



PATHOLOGY
TEAM 44



MED 444
KING SAUD UNIVERSITY



Tumors of Lung

COLOR INDEX:

MAIN TEXT (BLACK)

FEMALE SLIDES (PINK)

MALE SLIDES (BLUE)

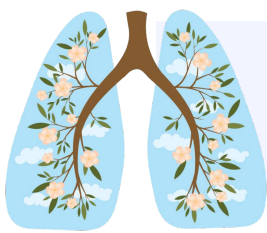
IMPORTANT (RED)

DR'S NOTE (GREEN)

EXTRA INFO (GREY)



Editing file:



Objectives



Know the epidemiology of lung cancer



Aware of the new classification of bronchogenic carcinoma which include squamous carcinoma, adenocarcinoma, small cell and large cell (anaplastic) carcinomas



Understand the predisposing factors of bronchogenic carcinoma



Understands the clinical features and gross pathology of bronchogenic carcinoma. Know the precursors of squamous carcinoma (squamous dysplasia) and adenocarcinoma (adenocarcinoma in situ and atypical adenomatous hyperplasia)



Have a basic knowledge about neuroendocrine tumors with special emphasis on small cell carcinoma and bronchial carcinoid



Aware that the lung is a frequent site for metastatic neoplasms



Highly recommended!!!!

Lung Cancer



[click here](#)

Introduction

Primary lung cancer is a common disease BUT metastatic tumors are more common than the primary tumors.

95% of primary lung tumors are carcinomas.

Remaining 5% span a miscellaneous group that include

Carcinoids

mesenchymal malignancies (e.g., fibrosarcoma, leiomyomas)

lymphoma

benign lesions

Lung Cancer

Epidemiology

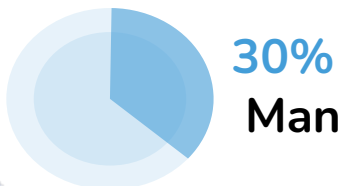
Carcinoma

Peak incidence is at 55 to 65 years of age.

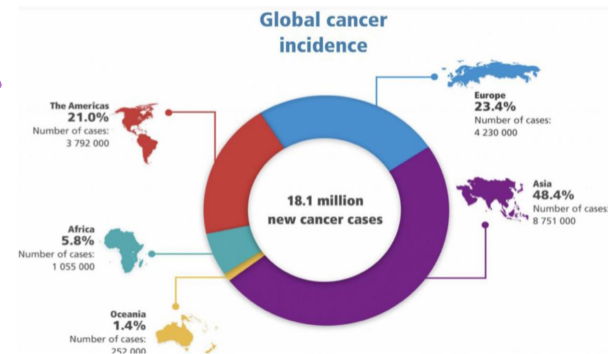
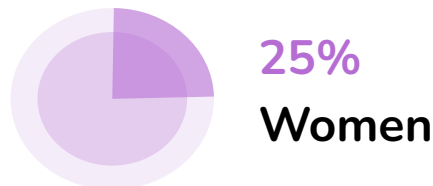
Incidence of lung cancer is declining in men but increasing in women

Carcinoma of the lung is the most important cause of cancer-related deaths in industrialized countries

Accounts for >30% of cancer deaths in men



Accounts for >25% of cancer deaths in women.



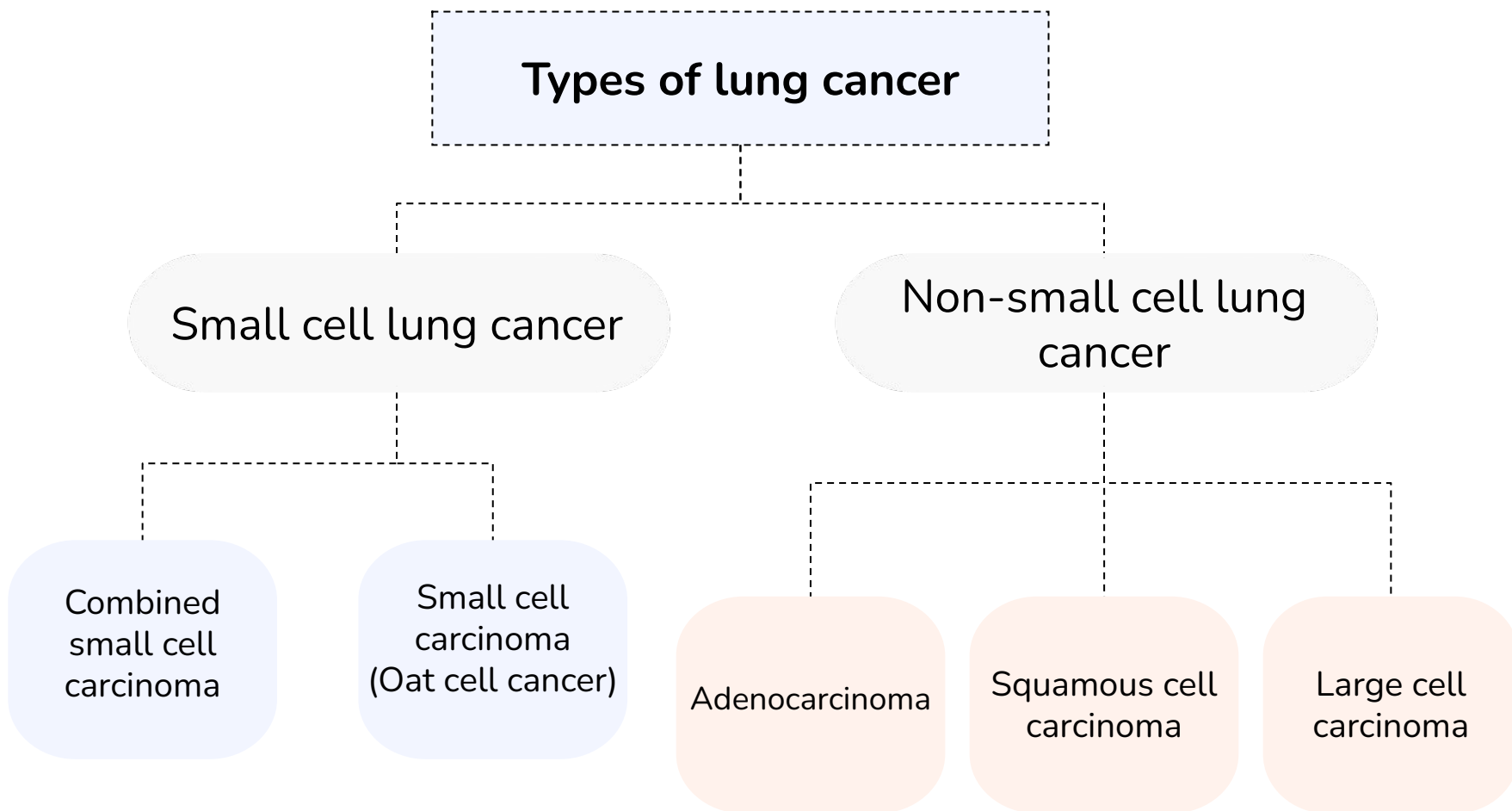
Lung Cancer



[click here](#)

Table 13.6 Histologic Classification of Malignant Epithelial Lung Tumors (2015 WHO Classification, Simplified Version)

Adenocarcinoma
Acinar, papillary, micropapillary, solid, lepidic predominant, mucinous subtypes
Squamous cell carcinoma
Large cell carcinoma
Neuroendocrine carcinoma
Small cell carcinoma
Large cell neuroendocrine carcinoma
Carcinoid tumor
Mixed carcinomas
Adenosquamous carcinoma
Combined small cell carcinoma
Other unusual morphologic variants
Sarcomatoid carcinoma
Spindle cell carcinoma
Giant cell carcinoma



Lung Cancer



[click here](#)

Etiology and Pathogenesis

85% of lung cancers occur in cigarette smokers.

