

**California Tumor Tissue Registry's
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"Pulmonary Pathology"

Case 1

A 56 y/o male complaining of chronic cough had a chest x-ray which showed a 0.5 cm well circumscribed peripheral radiodense nodule.

Dx:

Chondromatous hamartoma, lung

Hamartoma of the lung.

Diagn Cytopathol 2008 May;36(5): p331-2

Zakharov V; Schinstine M

Diagnosis of pulmonary hamartoma by fine needle biopsy.

Acta Cytol 2008 Jul-Aug;52(4): p412-7

Wood B; Swarbrick N; Frost F

Pulmonary chondroma: a tumor associated with Carney triad and different from pulmonary hamartoma.

Am J Surg Pathol 2007 Dec;31(12): p1844-53

Rodriguez FJ; Aubry MC, Carney JA, et al.

Giant pulmonary hamartoma--a rare presentation of a common tumor.

Ann Thorac Surg 2006 Aug;82(2): pe5-7

Hutter J; Reich-Weinberger S; Hutarew G; Stein HJ

The solitary pulmonary nodule.

J Natl Med Assoc 1976 May;68(3): p243-5

Adekunle AM; Adair LB; Verly G; Press HC

Multiple pulmonary leiomyomatous hamartomas.

Ir Med J 1984 Apr;77(4): p106-7

Reynolds JV; Kealy WF; O'Sullivan GC

Case 2

A 35-year-old gay, HIV-negative man developed fever, night sweats and weight loss, and radiographically was found to have a right upper lobe lung mass that was relatively well-demarcated. The right upper lobe measured 20.0 x 11.0 x 7.0 cm, and weighed 454 grams, with the lower half of the lobe being almost completely consolidated, and the pleural surface covered by shaggy fibrovascular adhesions. On sectioning, the lower lobe was composed of rock-hard, yellow-brown to grayish tissue, with areas of necrosis and possible golden-tan post-obstructive pneumonia. Your section is from an area of consolidation in the lower portion of the right upper lobe.

Radiographs

A CT scan showed a large, inhomogeneous mass in the medial right lung. It clearly involved the lung, since the right upper bronchus extends into it. It likely arose in the lung, but it may have

arisen in the right side of the mediastinum and then grown out into the lung. There was lymph node enlargement in the right hilum and in the middle mediastinum. There was also mediastinal invasion by the tumor, as indicated by the effacement of the mediastinal pleura and the linear radiation of the tumor through the mediastinal fat. The findings suggested a non-obstructing lung tumor with secondary involvement of the mediastinum. Small cell carcinoma was considered a strong possibility, given the bulkiness of the tumor and the central location. Lymphoma was also a consideration because of tumor involvement of both lung and mediastinum.

Dx:

Primary Hodgkin disease, lung
(Case submitted by Dr. Samuel Hammar)

Primary pulmonary Hodgkin's disease: a distinct entity.
Indian J Chest Dis Allied Sci 2006 Apr-Jun;48(2): p139-41
Pai RR; Raghuveer CV; Philipose RT; Shetty AB

Hodgkin lymphoma presenting with exclusive or preponderant pulmonary involvement: a clinicopathologic study of 5 new cases.
Ann Diagn Pathol 2006 Apr;10(2): p83-8
Rodriguez J; Tirabosco R; Pizzolitto S; Rocco M; Falconieri G

Hodgkin's disease with pulmonary cavitation.
Postgrad Med J 1982 Dec;58(686): p794-6
Friedland ML; Wittels EG; Deutsch A

Lung cancer after treatment of Hodgkin's disease--a case report.
Acta Oncol 1991;30(5): p651-2
Cristallini EG; Buzzi F; Santoro S; Bolis GB

Diffuse ground-glass opacities in a patient with Hodgkin lymphoma and progressive respiratory failure.
Chest 2008 Jul;134(1): p207-12
Godoy MC; Nonaka D; Raphael BG; Vlahos I

What is the price of survival in Hodgkin's lymphoma? Long-term follow-up of cured patients.
Hematol Oncol 2007 Dec;25(4): p178-83
Zsofia M; Katalin K; Judit V; Gyorgy S; Arpad I

Case 3

52 y/o with difficulty breathing due to an exophytic, partially occlusive mass involving the larynx.
Actin positive, desmin negative.

