphysema | 3 | 7.5% |
| Lymphadenopathy | 11 | 27.5% |
| Calcification | 1 | 2.5% |

*Table 5: Pathological Results of Bronchoscopic Biopsies*

| Result | Brush and Lavage (48) | Punch biopsy (41) |
|---|---|---|
| Negative | 38 (79.2%) | 3 (7.3%) |
| Positive | 2 (4.2%) | 33 (80.5%) |
| Indeterminate | 8 (16.6%) | 5 (12.2%) |

*Table 6:- Site of Bronchial Adenmas in the Tracheobronchial Tree.*

| Site | No. of Patients | % |
|---|---|---|
| **Trachea.** | **0** | **0%** |
| **Right side. (total)** | **29** | **60.4%** |
| Main bronchus | 3 | 6.2% |
| Upper lobe bronchus | 6 | 12.5% |
| Intermediate bronchus | 8 | 16.6% |
| Middle lobe bronchus | 3 | 6.2% |
| Lower lobe bronchus | 9 | 18.8% |
| **Left side. (total)** | **19** | **39.6%** |
| Main bronchus | 4 | 8.4% |
| Upper lobe bronchus | 7 | 14.6% |
| Lower lobe bronchus | 8 | 16.6% |
| **Lung parenchyma.** | **0** | **0%** |

*Table 7:- Operative Procedures for Bronchial Adenoma.*

| Type of operation | No. of Patients | Total | % |
|---|---|---|---|
| **Pneumonectomy** | | **8** | **16.7%** |
| Right | 5 | | |
| Left | 3 | | |
| **Lobectomy** | | **23** | **47.9%** |
| Right upper | 5 | | |
| Right middle | 2 | | |
| Right lower | 3 | | |
| Left upper | 6 | | |
| Left lower | 7 | | |
| **Bilobectomy** | | **9** | **18.7%** |
| **Lobectomy+bronchial sleeve resection** | | **7** | **14.5%** |
| Right upper | 2 | | |
| Right middle | 2 | | |
| Left upper | 2 | | |
| Left lower | 1 | | |
| **Left main stem bronchus sleeve resection** | | **1** | **2.1%** |

*Table 8:- Pathological Types of Bronchial Adenoma.*

| Pathological type | No. of Patients | % |
|---|---|---|
| Carcinoid: Typical | 31 | 64.6% |
| Atypical | 8 | 16.7% |
| Mucoepidermoid Ca. | 6 | 12.5% |
| Adenoid cystic Ca.(cylindroma) | 3 | 6.2% |
| Mucus gland cystadenoma. | 0 | 0% |

## DISCUSSION

-Bronchial adenomas represent a heterogeneous collection of malignancies grouped together only by a historical misconception of their benignity (5). Many studies (4,5,6) have questioned the generic term bronchial adenoma, and underscore not only the different biological behavior of the three tumor types( carcinoids , cylindroma, and mucoepidermoid ca.), but also their varying degrees of malignancy.

-There is also a therapeutic controversy with regard to these tumors. Some authors are convinced that bronchial adenomas are adequately treated with local excision such as sleeve or even bronchoscopic resection whereas others stress that their malignant nature requires nothing rather than lobectomy or even pneumonectomy with lymph node dissection for effective therapy. (5,8).

-Typical and atypical carcinoids appear to share with small cell lung cancer a common neuroectodermal stem cell. Electron microscopic findings and biochemical markers common in carcinoids as well as in small cell cancer have led to the postulation of a neoplastic continuum among

these tumors . As a result , it has been suggested that these tumors be called KCC [Kultschitsky cell carcinoma] I,II, and III to reflect their origin from Kultschitsky cells with typical carcinoids as I, atypical carcinoid as II, and small cell cancer as III (2,3,5). Another classification based on degree of differentiation is suggested by Warren et al., (9,10) into typical carcinoid, well differentiated neuroendocrine carcinomas (atypical carcinoids), intermediate cell neuroendocrine carcinoma, and small cell neuroendocrine carcinoma. We prefer to separate the group of bronchial adenoma into different subgroups of carcinoid (typical and atypical), mucoepidermoid carcinoma, adenoid cystic carcinoma (cylindroma) and mucus gland cystadenoma than other classifications that group small cell carcinoma with them.