Most types are linked to cigarette smoking, but the strongest association is with squamous cell carcinoma and small cell carcinoma.

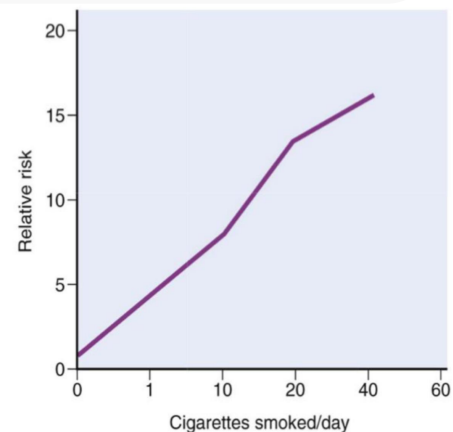
Is directly proportional to the number of cigarettes smoked daily and the number of years of smoking.

Cessation of cigarette smoking for at least 15 years brings the risk down.

Passive smoking increases the risk to approximately twice than non-smokers.

Cigarette smokers show various histologic changes, including squamous metaplasia of the respiratory epithelium which may progress to dysplasia, carcinoma in situ and ultimately invasive carcinoma.

- The risk of lung cancer is determined by the number of cigarettes smoked.
- The risk is 20 to 40 times greater among habitual heavy smokers.



Lung Cancer

Etiology and Pathogenesis

Study: "if women smoke like men, they will die like men"

- For unclear reasons, women are more susceptible to carcinogens in tobacco smoke than men.
- Female smokers have a much greater risk of death from lung cancer and COPD in recent years than female smokers 20 or 40 years ago.
- Female smokers today smoke more like men than women in previous generations, beginning earlier in adolescence and, until recently.

Radiation

All types of radiation may be carcinogenic and increase the risk of developing lung cancer. radium and uranium workers are at risk.

Asbestos

increased incidence of cancer with asbestos exposure, especially in combination with cigarette smoking.

Industrial exposure to nickel and chromates, coal, mustard gas, arsenic, iron etc.

Predisposing factors

Air pollution

May play some role in increased incidence. Indoor air pollution especially by radon.

Scarring

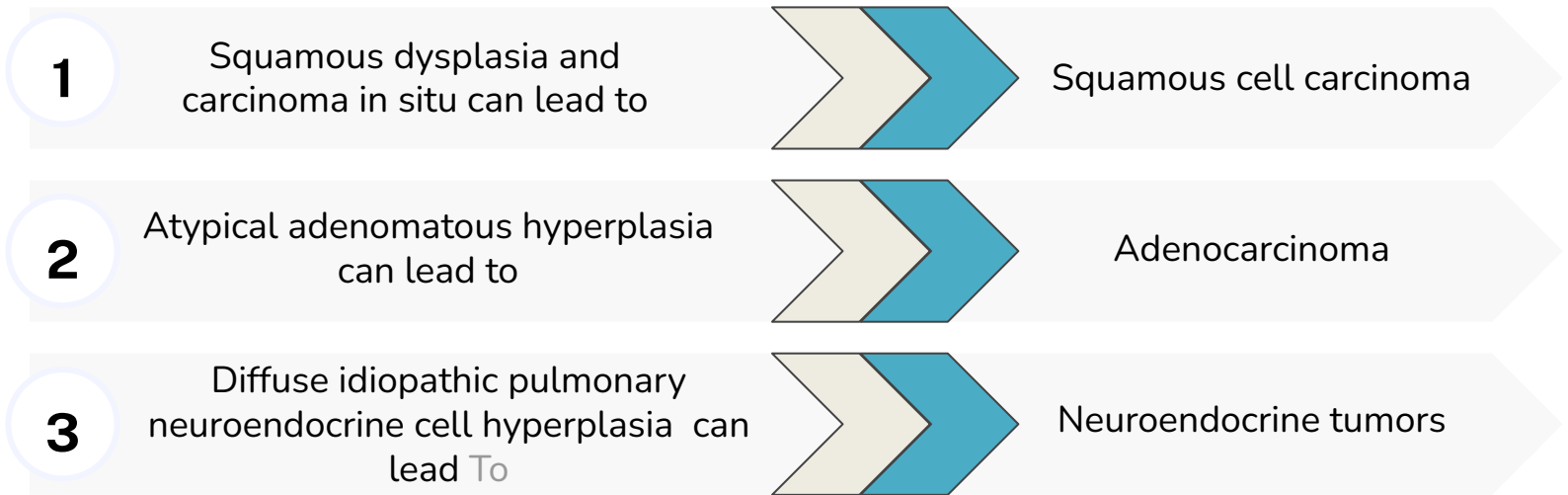
sometimes old infarcts, wounds, scar, granulomatous infections are associated with adenocarcinoma.

Gender

Women more susceptible Than men

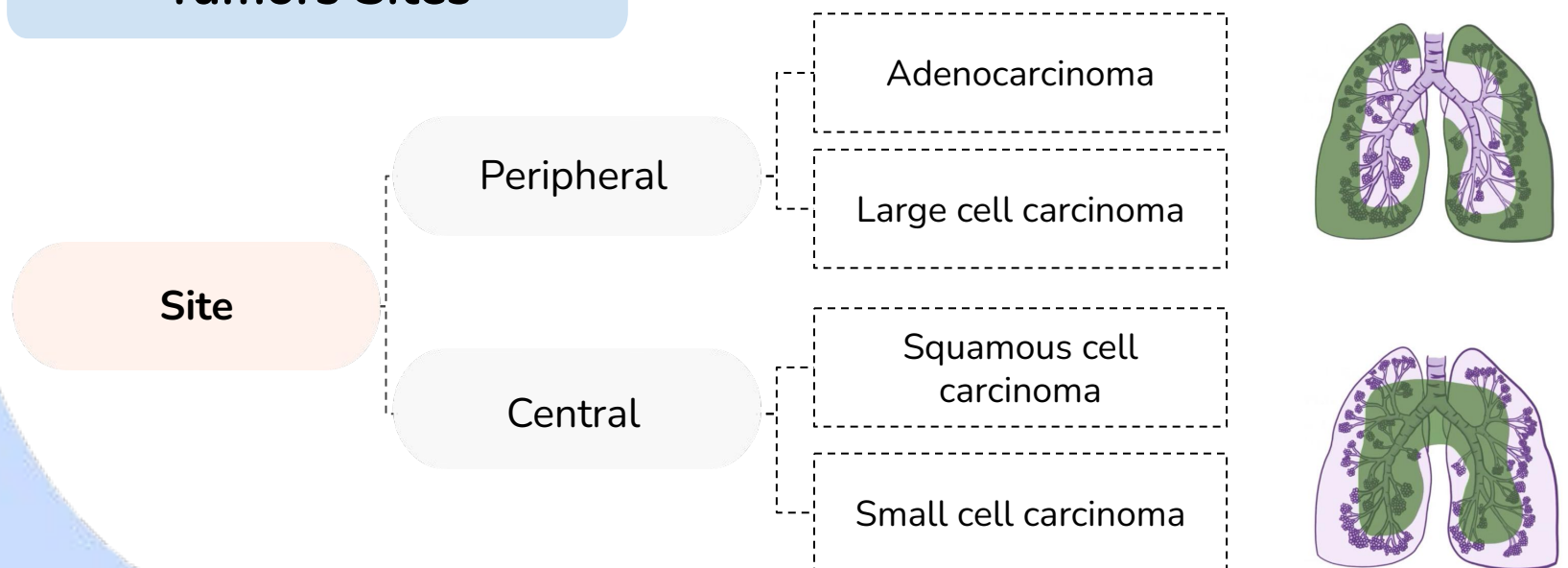
Lung Cancer

Precursor lesions



It should be noted that the term "precursor" does not imply that progression to invasion will occur in all cases

