Pathology team 430

Done by:

Basil Ahmad Alanazi
Abdulaziz Al Hakbani
Abdulrahman Alkadheeb
Abdulrahman Khoja
Mohammed Bohlega
Mohanned Al Essa
Kholoud Al-Amari
Marwah Bafadel
Jawaher AlFaraydi
Ala'a almulhem

3nd lecture: CANCERS OF THE LUNG

General consideration

Most lung tumors are **malignant**; those that arise from **metastases from primary tumors** elsewhere occur more frequently than those that originate in the lung.

Type	Location	Characteristics
Bronchogenic carcinoma Squamous cell carcinoma It represents about 35% of lung tumors	Central	Appears as a hilar mass and frequently results in cavitation; clearly linked to smoking; incidence greatly increased in smokers; may be marked by inappropriate parathyroid hormone (PTH) like activity with resultant Hypercalcemia
Adenocarcinoma 1) Bronchial-derived It represents about 35% of lung tumors	Peripheral	Develops on site of prior pulmonary inflammation or injury (scar carcinoma); less clearly linked to smoking **Note** **There are not secreted hormones, but you can find glands and mucin**
2) Bronchioloalveolar	Peripheral	Less clearly related to smoking; columnar to cuboidal tumor cell line alveolar walls; multiple densities on

		x-ray, mimicking interstitial pneumonia
Small cell **(oat cell) carcinoma** It represents about 20% of the lung tumors	Central	Undifferentiated tumor; most aggressive broncho-genic carcinoma usually already metastatic at diagnosis; is often associated with ectopic production of corticotrophin (ACTH) or antidiuretic hormone (ADH): incidence greatly increased in smokers cannot be treated by surgery (may be treated with chemotherapy)
Large cell carcinoma It represents about 10% of the lung tumors	Peripheral	Undifferentiated tumor which may show features of squamous cell or adenocarcinoma or electron microscopy. May be treated by surgery (in the early stage)
Other carcinoma of the lung: Carcinoid It represents about 1% of the lung tumors	Major bronchi	Low malignancy, spreading by direct extension into adjacent tissue, may result in carinoid syndrome.
Carcinoma, metastatic to the lung		Higher incidence than primary lung cancer

Note (regarding to small carcinoma)

It arises from neuroendocrine cells which are found in the respiratory epithelium.

There is massive secretion of ACTH & ADH and cause syndrome.

Bronchogenic carcinoma

Etiology and epidemiology

(a) Bronchogenic carcinoma is the leading cause of death from cancer in both men and women. **It is increasing in incidence, especially in women in parallel with cigarette smoking.**

(b) **This type of carcinoma is directly proportional in incidence to the number of cigarettes smoked daily and to the number of years of smoking.**

Various histologic changes**, including squamous metaplasia of the respiratory epithelium often with atypical changes ranging from dysplasia to carcinoma in situ precede bronchogenic carcinoma in cigarette smokers.**

Note:

It begins with smoking, then cause irritation of bronchial tree, inflammation, chronic bronchitis, squamous cell metaplasia (change the shape of the cell from type to another), dysplasia (premalignant cells without involvement of the basement membrane), and cancer.

Other Etiopathogenic Factors

(again the most important cause is smoking)

(a) Air pollution.

(b) Radiation: incidence increased in radium and uranium workers.

(c) Asbestos: increased Incidence with asbestos and greater increase with combincation of asbestos and cigarette smoking.

(d) Industrial exposure to nickel and chromates .

Clinical Features

(a) The 5 year survival rate is less than 10%.

(b) The tumor often spreads by local extension into the pleura, pericardium or ribs.

Clinical manifestations may include cough, hemoptysis and bronchial obstruction, often with atelectasis and pneumonitis.

Other Clinical Features Include:

(1) Superior vena cava syndrome: compression or invasion of the superior vena cava, resulting in facial swelling and cyanosis along with dilattion of the veins of the head, neck and upper extremities.

(2) Pancoast tumor (superior sulcus tumor): involvement of the apex of the lung, often with Horner syndrome (ptosis, miosis and anhidrosis): due to involvement of the cervical sympathetic plexus.

(3) Hoarseness from recurrent laryngeal nerve paralysis.

(4) Pleural effusion: often bloody (bloody pleural effusion suggests malignancy, tuberculosis or trauma).

(5) **Paraneoplastic endocrine syndrome:**

- **the most frequent of which is adrenocorticotropic hormone (ACTH) or ACTH-like activity with small cell carcinoma;**
- **also of note are the syndrome of inappropriate diuretic hormone secretion with small cell carcinoma of the lung and parathyroid-like activity, with squamous cell carcinoma.**

Note:

Paraneoplastic syndrome is presence of symptoms which are not directly related to the tumor but induced by the tumor. eg: Hypercalcemia

This patient may present with cushing syndrome which is cause by the massive Secretion of steroids.

Classification

(a) Bronchogenic carcinoma is subclassified into:

- **Squamous cell carcinoma, adenocarcinoma (including bronchioloalveolar carcinoma)**
- **Small cell carcinoma and large cell carcinoma**; it appears that all share a common endodermal origin despite their morphologic differences.

(b) For therapeutic purposes, **the bronchogenic carcinomas are often subclassified into**

- **Small cell carcinoma, which is not considered amenable to surgery (more dangerous)**
- **Non small cell carcinoma, in which surgical intervention may be considered.**

Good Luck