The incidence of bronchial adenomas in series varies between 3-5 % in relation to primary bronchial tumors (1,7). We have collected only 48 cases in a period of 23 years which reflects the rarity of these tumors.

-The age of our patients varied considerably with a peak incidence in the 4$^{th}$ decade (36.6 years ) (Table 1) with the age of carcinoid patients about 34 years and that for the mucoepidermoid and adenoid cystic carcinoma patients about 45 years. This was similar to others (4,5,7,11) who stated that carcinoids affect the younger and middle aged adults while the mucoepidermoid ca and adenoid cystic ca have affinity to older population, on the average 15 years older.

-The female preponderance was noted in carciniod patients ( male female ratio 1:1.8) , same finding of others (5,2,8) who stated that the females are affected as twice as males in carcinoids while there is an equal sex incidence for adenoid cystic ca.and a marked male dominance for mucoepedermoid ca. Our number of patients in these two categories is too small to judge this.

-The primary location of these tumors within a bronchus with partial or complete obstruction and its sequelae, as well as the vascularity of the tumor accounts for the symptoms. Haemoptysis, recurrent chest infection and cough constitutes the classic triad of symptoms with varying degrees of occurrence (2,4,7,12,14). These were the main symptoms in our series (Table 2) with haemoptysis

occurring in 72.9% of cases, recurrent chest infection in 35.4%, and persistent cough in 25%

- Because of the small size and slow growth of these tumors ,symptoms may persist for many years before the underlying cause is discovered (7,12). A history of wheezing or recurrent chest infection dating back many years is common and many patients were treated first as if they had bronchial asthma (12,13). These tumors frequently masquarade clinically as chronic bronchitis or bronchiectasis particularly if the tumor produces incomplete obstruction or located centrally (12),and even the haemoptysis was the reason for needless antituberculous treatment in some cases (7). The duration of symptoms in our patients ranged between 2 months and 13 years with many of the patients being wrongly treated as chronic bronchiectasis or bronchial asthma. One of our patients , presented with right empyema which was later proved to be due to complete bronchial obstruction and distal lung abscess.

-There was no symptoms of carcinoid syndrome, constitutional symptoms of frank malignancy, or symptoms referable to hormonal activity in any of our patients.

- A chest roentgenogram, usually shows either the tumor itself, or post-obstruction changes (12,14). The commonest abnormality is that of bronchial obstruction resulting in collapse and/ or consolidation of a lung, lobe, or segment (1,4,7). This was found in 50% of our cases (Table 3) .

-A well defined opacity , usually near the hilum is also a frequent radiological finding (14,15) and in our series 47.9% of cases showed a central mass (Table 3).Ball valve obstruction of a bronchus may cause air trapping and hyperluecency of a lung area distally (1,4) as was seen in 3 of our patients (Table 3). It is also not surprising to have an x- ray film reported as free when the tumor mass is small or located more centrally without distal obstruction (1,4,13,15) as it was in 3 of our cases ( Table 3).

-CT scan of chest have provied utmost importance in delineation of endobronchial component of tumor not readily apparent on routine x- ray films, calcification of the tumor and evidence of hilar and perlbronchial lymph node enlargement (3,12). High resolution CT scan may be used

effectively to demonstrate bronchial wall irregularities or thickening and peribronchial tumor invasion in patients with central endobronchial lesion(12).In our series CT scan was diagnostic in all our cases (Table 4).