Tumors Sites



Adenocarcinoma

Overview

- Adenocarcinomas is now the most frequent histologic carcinoma.
- Usually, **peripheral located tumors** and arising from the peripheral airways and alveoli.

Epidemiology

- More common in young women

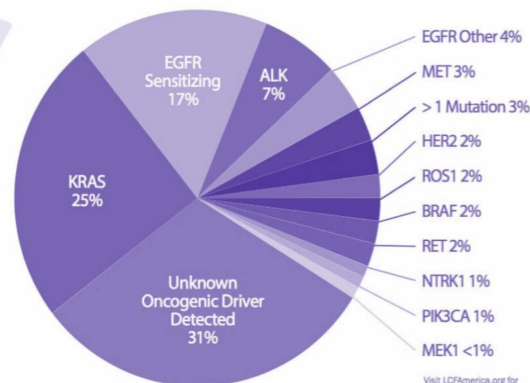


Etiology

- About 10% in whites.
- 30% in Asians, particularly those arising in non-smoking women, harbor mutations that activate the epidermal growth factor receptor (EGFR).
- **EGFR and KRAS mutations can occur and in 30% of adenocarcinomas.**

*tumors with this mutation are often sensitive to drugs that inhibit EGFR signaling

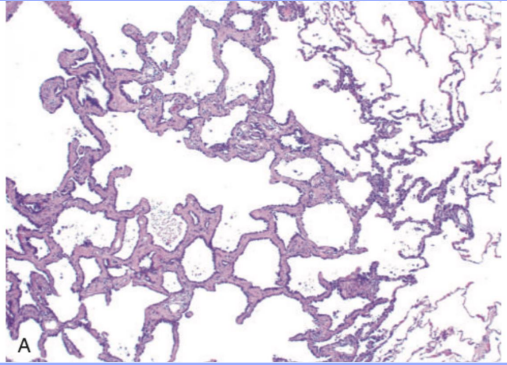
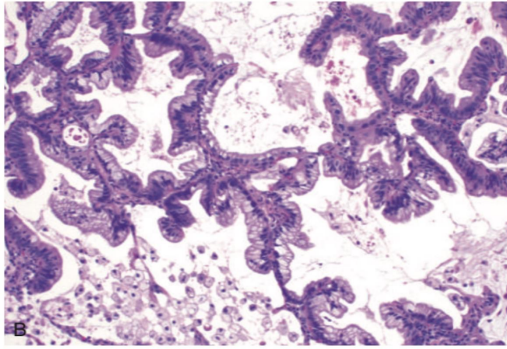
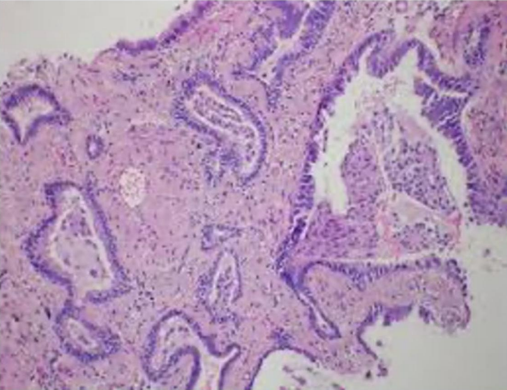
**if you remember from foundation block, this is the gene that control the “checkpoints” of the cell proliferation



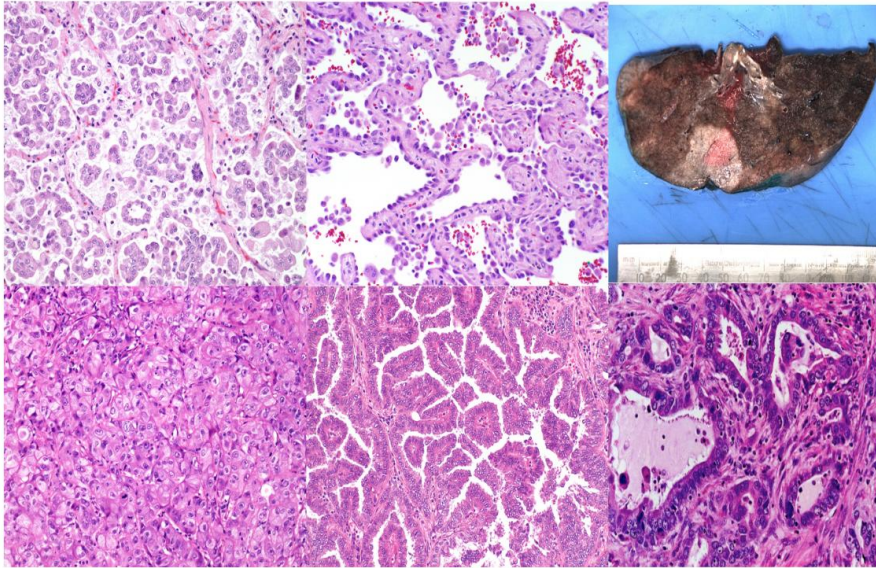
Visit LCFAmerica.org for the latest FDA indications.

Adenocarcinoma

The spectrum

Type	Description	Picture
Atypical adenomatous hyperplasia	<ul style="list-style-type: none"> • Small lesion (≤ 5 mm) • characterized by dysplastic pneumocytes lining alveolar walls that are mildly fibrotic • looks like normal lung, normal interstitium, but only thickened, no invasion 	
Adenocarcinoma in situ (AIS)	<ul style="list-style-type: none"> • Lesion that is less than 3 cm • is composed entirely of dysplastic cells growing along preexisting alveolar septae • no growth patterns other than lepidic* • no feature of invasion component, LVI • no necrosis • looks like ADH but bigger <p>*lipidic means that it looks like a normal lung but has thickened interstitium and atypical cells</p>	
Minimally invasive adenocarcinoma (MIA)	<ul style="list-style-type: none"> • ≤ 3 cm • describes small solitary adenocarcinomas with either pure lepidic growth • or predominant lepidic growth • with ≤ 5 mm of stromal invasion. • They have different growth pattern <ol style="list-style-type: none"> 1. acinar pattern (gland-forming) 2. papillary: finger like projection 3. solid 	

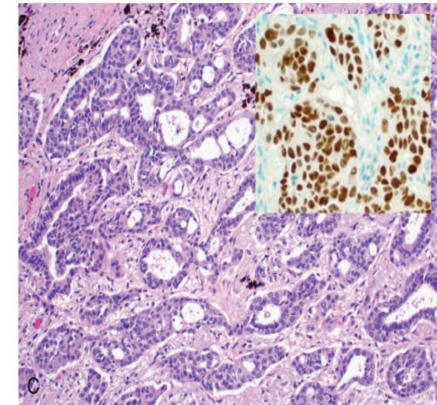
Adenocarcinoma



- A. a lung with adenocarcinoma
- B. Malignant glands lined by cells showing irregular nuclei and prominent nucleoli.

