

Pathology Lecture # 34
Pulmonary Lecture #6
Respiratory Neoplasia
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These descriptions to the slides are adjuncts to the lectures. These descriptions are not meant to replace either the lectures or the reading assignments, but to aid in your review of the images and text slides.

1. This section will discuss respiratory neoplasia, of which are grouped cancers of the lungs, pleura, and larynx. By far, the most common cause of respiratory neoplasia is tobacco use.
2. The most common benign tumor of the lung is the hamartoma. Pulmonary hamartomas are discrete solitary nodules composed most often of cartilage and some respiratory epithelium. They are usually discovered as an incidental, rounded focus of radiopacity (coin lesion) on routine chest film. The lungs are often the site of metastasis. The most common type of primary lung cancer is bronchogenic carcinoma in all its various forms.
3. This CXRAY shows a radiodense discrete nodule in the left lung field. This type of finding is often termed a coin lesion because of its appearance. Coin lesions should be considered malignant until proven otherwise.
4. This pulmonary hamartoma shows the characteristic round, discrete, cartilaginous lesion.
5. Metastatic malignancy is more common than primary lung cancer. The primary cancer is often established clinically, however, it is possible on some occasions for patients to present *de novo* with metastatic disease.
6. This CXRAY shows multiple, discrete lesions of irregular size and shape unevenly distributed throughout both lung fields. This is a patient with metastatic breast cancer.
7. In this gross section of lung there are multiple irregular discrete lesions which recapitulate the CXRAY findings.
8. Microscopic section of metastatic breast cancer to lung.
9. Microscopic section of metastatic breast cancer to lung.
10. Heart disease is the leading cause of death in the USA.
11. Lung cancer is the most common cause of cancer death in the USA for both men and women. Bronchogenic carcinoma is the leading cause of lung cancer death.

12. Bronchogenic (bronchial) carcinoma is the leading cause of cancer death and without a doubt is caused by tobacco use. Although the smoking rate is decreasing among men, it is increasing among women. Lung cancer in women is more virulent than in men. Teen smoking is increasing nationwide.
13. Cigarette smoking shows a near linear relationship between the frequency of lung cancer and pack-years. There is a linear correlation between the intensity of exposure and the development of progressive changes in the epithelium of the bronchus from squamous metaplasia to CIS.
14. Lung cancers result from genetic changes that affect oncogenes and suppresser genes. Various oncogenes and suppresser genes have definite associations with a particular lung cancer. 3p is the site of several cancer suppresser genes. Almost all SCLC have 3p deletion.
15. There appears to be a temporal sequence in the temporal accumulation of specific mutations. 3p inactivation appears to be an early event and can be found in areas of CIS and even hyperplasia, suggesting a field effect.
16. Many chemical carcinogens require cytochrome P-450 activation for conversion into ultimate carcinogens. Persons who efficiently metabolize procarcinogens are at greater risk. Women have more efficient cytochrome P-450 systems than do men.
17. Bronchogenic carcinoma is broadly categorized into non-small cell lung cancer (NSCLC) with 3 subtypes: Squamous cell, adenocarcinoma, and large cell carcinoma. Small cell lung cancer (SCLC) is in its own category. For most therapeutic decisions the NSCLC can be grouped together.
18. Bronchogenic carcinomas, irrespective of histologic type, share several features in common.
19. Bronchogenic carcinoma begins as a small mucosal lesion, usually firm grayish-white, which may form intraluminal masses, invade the bronchial mucosa, or form bulky masses pushing into the lung parenchyma. There is local expansion followed by distant metastasis.
20. The essential features of squamous cell carcinoma and adenocarcinoma are summarized.
21. The essential features of bronchoalveolar and large cell carcinoma are summarized.
22. Histologic appearance of well-differentiated squamous cell carcinoma showing keratinization.
23. Gland forming adenocarcinoma of the lung.
24. Large cell carcinoma of the lung showing pleomorphic anaplastic tumor cells and the absence of glandular epithelium.
25. Small cell carcinoma with islands of deeply basophilic cells and areas of necrosis.
26. Summary of the histologic appearance of bronchogenic carcinoma.

27. Essential features of small cell (oat cell) carcinoma of the lung.

28. Small cell carcinoma.

29. Clinical presentation of lung cancer.

30. The symptoms of lung cancer can be categorized as:

<u>Phase</u>	<u>Symptom</u>
Foreign Body	Cough
Ulcerating	Hemoptysis
Partial Obstruction	Infection
Complete Obstruction	Atelectasis
Advanced	Shifted Mediastinum Involvement of laryngeal, phrenic nerve

31. Summary of local symptoms of lung cancer.

32. Tissue diagnosis of lung with sensitivities.

33. An endobronchial carcinoma.

34. Staging of lung cancer.

35. Large gray tumor mass arising from the bronchus invading the lung parenchyma.

36. Survival has not improved in 25 years.

37. The one-thirds of lung cancer.

38. SCLC is the worse one of all.

39. Paraneoplastic syndromes.

40. Types of paraneoplastic syndrome and associated lung cancer.

41. Types of paraneoplastic syndrome and associated lung cancer (continued).

42. Bronchial carcinoid.

43. A small endobronchial carcinoid (right). Histologically, there are well-defined nests of homogeneous cells with uniform nuclei (left).

44. Malignant mesothelioma.

45. Malignant mesothelioma (gross).

46. The pleural transudate is fluid that contains a low protein content and few cells. A transudate is most often seen in CHF. An exudate has a high protein content and contains many cells. An exudate can be seen in pneumonia, infarction, and malignancy.
47. This CXRAY shows a pleural effusion on the left. Note the sharp air-fluid level.
48. Pneumothorax, hemothorax, and chylothorax defined.
49. This CXRAY shows pneumothorax on the right.
50. Non-malignant laryngeal tumors include nodules and papillomas.
51. Essential features of laryngeal carcinoma are summarized.
52. Schematic of the appearance of laryngeal carcinoma.
53. Ulcerating polypoid mass of cancer on both vocal cords in this resected specimen.
54. Histologic appearance of squamous cell carcinoma of the larynx. There are submucosal nests of squamous cells that have eroded through the epithelial surface. Note the normal-appearing epithelium on the left.
55. Clinical outcomes of laryngeal carcinoma.
56. Nasopharyngeal carcinoma.
57. Take a deep breath and relax.