-We and others ( 4,6,7,12) believe that bronchoscopy plays a major role in the diagnosis of bronchial adenoma as it should be successful in identifying all tumors situated within and proximal to the segmental orifices. Approximately 75-90% of all bronchial adenomas are visible endoscopically (7,12). In our series 100% of the lesions were visualized through 13 rigid and 35 filreoptic bronchoscopies. Carcinoids were usually seen as polypoid pink or purplish soft mass covered by intact highly vascular mucosa. The mucoepidermoid tumors were having villous irregular convoluted surface with a broad sessile base and were moderately friable though not ulcerated. The adenoid cystic tumors presented a gross endoscopic appearance that was indistinguishable from bronchogenic carcinoma. A polypoidal, heaped up, broadly based and superficially necrotic endobronchial mass was the common presentation.

-Accurate identification of the tumors requires bronchial biopsy that significantly increase the diagnostic yield (6,12). Bronchoscopic lavage and/or brush biopsy was performed in all of our cases and it was positive in 4.2 % only as occurred with others (4,13).( Table 5). Bronchoscopic punch biopsy was found to be positive in 80.5% of our patients, a percentage similar to that reported by other authors (1,4,6,12,14) (Table 5). Although these highly vascular tumors do tend to bleed (12) yet, most. of authors have stated the safety of bronchoscopic biopsy (1,2,4,7,13,14), and that almost all severe postbronchoscopic hemorrhage results from endoscopic attempt at partial or complete removal of the tumor (12). Three of our patients ( 6.2%) had moderate bleeding after bronchoscopic biopsy that was easily controlled.

-The tumors were situated almost entirely in the larger named bronchi. None occurred in the trachea, and the right side was more common than the left (29 case in right side , and 19 in left side) , with slightly greater incidence in the right lower lobe. (Table 6). This was in agreement with the sites reported by other authors (2,7,15,16) . None of our cases were situated in the peripheral

lung parenchyma.

-Unless distant metastatic disease is evident , the principles of treatment of bronchial adenomas include complete removal of the primary lesion with preservation of as much normal lung tissue as possible (12,17).The prevalence of the low grade variants and the infrequency of hilar and medistinal lymph node involvement makes these tumors particularly amenable to conservative resection (4,12,14, 18). This is especially true for typical carciniods that have a very low rate of lymphatic invasion or metastases. Pulmonary resection should be avoided unless there is histological evidence of tumor extension into lung parenchyma or irreversible pulmonary damage distal to the obstructive tumor (6,18) . The same strategy is applied for atypical carcinoids, however, because of the malignant potential of these tumors, it is essential to obtain a biopsy specimen of the bronchial margin and regional lymph nodes for frozen section. If tumor is found, a more aggressive approach is indicated, necessitating a more proximal resection as well as en block mediastinal lymph node dissection (1,6,18).

-The predilection of adenoid cystic carcinoma to extensive submucosal spread conceals the real extent of this neoplasm and necessitates a more aggressive resection with frozen section examination of the margins of the bronchial division and en block hilar and mediastinal lymphadenectomy (1,18) .Grade I mucoepidermoid carcinoma can be managed by a conservative operation, while grade II and III require a radical surgical resection like that for bronchogenic carcinoma because of their malignant potentials (1,6).

-Lobectomy was the commonest procedure in our series (23 cases) followed by bilobectomy (9 cases )and pueumonecromy (8 cases).

-Most of these resections were performed because of a central location of the tumor in a main stem or lobar bronchus, large size of the tumor with evident invasion of adjacent parenchyma , or marked destruction of the lober or lung distal to the bronchial obstruction (Table 7). Lobectomy with bronchial sleeve resection was performed in 7 cases where the location of the tumor was at major bronchial orifice with extension into the main bronchus. This

procedure provided salvage of other lobes as stated by some authors (4,12,16,17). Sleeve resection of the left main bronchus with reanastomosis was performed in one patient in whom the entire left lung was preserved as stated by many authors (4,12,16,17).