Diagnosis

- IHC*: TTF-1 positive (brown nuclear stain)**.
*immunohistochemistry
**TTF-1 has also been a useful marker for differentiating primary lung adenocarcinoma from pleural mesothelioma



Treatment

- Targeted therapies, such as EGFR inhibitor therapy for adenocarcinomas with EGFR mutations, can be effective
- in addition to surgery, that is why it is important to screen for the mutation of the tumor
*mostly all of the NSCLC don't respond very well to chemotherapy, however targeting a special oncoproteins is more approved .

SQUAMOUS CELL CARCINOMA

Overview

Large lesions may undergo **central necrosis**, giving rise to cavitation.

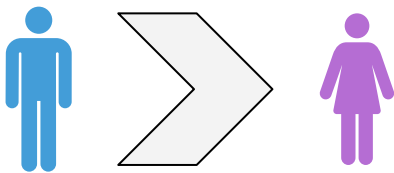
Squamous cell carcinomas often are preceded by the development, over years, of **squamous metaplasia** (because of the irritation) or dysplasia in the bronchial epithelium, which then transforms to carcinoma in situ.

Eventually, the small neoplasm reaches a symptomatic stage, when a well-defined tumor mass begins to obstruct the lumen of a major bronchus, often producing distal atelectasis and infection.

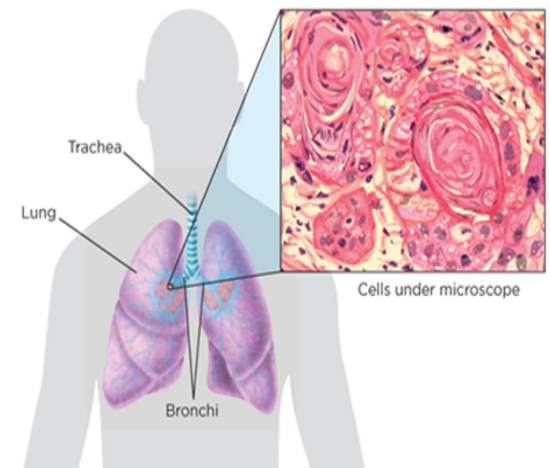
on the opposite of adenocarcinoma the tumor is central not on the periphery

Epidemiology

- more common in men than women
- **closely correlated with a smoking history**

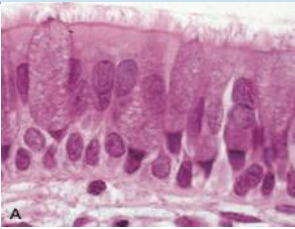
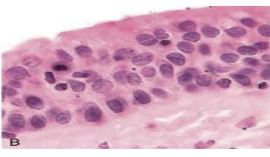
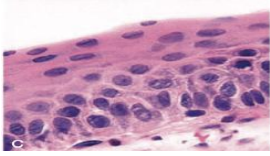
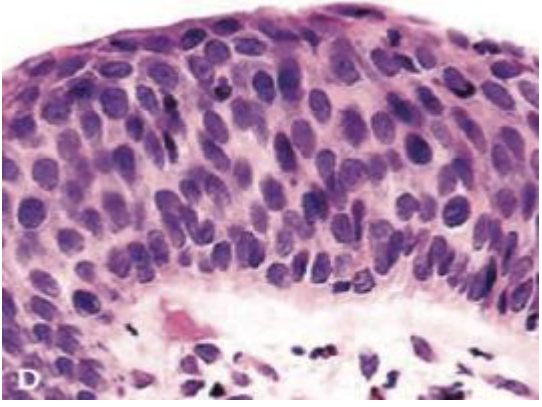
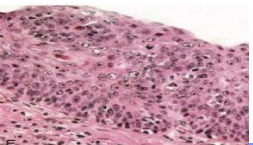
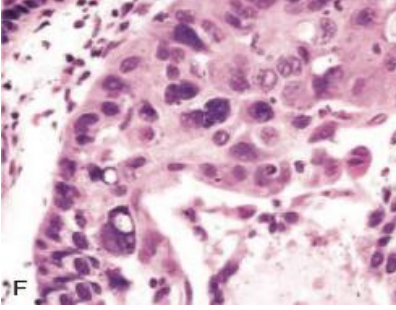


Squamous Cell Lung Cancer



SQUAMOUS CELL CARCINOMA

#Explanation from Robbins

Description	Picture
<ul style="list-style-type: none"> # Some of the earliest and mild changes in smoking damaged respiratory epithelium induce goblet cell hyperplasia 	<p data-bbox="982 357 1089 472">A</p> 
<ul style="list-style-type: none"> #Basal or reserve cell hyperplasia 	<p data-bbox="982 586 1089 700">B</p> 
<ul style="list-style-type: none"> #Squamous cell metaplasia 	<p data-bbox="982 750 1089 864">C</p> 
<ul style="list-style-type: none"> severe dysplasia, because it reached to the whole thickness, but still it is somewhat organized #More ominous changes include the appearance of squamous dysplasia characterised by the presence of disordered squamous epithelium with loss of nuclear polarity , nuclear hyperchromasia pleomorphism and mitotic figures 	<p data-bbox="982 913 1089 1028">D</p> 
<ul style="list-style-type: none"> disorganization or loss of polarity → carcinoma in situ 	<p data-bbox="982 1405 1089 1519">E</p> 
<ul style="list-style-type: none"> invasive squamous cell carcinoma # E& F squamous dysplasia may in turn progress through the stages of mild to moderate to severe dysplasia . 	<p data-bbox="982 1557 1089 1671">F</p> 

SQUAMOUS CELL CARCINOMA

Overview

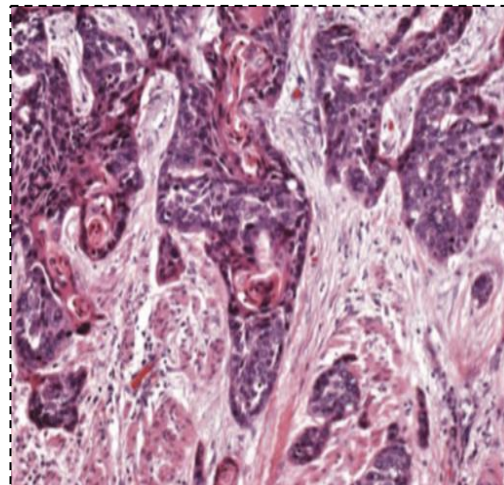
These tumors range from well- differentiated squamous cell neoplasms showing **keratin pearls and intercellular bridges** (space between cells), and **polygonal large cells**, to poorly differentiated neoplasms exhibiting only minimal squamous cell features

Squamous cell carcinoma appearing as a central (hilar) mass that is invading contiguous parenchyma



Well- differentiated squamous cell carcinoma, showing keratinization and pearls.