Dx:

Inflammatory myofibroblastic tumor (IMT), larynx

Inflammatory myofibroblastic tumor of the larynx.
Head Neck 2006 Apr;28(4): p369-72
Suh SI; Seol HY, et al.

Inflammatory myofibroblastic tumor of the larynx in a 2-year-old male.
ORL J Otorhinolaryngol Relat Spec 2005;67(2): p101-5

Rodrigues M; Taylor RJ; Sun CC; Wolf JS

Inflammatory myofibroblastic tumor of the larynx. Case report.
An Otorrinolaringol Ibero Am 2007;34(2): p201-8
Martines F; Martines E, et al.

Inflammatory myofibroblastic tumor in the larynx: clinicopathologic features and histogenesis.
Acta Otolaryngol 2005 Feb;125(2): p215-9
Guilemany JM; Alos L, et al.

Inflammatory myofibroblastic tumor of paranasal sinuses.
Saudi Med J 2007 Apr;28(4): p623-7
Al-Sindi K; Al-Shehabi MH; Al-Khalifa SA

Inflammatory myofibroblastic tumor (inflammatory pseudotumor) of the neck infiltrating the trachea.
J Pediatr Surg 2004 Oct;39(10): p1-4
Browne M; Abramson LP, et al.

Inflammatory myofibroblastic tumor: comparison of clinicopathologic, histologic, and immunohistochemical features including ALK expression in atypical and aggressive cases.
Am J Surg Pathol 2007 Apr;31(4): p509-20
Coffin CM; Hornick JL; Fletcher CD

Case 4

A 35-year-old woman was first seen at Mayo Rochester in November of 1990 for evaluation for single lung transplantation. Her chief complaint was a 7 to 8 year history of progressive shortness of breath. In addition she complained of frequent upper respiratory tract infections associated with productive cough. Her symptoms had accelerated over the year prior to evaluation. PFTs showed severe restriction (FEV1 0.45 liters; FEV1/FVC 25.1). A chest x-ray showed a diffuse interstitial process with hyperinflation. She was listed for transplantation and underwent orthotopic lung transplantation in January of 1992. The process was positive for HMB-45.

Dx:

Lymphangioliomyomatosis, lung

Lymphangioliomyomatosis.
Cancer Control 2006 Oct;13(4): p276-85
Taveira-Da Silva AM; Steagall WK; Moss J

Lymphangioliomyomatosis and tuberous sclerosis complex.
Lung 2008 Jul-Aug;186(4): p197-207
Chorianopoulos D; Stratakos G

Tuberous sclerosis complex presenting as a pulmonary solitary nodule.
Histopathology 2006 May;48(6): p769-71
Rossi G; Cavazza A, et al.

Lymphatic involvement in lymphangioliomyomatosis.
Ann N Y Acad Sci 2008;1131:206-14

Glasgow CG; Taveira-Dasilva AM; Darling TN; Moss J

Recurrent lymphangi leiomyomatosis after living-donor lobar lung transplantation.

Transplant Proc 2006 Nov;38(9): p3151-3

Chen F; Bando T, et al.

Lymphangiogenesis in lymphangi leiomyomatosis: its implication in the progression of lymphangi leiomyomatosis.

Am J Surg Pathol 2004 Aug;28(8): p1007-16

Kumasaka T; Seyama K, et al.

Case 5

A 47 year old man was referred for evaluation of a right upper lobe mass. He was a smoker until 6 years prior to admission. Three or four months prior to admission he noted the onset of a cough. A chest radiograph showed a mass in the right upper lobe. CT scan showed dense consolidation of nearly the entire right upper lobe with associated air bronchograms. Transbronchial biopsy performed elsewhere showed adenocarcinoma. Thoracotomy with lymphadenectomy and bilobectomy was performed.

Dx:

Bronchioloalveolar adenocarcinoma, lung

Bronchioloalveolar carcinoma and lung adenocarcinoma: the clinical importance and research relevance of the 2004 World Health Organization pathologic criteria.