-Bronchoscopic treatment of centrally located intraluminal or mural pedunculated or sessile typical carcinoids of limited size has emerged in the recent years as an acceptable treatment. This modality necessitates preoperative high resolution CT scan confirmation of absence of lymph node metastases or extraluminal extension (19-21). This modality was not used in our series because of non-availability.

- Pathological examination of the resected specimens in our cases revealed 39 case (81.3%) carcinoids [31 typical (64.6%) and 8 atypical (16.7%) ], 6 cases (12.5%) of mucoepidermoid carcinoma, and 3 cases (6.2%) of adenoid cystic carcinoma( Table 8). There were no cases of mucus gland cystadenoma. These results reflect the higher frequency of carcinoids and the rarity of mucoepidermoid carcinoma and adenoid cystic carcinoma as reported in other series (1,4,14,18). However, the incidence of mucoepidermoid carcinoma in our series was higher than that was reported as 1-5%(14) and the incidence of adenoid cystic carcinoma was slightly less than the reported incidence of 8%( 1,18). This is explained by the small number of patients that can not be of statistical significance.

-There was no evidence of residual tumor cells in the bronchial division margin in all our cases. Pathologic examination of hilar lymph nodes found to be enlarged (11 cases) revealed six of them to be inflammatory due to chronic lung infection distal to bronchial obstruction and the other five (10.4%) to be truly invaded by malignant metastases. There was no cases of lymph node metastases in typical carcinoid with involvement of nodes in 2 atypical carcinoids (25%) which goes with the incidence reported (2,3,12,17). Lymph node metastases were found in two cases of mucoepidermoid carcinoma (33.3%) and in one case of the 3 adenoid cystic carcinama patients which is also compatable with incidence reporteded in other series (1,5,15).

*There was no operative or hospital mortalities in all of our patients*

-Throughout the follow up period local recurrence occurred in 3 patients, one of them was having atypical carcinoid and the other two were having mucoepidermoid carcinoma. No case of typical carcinoid developed local recurrence which supports the findings of most authors (1-4,7,12,14,18). Lymph node metastases developed in 2 cases of atypical carcinoid, which was comparable with the findings of others ( 12,14,18,22). There was no lymph node metastases in the typical carcinoid group.

-Distant hepatic metastases occurred in one case of mucoepidermoid carcinoma and one case of adenoid cystic carcinoma which supports the malignant potentials of these tumors as stated before (1,5,14,1,5)

-The actuarial survival for 5,10,and 15 years for the typical carcinoid group as estimated by Kaplan-Meir method was found be 96.8%, 93.5%,and 83.9%. That for the atypical carcinoid group was 87.5%, 75%, and 62.5%, for5,10,and 15 years. These figures are in agreement with the actuarial survival estimated by other authors (1-6 ,14-18,22) and proves the relative benign nature of carcinoids with expected excellent prognosis for the typical carcinoid and good prognosis for the atypical carcinoid. The 3 cases of adenoid cystic carcinoma were all dead within 3 years and only one case of mucoepidermoid carcinoma was alive after 10 years, which was also comparable with the survival reported by other authors (1,4,5,14,15,18), and reflects the more aggressive nature of these tumors and the guarded and poor prognosis. These actuarial survival data were highly significant (P.value 0.001).

-On analysis of the different variables in relation to prognosis and survival, the age, sex, type of presentation ,and duration of symptoms were all found to be of no statistical significance in predicting outcome (P. value > 0.05). The site of the tumor and its size were reported by some authors (4,8,13,18) to be of significance as centrally located tumors larger than 2 cm in diameter are of poorer prognosis than small ones located peripherally, but this was not supported by most of other authors. The only two factors that were of high significance were the histopathology of the tumors

and presence of regional lymph node metastases (P. value 0.001), this agrees with most of the authors (1-6,14-18,22) who stated the relative benign nature of typical carcinoids with prolonged survival, the potential malignancy of atypical carcinoids with reasonable although guarded prognosis, and the obvious malignant nature of mucoepidermoid and adenoid cystic carcinoma with poor prognosis.