- if we have keratin pearls → well differentiated
- the less the keratin pearls → poorly differentiated



Large Cell Carcinoma

Definition

- These group of carcinomas are undifferentiated.
- Undifferentiated malignant epithelial tumors that lack the cytologic features of neuroendocrine carcinoma and show no evidence of glandular or squamous differentiation.
- Poor prognosis.

Epidemiology

Frequency: 10 %.

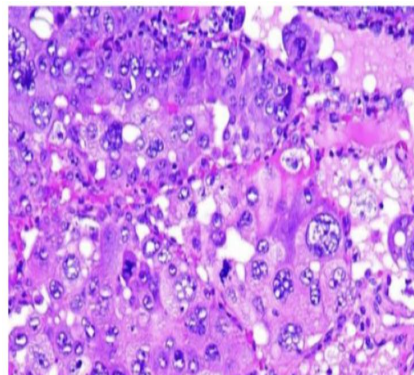
Strongly associated with smoking.

Site

Large-cell carcinoma are usually located peripherally.

Cells

The cells typically have large nuclei, prominent nucleoli, and moderate amounts of cytoplasm.



Carcinoid Tumor

Definition

Malignant tumors composed of cells that contain dense-core **neurosecretory granules in their cytoplasm.**

Epidemiology

- Account for 2% of all primary lung cancers.
- No sex predilection and are not related to cigarette smoking or other environmental factor.
- Usually seen in adults.

Site

Can be central or peripheral in location.

Carcinoid Tumor

Complications and Prognosis

1

Tumor cells produce **serotonin and bradykinin** leading to **carcinoid syndrome**.

2

Can occur in patients with Multiple Endocrine Neoplasia (MEN-I).

3

Low malignancy, (slow growing tumor) Often respectable and curable.

4

Spreads by direct extension into adjacent tissue And mainly seen as endobronchial lesions.

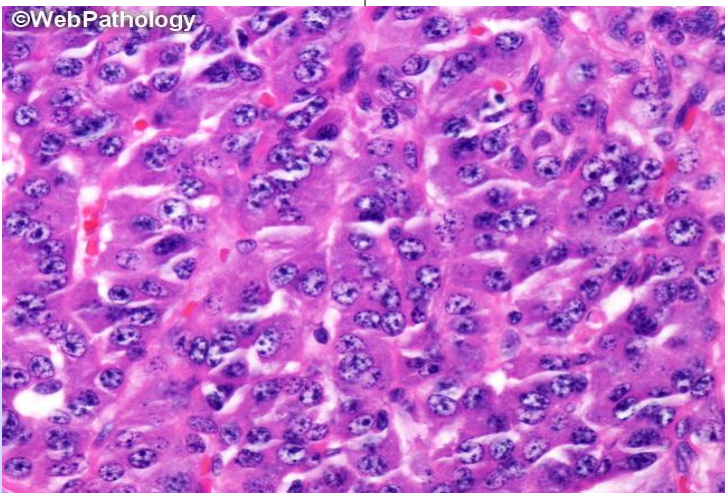
Carcinoid Tumor

Types of Carcinoid Tumor

typical carcinoids

الخلايا من جوا كانها ملح وفلفل شوفوا
نقط بيضاء وسوداء

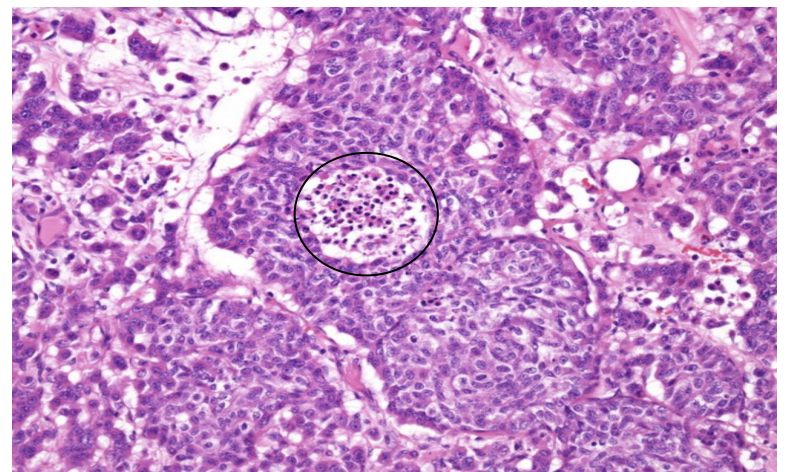
are composed of nests of uniform cells that have regular round nuclei with “**salt-and-pepper**” chromatin, absent or rare mitoses and little pleomorphism



Atypical carcinoid

الدائرة السوداء تعبر عن الفيتشر الابرز
ومكتوبة بالاحمر. □

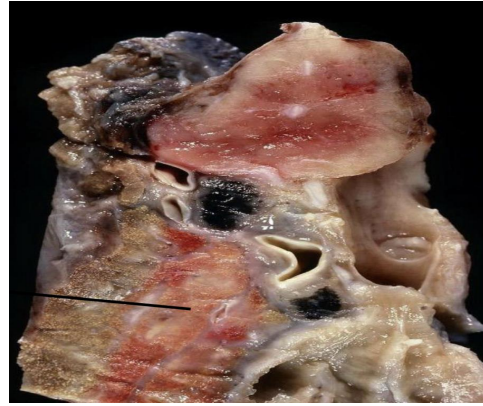
tumors display a higher **mitotic rate and small foci of necrosis**. These tumors have a higher incidence of lymph node and distant metastasis than typical carcinoids



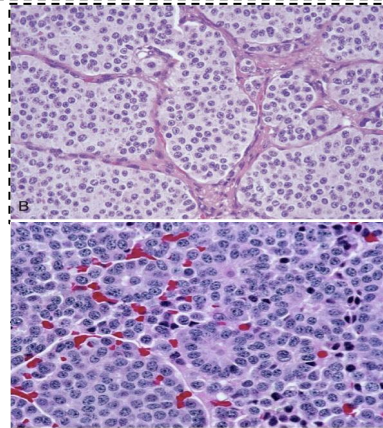
Histologic appearance demonstrating small, rounded, uniform nuclei and moderate cytoplasm+
الصور من برا الكتاب والسلايد

Carcinoid Tumor

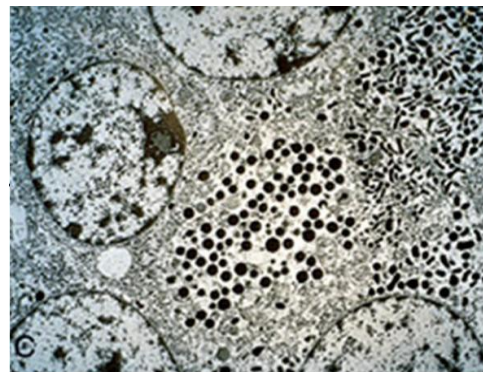
Rich blood vessels
stroma



Composed of uniform
cuboidal cells that
have regular round
nuclei with few
mitoses and little or
no anaplasia.



Electron microscopy:
Dense-core
neurosecretory
granules



Small Cell Carcinoma

Definition

a type neuroendocrine tumors **arising from neuroendocrine cells.**

Epidemiology

- More common in men.
- Strongly **associated with cigarette smoking.** 95% of patients are smokers.