J Thorac Oncol 2006 Nov;1(9 Suppl): pS13-9

Travis WD; Garg K, et al (25 additional authors!)

Prognostic analysis of pulmonary adenocarcinoma subclassification with special consideration of papillary and bronchioloalveolar types.

Histopathology 2004 Nov;45(5): p468-76

Aida S; Shimazaki H; Sato K; Sato M; Deguchi H; Ozeki Y; Tamai S

Bronchioloalveolar carcinoma of mixed mucinous and nonmucinous type: immunohistochemical studies and mutation analysis of the p53 gene.

Pathol Res Pract 2006;202(10): p751-6

Sato K; Ueda Y; Shikata H; Katsuda S

Emerging approaches to advanced bronchioloalveolar carcinoma.

Curr Treat Options Oncol 2006 Jan;7(1): p69-76

West H

Recurrent bronchioloalveolar carcinoma after lung transplantation:

radiographic and histologic features of the primary and recurrent tumors.

J Thorac Imaging 2004 Apr;19(2): p79-81

Shin MS; Ho KJ

Subepithelial myofibroblast in lung adenocarcinoma: a histological indicator of excellent prognosis.

Mod Pathol 2009 Jun;22(6): p776-85

Matsubara D; Morikawa T; Goto A; Nakajima J; Fukayama M; Niki T

Case 6

VA SP 03-1389

A 73 y/o man with history of diabetes mellitus type II, HTN, alcoholism and COPD was found to have a lung mass about 1 year prior to resection. He was a repeated 'no-show' at clinic appointments, delaying work-up & resection. He died about 6 months after surgery.

Gross description: This is a 210 gram, 17.0 x 11.0 x 4.0 cm upper lobe of the left lung. Along the medial surface is a 5.5 cm stapled surgical margin. The airways and the vessels have sutures at the end at the hilum. The pleural surface shows buckling for a length of 7.5 cm on the lateral aspect of the lung about 7.0 cm from the upper end. The cut surface of the lungs reveals a 3.5 x 3.2 x 2.0 cm white-tan lobulated tumor with dark tan areas about 1 cm from the hilar surface and 0.8 cm from the pleural surface. The tumor shows lobulated parenchyma with dark tan areas. Grossly the tumor seems to arise from the airway. The rest of the lung parenchyma is pink-tan with anthracotic pigment.

Dx:

Adenocarcinoma, lung

Pulmonary adenocarcinomas: classification and reporting.
Histopathology 2009 Jan;54(1): p12-27
Kerr KM

Prognostic analysis of pulmonary adenocarcinoma subclassification with special consideration of papillary and bronchioloalveolar types.
Histopathology 2004 Nov;45(5): p468-76
Aida S; Shimazaki H, et al.

Histological subtypes or grading of pulmonary adenocarcinoma. A histochemical and electron microscopic study.
Acta Pathol Microbiol Immunol Scand A 1983 Jul;91(4): p227-34
Rainio P; Sutinen S; Sutinen SH

Pulmonary adenocarcinoma with heterotopic ossification.
J Korean Med Sci (Korea 2009 Jun;24(3): p504-10
Kim GY; Kim J; Kim TS; Han J

Cytology of pulmonary adenocarcinomas showing enteric differentiation.
Acta Cytol 2006 May-Jun;50(3): p250-6
Satoh Y; Hoshi R; Tsuzuku M, et al.

CK5/6 in effusions: no difference between mesothelioma and pulmonary and nonpulmonary adenocarcinoma.
Acta Cytol 2008 Sep-Oct;52(5): p579-83
Dejmek A

Adenocarcinoma of lung in never smoked children.
Lung Cancer 2008 Aug;61(2): p266-9
Park JA; Park HJ, et al.

Case 7

A 72-year-old, asymptomatic, hypertensive, retired, non-smoking salesperson, 21 years status-post multiple blunt trauma to the right chest, and two years status-postoperative left modified radical mastectomy for extensive intraductal carcinoma without evidence of lymphatic metastases, was identified on a routine chest radiograph to have a 33 x 3.5 x 5.0 cm well-demarcated right middle lobe solitary pulmonary nodule. Bronchial washings and bronchial brushings were negative for malignancy, as were a transbronchial biopsy and fine needle aspiration biopsy. A right middle lobectomy was performed. Your section is from a 3.5 cm well-demarcated grayish-white mass in the right middle lobe.