-The involvement of regional lymph nodes was also proved (1-6,12-18,22) to be of high significance as regarding survival and or recurrence of disease. However some authors (7,12,18) have stated that the medistinal dissection of lymph nodes will help improve survival and guards against recu rrence.

## CONCLUSION

-For identification of different tumor types previously collected under the name of bronchial adenoma, we prefer specific tumor pathological name rather than other classifications that grouped small cell lung cancer with them.

-Although age, sex, symptomatolgy and, plain radiology are non conclusive in the diagnosis of such lesions, yet they have to be highly suspicious particularly in young females with recurrent chest infection or haemoptysis that fail to resolve in a reasonable period.

-CT scan of chest and bronchoscopy are the main tools for diagnosis, staging, lymph node assessment and preoperative histological diagnosis that help in planing of management.

-Conservative surgical resection is the best way for cure especially when regional lymph node dissection is performed. Pneumonectomy is to be reserved for cases with complete lung destruction due to inflammation. Bronchoscopic treatment and bronchoplastic procedures would offer better parenchymal salvage in special cases.

-The only two factors with significance in prognosis and survival are the type of the tumor and the regional lymph node involvement

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# الأنواع المختلفة للأورام الغدية الشعبية
# الجوانب الإكلينيكية الباثولوچية وعلاقتها بنتيجة الاستئصال الجراحى

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الورم الغدى الشعبى هو اسم جامع لأنواع مختلفة من الأورام التى تختلف بشده فى تصرفاتها وقدراتها الخبيثة ونتائجها .

وقد تم فى هذا البحث دراسة ثمانية وأربعين حالة تم تشخيصها كأورام غدية شعبية (٣١ أنثى و ١٧ ذكر) وكانت أعمارهم تتراوح مابين ١٢، ٦٥ سنة .

وشملت الإجراءات التشخيصية قبل العمليات فحوص شعاعية وفحوص بالمنظار الشعبى وعينات باثولوچية عن طريق المنظار الشعبى .

وكانت العمليات الجراحية التى أجريت لهؤلاء المرضى هى عدد ٨ عمليات إستئصال رئوى و ٢٣ عملية إستئصال فص من الرئة و ٩ عمليات إستئصال فصين من الرئة و ٧ عمليات استئصال فص من الرئة مع إستئصال شريحة من الشعب الهوائية وعملية واحدة لاستئصال شريحة من الشعبة الهوائية الرئيسية بدون استئصال نسيج رئوى .

ولم تكن هناك أى حالة وفيات بالمستشفى أو مضاعفات كبرى .

وأظهر التحليل الباثولوچى للعينات التى تم استئصالها وجود ٣١ حالة من أشباه الأورام المثالية و ٨ حالات أشباه أورام غير مثالية و ٦ حالات أورام ميوكو إبيديرموید و٣ حالات أورام غدية كيسية ومن ضمن المرضى الأحد عشر الذين كانت توجد بهم غدد ليمفاوية كبيرة فى سرة الرئة كان هناك ست حالات التهابية وخمس حالات بها أورام ثانوية. وقد توفيت ثمان حالات فى أثناء الخمس سنوات الأولى بعد العملية الجراحية كان أغلبهم من مرضى الأورام الغدية الكيسية وأورام الميوكو إبيديرموید.

وتراوحت فترة متابعة المرضى بين عامين وسبعة عشر عاماً. وكانت النتيجة ممتازة لحالات أشباه

الأورام المثالية وجيدة لحالات أشباه الأورام الغير مثالية وسيئة لحالات أورام الميوكو إبيديرمويد وحالات الأورام الغدية الكيسية .

وكانت العوامل ذات الدلالة الإحصائية العالية بالنسبة للنتيجة هى نوع الورم الباثولوچى وإنتشار المرض إلى الغدد الليمفاوية الموضعية .