Prognosis & Treatment

Highly malignant and aggressive tumor, poor prognosis, rarely respectable.

least likely form to be cured by surgery; usually already metastatic at diagnosis

Chemotherapy responsive.

Small Cell Carcinoma

Ability to secrete a host of polypeptide hormones

1

antidiuretic hormone (ADH)

2

calcitonin

3

ACTH

Adrenocorticotrophic hormone

4

gastrin-releasing peptide

5

chromogranin

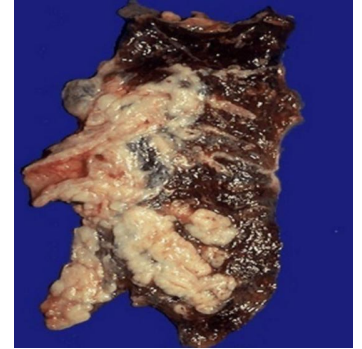
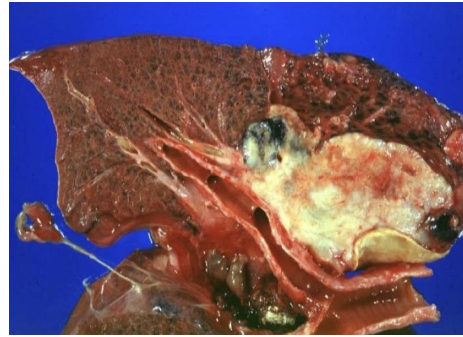
paraneoplastic syndrome

Cushing syndrome

Eaton-Lambert syndrome

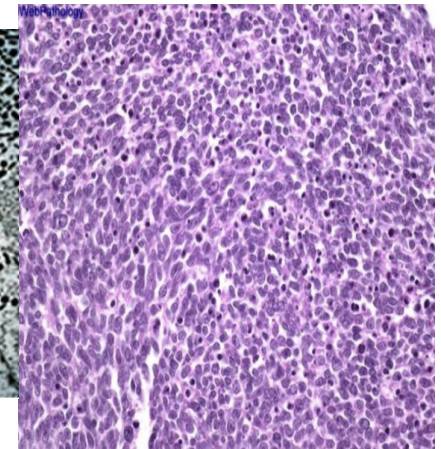
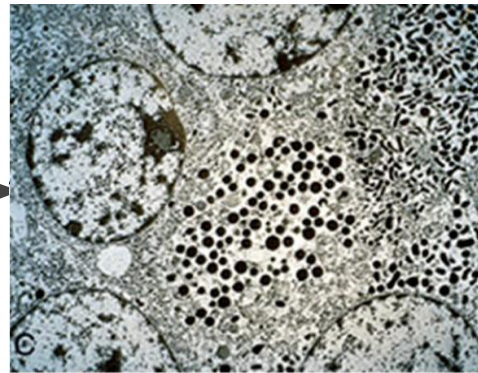
Small Cell Carcinoma

Gross: Centrally located perihilar mass with early metastases (Early involvement of the hilar and mediastinal nodes)



Microscopic :

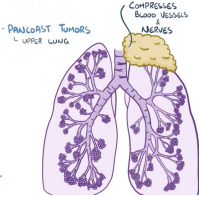

- Microscopically composed of small, dark, round to oval, lymphocyte-like cells with little cytoplasm.
- Necrosis, apoptosis, crushing artifact
- Electron microscopy: dense-core neurosecretory granules.



Clinical picture :

- Can be silent or insidious lesions.
- chronic cough and expectoration, hemoptysis, and bronchial obstruction, often with atelectasis.
- Hoarseness, chest pain, superior vena cava syndrome, pericardial or pleural effusion.
- Symptoms due to metastatic spread.

Small Cell Carcinoma

Clinical Picture	Description
<p>Superior vena cava syndrome</p>	<p>invasion leads to obstruction of venous drainage which leads to dilation of veins in the upper part of the chest and neck resulting in swelling and cyanosis of the face, neck, and upper extremities.</p>
<p>Pancoast tumor (superior sulcus tumor)</p>	<ul style="list-style-type: none"> ● Apical neoplasms may invade the brachial sympathetic plexus to cause severe pain, numbness and weakness in the distribution of the ulnar nerve. ● Pancoast tumor is often accompanied by destruction of the first and second ribs and thoracic vertebrae. It often coexists with Horner syndrome.  <p>The diagram shows a yellow tumor mass at the apex of the lung, labeled 'Pancoast Tumors - apex lung'. It is shown compressing the 'BRONCHI', 'BLOOD VESSELS', and 'NERVES'.</p>
<p>Horner syndrome</p>	<p>invasion of the cervical thoracic sympathetic nerves and it leads to ipsilateral enophthalmos, miosis, ptosis, and facial anhidrosis.</p>  <p>The illustration shows a pair of eyes with the text 'HORNER SYNDROME' above them. The eyes exhibit signs of the syndrome, such as miosis and ptosis.</p>
<p>Hoarseness</p>	<p>from recurrent laryngeal nerve paralysis.</p>
<p>Pleural effusion</p>	<p>often bloody.</p>

Paraneoplastic syndrome

Definition

very important all symptoms !!!!!!!!!!!!!

Paraneoplastic syndrome of lung cancer, are extrapulmonary, remote effects of tumors.

- 3% to 10% of lung cancers develop paraneoplastic syndromes

Small cell carcinomas

- ACTH (leading to Cushing's syndrome)
- ADH (water retention and hyponatremia)

Squamous cell carcinomas

-may secrete parathyroid hormone-like peptide and prostaglandin E that lead to hypercalcemia

Carcinoid tumors

-Produce serotonin and bradykinin leading to carcinoid syndrome (flushing, wheezing, diarrhea, and cardiac valvular lesions)

Adenocarcinomas

-can lead to hematologic manifestations

Complications and spread of Paraneoplastic syndrome.

1

Lymphatic spread:

- Successive chains of nodes (scalene nodes).
- Involvement of the supraclavicular node (Virchow's node).

2

Pericardial or pleural spaces

Infiltrate the superior vena cava.

3

A tumor may extend directly into the esophagus, producing obstruction sometimes complicated by a fistula.