Radiographs

PA and lateral radiographs showed a lobulated, homogeneous, non-calcified right middle lobe mass measuring 4 x 6 cm. Principal radiologic diagnostic considerations besides primary lung tumor (hamartoma, carcinoid, adenocarcinoma) were metastasis and arteriovenous malformation.

Dx:

Carcinoid tumor, lung

Pulmonary carcinoid tumours: a clinico-pathological study of 35 cases.

Br J Cancer 1986 Dec;54(6): p963-7

Hasleton PS; Gomm S; Blair V; Thatcher N

Prognosis in lung carcinoid tumours. Is there a difference between atypical and typical carcinoids with and without metastasis?

Histopathology 2006 Dec;49(6): p653-4

Sands TJ; Soomro IN; Chaudry ZR; Ronan J

Typical and atypical pulmonary carcinoid tumor overdiagnosed as small-cell carcinoma on biopsy specimens: a major pitfall in the management of lung cancer patients.

Am J Surg Pathol 2005 Feb;29(2): p179-87

Pelosi G; Rodriguez J; Viale G; Rosai J

Ki-67 immunoreactivity in the differential diagnosis of pulmonary neuroendocrine neoplasms in specimens with extensive crush artifact.

Am J Clin Pathol 2005 Jun;123(6): p874-8

Aslan DL; Gulbahce HE, et al.

Usefulness of CDX2 and TTF-1 in differentiating gastrointestinal from pulmonary carcinoids.

Am J Clin Pathol 2005 Mar;123(3): p394-404

Saqi A; Alexis D; Remotti F; Bhagat G

What can we learn from the errors in the frozen section diagnosis of pulmonary carcinoid tumors? An evidence-based approach.

Hum Pathol 2009 Jan;40(1): p1-9

Gupta R; Dastane A; McKenna RJ; Marchevsky AM

Immunohistochemical staining for CDX-2, PDX-1, NESP-55, and TTF-1 can help distinguish gastrointestinal carcinoid tumors from pancreatic endocrine and pulmonary carcinoid tumors.

Am J Surg Pathol 2009 Apr;33(4): p626-32

Srivastava A; Hornick JL

Case 8

A 44-year-old woman had a history of rheumatoid arthritis and progressive anemia, thought to be due to iron deficiency. She had a 60+ pack-year history of cigarette smoking, and presented with severe productive cough. She had severe exertional dyspnea and night sweats but had no documented fever. P/A and lateral chest radiograph showed a huge mass in the right upper lobe, with an air-fluid level. A chest CT-scan showed a 12-15 cm mass that was diagnosed radiographically as an abscess. A metastatic evaluation showed no evidence of metastatic tumor, and a right pneumonectomy was performed. The right upper lobe was nearly completely replaced by an abscess, with firm grayish-white tissue present toward the hilar region of the lobe; the entire mass measured about 10.0 cm in greatest dimension. The bronchopulmonary, hilar and mediastinal lymph nodes that were taken at the time of surgery showed no evidence of metastatic tumor. Your section is from the right upper lobe mass.

Dx:

Anaplastic giant cell carcinoma, lung

Giant cell carcinoma of the lung.

Postgrad Med J 1995 Sep;71(839): p562-3

Aziz SA; Ahmad M, et al.

Pulmonary giant cell carcinoma: the relation to smoking.

Br J Cancer 1989 Oct;60(4): p599-600

Depue RH; Ballard BR

Immunohistochemical features of giant cell carcinoma of the lung: patterns of expression of cytokeratins, vimentin, and the mucinous glycoprotein recognized by monoclonal antibody A-80.

Ultrastruct Pathol 1991 Mar-Apr;15(2): p131-8

Chejfec G; Candel A, et al.

Giant cell carcinoma of the lung impact of diagnosis and review of cytological features.

Diagn Cytopathol 2007 Sep;35(9): p555-9

Alasio TM; Sun W; Yang GC

Giant cell carcinoma of the lung. Report of a case with cytohistologic and clinical correlation.

Acta Cytol 1999 Mar-Apr;43(2): p263-7

Laforga JB

[Giant cell pulmonary carcinoma in a patient with HIV infection]

An Med Interna 2001 Jun;18(6): p336-7

Sopena B; Garcia-Tejedor JL; et al.

Case 9

A 52 y/o non-smoking man presented with chronic cough and hemoptysis. Chest x-ray showed a solitary, relatively well-circumscribed 3.5 cm mass in the RUL. Following excision, a full "metastatic" workup was performed, but found no other tumor.

Dx:**Pleomorphic leiomyosarcoma, lung**

Leiomyosarcoma of the pulmonary vein.
Pathol Int 2000 Oct;50(10): p839-46
Okuno T; Matsuda K, et al.

Indistinguishable genomic profiles and shared prognostic markers in undifferentiated pleomorphic sarcoma and leiomyosarcoma: different sides of a single coin?
Lab Invest 2009 Jun;89(6): p668-75
Carneiro A; Francis P, et al.

Fine-needle aspiration of soft tissue leiomyosarcoma: an analysis of the most common cytologic findings and the value of ancillary techniques.
Diagn Cytopathol 2006 Sep;34(9): p597-604
Domanski HA; Akerman M, et al.

Diagnosis and management of pleomorphic sarcomas (so-called "MFH") in adults.
J Surg Oncol 2008 Mar 15;97(4): p330-9
Nascimento AF; Raut CP

Histopathological re-classification of extremity pleomorphic soft tissue sarcoma has clinical relevance.
Eur J Surg Oncol 2004 Dec;30(10): p1131-6
Massi D; Beltrami G; Capanna R; Franchi A

Case 10

An 85-year-old retired marine machinist at Puget Sound Naval Shipyard, with a 60+ pack-year history of cigarette smoking and a history of chronic obstructive pulmonary disease and asbestos exposure, over the last several months was noted to have a left retrocardiac lung mass. This had been slowly increasing in size, and a CT-scan confirmed the presence of a 2-3 cm mass in the medial basilar segment of the left lower lobe of the lung. There was no evidence of mediastinal adenopathy, and bronchoscopy was performed that did not show any endobronchial masses. The patient had a family history of cancer. He had had a previous transurethral resection of the prostate, and had a resection of a bladder carcinoma. Wedge resection of the left lower lobe mass was performed, and a frozen section of the tumor was thought to possibly represent squamous cell carcinoma. A completion left lower lobectomy was performed. Further medical history indicated the patient had a lentigo maligna removed from his right cheek two years ago, and also had several pigmented skin lesions that were thought to represent seborrheic keratoses. Your section is from a 3.0 cm left lower lobe mass.

Radiographs

CT-scan showed a solitary, well-defined, homogeneous, 3 cm mass medially in the left lower lobe. The lesion could represent a primary lung tumor, such as carcinoid, hamartoma, or adenocarcinoma. It could be a solitary metastasis. Besides tumor, other, less likely, diagnostic considerations included granuloma and cyst. Incidental findings include large lung volume, suggesting COPD.

Dx:

Metastatic melanoma, lung

Pulmonary metastatic melanoma.

J Thorac Cardiovasc Surg 2007 Oct;134(4): p1097

Ismail MF

Isolated melanoma in the lung where there is no known primary site:
metastatic disease or primary lung tumour?

Melanoma Res 2005 Dec;15(6): p531-7

de Wilt JH; Farmer SE, et al.

Multiple ground-glass opacity in metastasis of malignant melanoma diagnosed
by lung biopsy.

Ann Thorac Surg 2005 Jan;79(1): p1-2

Okita R; Yamashita M, et al.

Primary malignant melanoma of the lung: a case report and review of the
literature.

Clin Lung Cancer 2006 Jan;7(4): p279-81

Kundranda MN; Clark CT, et al.

Staging of cutaneous melanoma.

Ann Oncol 2009 Aug;20 Suppl 6:vii14-21

Mohr P; Eggermont AM; Hauschild A; Buzaid A