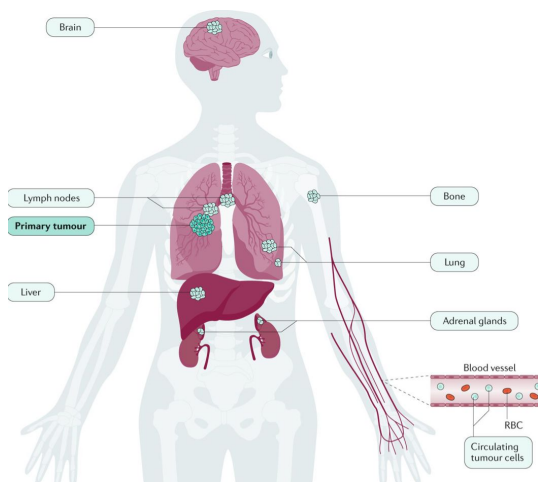
4

Phrenic nerve invasion

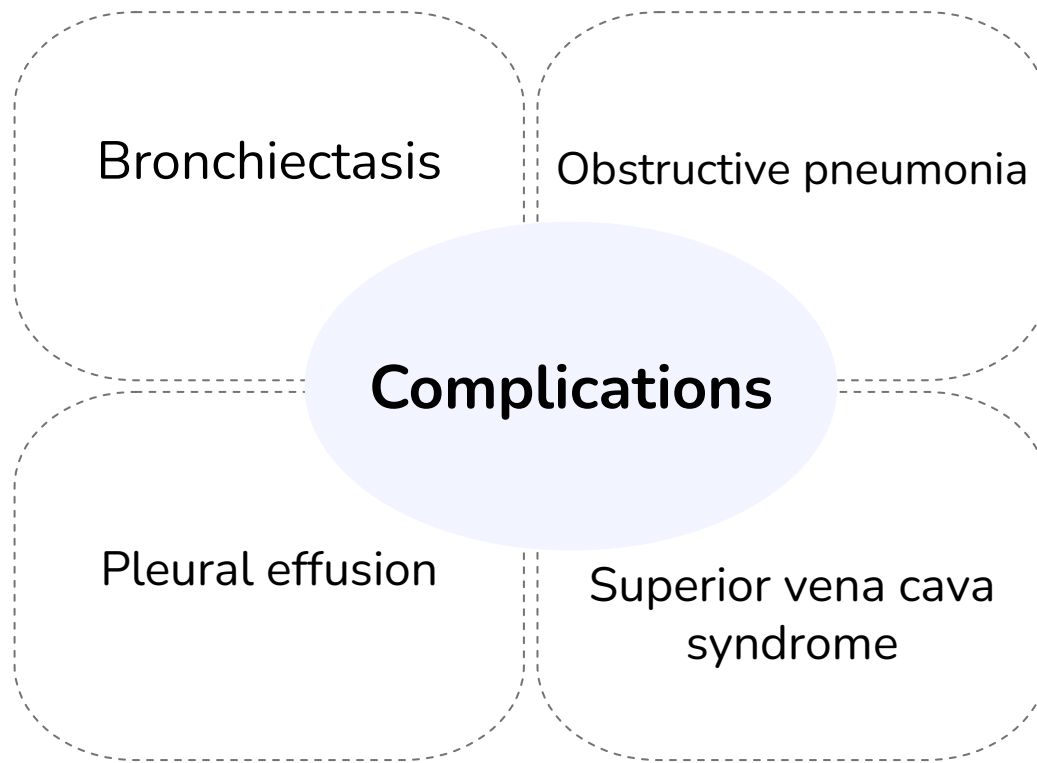
usually causes diaphragmatic paralysis:
- May invade the brachial or cervical sympathetic plexus (Horner's Syndrome).

5

Distant metastasis
to liver (30-50%),
adrenals (>50%),
brain (20%)
and bone (20%).



Complications and spread of Paraneoplastic syndrome.



Prognosis

NSCLC have a better prognosis than SCLC

Outlook is poor for most patients

Feature	Small Cell Lung Carcinoma	Non-Small Cell Lung Carcinoma
Histology	Scant cytoplasm; small, hyperchromatic nuclei with fine chromatin pattern; nucleoli indistinct; diffuse sheets of cells	Abundant cytoplasm; pleomorphic nuclei with coarse chromatin pattern; nucleoli often prominent; glandular or squamous architecture
Neuroendocrine Markers		
For example, dense core granules on electron microscopy; expression of chromogranin, synaptophysin, and CD56	Present	Absent
Epithelial Markers		
Epithelial membrane antigen, carcinoembryonic antigen, and cytokeratin intermediate filaments	Present	Present
Mucin	Absent	Present in adenocarcinomas
Peptide hormone production	Adrenocorticotrophic hormone, anti-diuretic hormone, gastrin-releasing peptide, calcitonin	Parathyroid hormone-related peptide (PTH-rp) in squamous cell carcinoma
Tumor Suppressor Gene Abnormalities		
3p deletions	>90%	>80%
RB mutations	~90%	~20%
p16/CDKN2A mutations	~10%	>50%
TP53 mutations	>90%	>50%
Dominant Oncogene Abnormalities		
KRAS mutations	Rare	~30% (adenocarcinomas)
EGFR mutations	Absent	~20% (adenocarcinomas, nonsmokers, women)
ALK rearrangements	Absent	4%–6% adenocarcinomas, nonsmokers, often have signet ring morphology
Response to chemotherapy and radiotherapy	Often complete response but recur invariably	Incomplete

Metastatic Carcinoma of the lung

- Pulmonary Metastases are **More Common than Primary Lung Tumors**.
- Metastatic tumors in the lung are typically multiple and circumscribed. When large nodules are seen in the lungs radiologically, they are called cannonball metastases.
- The common primary sites are the breast, stomach, pancreas, and colon.



Mesothelioma

Definition

- Malignant tumor of mesothelial cells lining the pleura
- Highly malignant neoplasm.

Epidemiology

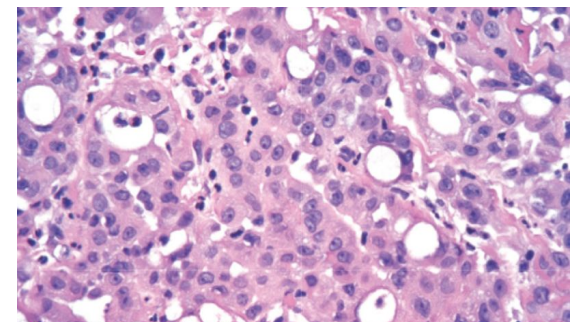
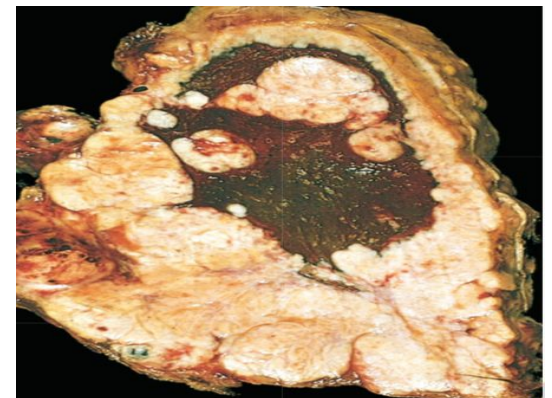
Most patients (70%) have a history of exposure to asbestos.

Smoking is not related to mesothelioma.

The average age of patients with mesothelioma is 60 years.

Findings

- Three main histological variants: epithelioid, spindle cell, biphasic.
- Pleural mesotheliomas tend to spread locally (started unilateral then spread to be bilateral) within the chest cavity, invading and compressing major structures.
- Metastases can occur to the lung parenchyma and mediastinal lymph nodes, as well as to extrathoracic sites e.g., liver, bones, peritoneum
- Treatment for mesothelioma is largely ineffective and prognosis is poor: few patients survive more than 18 months after diagnosis



Summary

الجدول من مصدر خارجي بس ممكن يسهل عليكم كثير

CANCER	CHARACTERISTIC HISTOLOGY	ASSOCIATION	LOCATION	COMMENT
Small cell carcinoma	Poorly differentiated small cells with neuroendocrine differentiation, chromogranin positive	Male smokers	Central	Rapid growth and early metastasis; may produce endocrine (e.g., ADH or ACTH) or nervous system(e.g., Lambert-Eaton myasthenic syndrome) paraneoplastic syndromes
Adenocarcinoma	Glands, mucin (or TTF-l expression by immunohistochemistry (IHC)	Most common tumor in nonsmokers and female smokers	Peripheral	Adenocarcinoma in-situ exhibits columnar cells that grow along preexisting bronchioles and alveoli may present as pneumonia-like consolidation on imaging
Squamous cell carcinoma	Keratin pearls, intercellular bridges or p40 expression by IHC	Most common tumor in male smokers	Central	May produce PTHrP (Parathyroid hormone-related protein)
Large cell carcinoma	Poorly differentiated large cells (no glands, mucin, TTF-1, keratin pearls , intercellular bridges , or p40)	Smoking	Central or peripheral	Diagnosis of exclusion
Carcinoid tumor	Well differentiated neuroendocrine cells (nests); chromogranin positive	Not significantly related to smoking	Central or peripheral; when central, classically forms a polyp-like mass in the bronchus	Low-grade malignancy; rarely, can cause carcinoid syndrome

Summary

1. The three major histologic subtypes are adenocarcinoma (most common), squamous cell carcinoma, and small cell carcinoma, each of which is clinically and genetically distinct.
2. Adenocarcinomas are the most common cancers overall and are especially common in women and in non-smokers.
3. Precursor lesions include atypical adenomatous hyperplasia and adenocarcinoma in situ for adenocarcinomas and squamous dysplasia for squamous cancer.
4. Tumors 3 cm or less in diameter characterized by pure growth along pre-existing structures without stromal invasion are called adenocarcinoma in situ.
5. SCLCs are best treated with chemotherapy, because almost all are metastatic at presentation. The other carcinomas may be curable by surgery if limited to the lung.
6. Targeted therapies, such as EGFR inhibitor therapy for adenocarcinomas with EGFR mutations, can be effective, an excellent example of personalized cancer therapy. Immunotherapies are under development and show promise.
7. Lung cancers commonly cause a variety of paraneoplastic syndromes.



KEYWORDS

Most likely case scenario will be related to smoking +women are more susceptible than men

<p>Adenocarcinoma</p>	<p>Nonsmokers + Location is peripheral EGFR and KRAS mutations can be present Diagnosed by : IHC and TTF-1 positive as a marker</p>
<p>Squamous cell carcinoma</p>	<p>more in men + Location is central + may undergo central necrosis differentiated:keratin pearls + intercellular bridges + polygonal large cells undifferentiated: little squamous features release parathyroid hormone-like peptide and PGE lead to hypercalcemia</p>
<p>Large cell carcinoma</p>	<p>Undifferentiated with no cytologic features of neuroendocrine carcinoma and no evidence of glands or squamous features + Location : can be central or peripheral but usually peripheral</p>
<p>Carcinoid tumor</p>	<p>neurosecretory granules + can have carcinoid syndrome + can occur with MEN-1(gene)+ Location is central or peripheral Typical :normal nuclei with (salt and pepper) chromatin atypical:small foci of necrosis</p>
<p>Small cell carcinoma</p>	<p>Neuroendocrine cells + with smokers + secrete hormones mentioned in click here associated with cushing +lambert-eaton syndrome and others Location is central</p>
<p>Mesothelioma</p>	<p>exposure to asbestos and affect the pleura Histology : epithelioid spindle cells, Biphasic Location: mesothelial cells lines the pleura</p>



MCQ

1- Which of the following has a feature of small foci of necrosis

A) squamous cell carcinoma

B) Typical Carcinoid tumor

C) Atypical Carcinoid tumor

D) Large cell carcinoma

2- Which of following is related to exposure of asbestos

A) Mesothelioma

B) Squamous cell carcinoma

C) All of lung tumors

D) Small cell carcinoma

3- Which of the following tumors is related to EGFR and KRAS

A) Adenocarcinoma

B) Small cell carcinoma

C) Large cell carcinoma

D) Carcinoid Tumor

4- Which of the following can be located only peripherally

A) Large cell carcinoma

B) Carcinoid tumor

C) Adenocarcinoma

D) Small cell carcinoma

5- Which of the following is only located centrally

A) Adenocarcinoma

B) Squamous cell carcinoma

C) Large cell carcinoma

D) Carcinoid Tumor

 **Cases**

1- a 25 year old women came to emergency experiencing persistent cough with blood and has dyspnea, after taking history there was repeated respiratory infections and fatigue and weight loss without following a diet plan and noticeable wheezing sound when breathing then Doctor suspected a mass to make sure a IHC was done and TTF-1 is positive. Which of the following is the right diagnosis ?

A) Mesothelioma	B) Small cell carcinoma	C) Adenocarcinoma	D) Squamous cell carcinoma
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2- a 55 year old Arthur Morgan has a history of smoking for 37 years he visited the doctor years ago and was advised to stop smoking but he didn't care so in his recent visit he complained of chronic cough and hoarseness and trouble in swallowing then a biopsy was taken from the center of the lung and the pathologist saw keratin pearls with intercellular bridges and cells were well differentiated what do u think is the diagnosis ?

A) Small cell carcinoma	B) Large cell carcinoma	C) Carcinoid Tumor	D) Squamous cell carcinoma
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3- the pathologist received a biopsy of a mass located peripherally on lung from a heavy smoker patient called Arthur Morgan and what he saw under the microscope was: undifferentiated cells with large nuclei and moderate amount of cytoplasm and no signs of glands or mucin and no histological features of neuroendocrine carcinoma WDYT the pathologist's diagnosis was?

A) Small cell carcinoma	B) Mesothelioma	C) Large cell carcinoma	D) Adenocarcinoma
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4- a biopsy was transferred to the lab to go under examination using the microscope and was discovered cell nests with normal round nuclei but has salt and pepper chromatin appearance what do u think this features represent?

A) Typical carcinoid	B) Atypical carcinoid	C) Adenocarcinoma	D) Small cell carcinoma
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Cases

1- A 75 year old man is diagnosed with carcinoid tumor and was experiencing in his last 2 months symptoms like diarrhea, flushing and wheezing and blood test was done and was found that certain molecules were elevated like serotonin and?

A)ADH

B)Angiotensin

C)ACTH

D)Bradykinin

2- A 67 year old man heavy smoker came to the ER was scared cuz he was experiencing swelling and cyanosis in his face and neck with hoarseness what do u think these symptoms apply to which of the following tumors?

A)Squamous cell carcinoma

B)Large Cell carcinoma

C)Small cell carcinoma

D)Adenocarcinoma

3- A mass was found on the apices of the lung involved with destruction to 1st and 2nd ribs to one of the patients that has numbness, swelling and pain radiating all over his upper arm and has weakness in areas supplied by ulnar nerve, Which of the following is correct?

A)Cushing syndrome

B)Superior vena cava syndrome

C)Pancoast tumor

D)Horner syndrome

4- a 55 year old man called Foulan has been exposed to danger due to his work nature for over 30 years of his career, during his work he often uses materials that contains asbestos without protective measures, recently he started experiencing dyspnea, persistent cough, fatigue and loss of weight. A biopsy was done what do u think is the diagnosis ?

A)Adenocarcinoma

B)Mesothelioma

C)Small cell carcinoma

D)Squamous cell carcinoma

5)A 55 year old patient was a heavy smoker was diagnosed with a mass that caused water retention and hyponatremia which of following is suspected to be the cause

A)Adenocarcinoma

B)Squamous cell carcinoma

C)Small cell carcinoma

D)Large cell carcinoma

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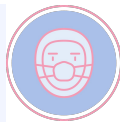
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