PATHOLOGY AND RADIOLOGY CONFERENCE

TUMORS OF THE LUNG AND PLEURA

Cases Assembled by
THE UNIVERSITY OF TEXAS

M.D. Anderson Hospital for Cancer Research
Postgraduate School of Medicine

2310 Baldwin Street
Houston, Texas
FOREWORD

This Cancer Pathology and Radiology Conference will be jointly conducted by Dr. David A. Wood, Professor of Oncology, (Pathology), Director, Cancer Research Institute, University of California School of Medicine; and Dr. W. Edward Chamberlain, Professor of Radiology, Temple University Medical School.

Would you return the enclosed sheet (unsigned) giving your diagnoses (roentgenological or pathological as the case may be) as soon as possible so that these may be tabulated for use during the Conference. A duplicate sheet is enclosed for your personal copy. Following the meeting, you will be sent the transcribed discussions given by Dr. Wood and Dr. Chamberlain. This can be attached to the clinical data sheets enclosed herewith and will complete a pathology "tumor topic" for your future reference and information. The numbers given are those to be used by those pathologists participating in the Educational Slide Set Service in the numerical order given.

William O. Russell, M.D.
Chairman of the Program Committee
April 20, 1953
Case No. 1

Contributor: University of Texas Research Tumor Registry, M.D. Anderson Hospital for Cancer Research, Houston, Texas

W.K. Male - White - Age 67 (1950)

Clinical History:

The patient had been well prior to November, 1949, when he suffered a "heart attack", characterized by pain over the precordium. His symptoms were relieved by bed rest, "heart medicine", and cough medicine prescribed by his physician. In June 1950, he began to notice increasing shortness of breath. Fluid was removed from his chest and showed malignant cells. His cough became more severe and productive of white phlegm, during which period his appetite was poor. Past history revealed a gun shot wound in 1917; right herniorraphy in 1903; and removal of gall bladder in 1939. He also complained of asthma, present for 10 to 15 years, and "yellow jaundice" in 1940.

Physical Examination:

There was slight fullness of the left chest with limitation of motion. Dullness was noted over the lower third of the left chest with breath sounds and vocal and tactile fremitus absent in this area. Occasional dry rales were noted throughout both upper lung fields and heart sounds were distant.

Laboratory Findings:

Hematology, serology, and urinalysis were within normal limits. Sputum smears were negative for acid fast bacilli and no tumor cells were found.

Radiological Findings:

Roentgenogram done on August 9, 1950, showed a soft tissue mass at the hilus of the left lung with pleural effusion at the left base. Chest films done six months later showed the left chest completely filled with fluid with the lung airless.
Treatment:

Patient received several transfusions and was placed on triethylene melamine. In November 1950, he was ambulatory and considerably relieved of his symptoms. He was readmitted to the hospital in June 1951 with severe thrombocytopenic reaction with petechiae and ecchymoses. There was marked dyspnea. 1700 cc. of bloody fluid was removed from the left chest. His condition steadily deteriorated and he expired seven months after admission.

Gross Pathology:

At autopsy, the mediastinum contained numerous large masses of tumor tissue, apparently within the lymph nodes. Several large masses were present in the lung hilus. Section of the lung with tumor showed a large nodular tumor attached to the pleural surface and displacing it.
Case No. 2

Contributor: Marjorie J. Williams, M.D., Veteran's Administration Center, Temple, Texas

J.W. Male - White - Age 62 (1950)

Clinical History:

Since 1937 the patient had a chronic cough associated with progressive shortness of breath. These symptoms became more severe gradually. In 1947 he entered another hospital, where a tumor, originating in the main bronchus of the left lower lobe and obstructing the lumen, was detected. A left pneumonectomy was performed. The tumor was found to be situated in the lower lobe bronchus 2.0 cm. distal to its origin and the bronchial epithelium proximal to the tumor was thickened. Invasion of the adjacent parenchyma was slight and the regional nodes did not contain metastatic carcinoma. Convalescence was complicated by an empyema, which required drainage.

In March 1949 he entered the Veteran's Administration Hospital in Temple for the first time, complaining of pain in his operation scars. He was hospitalized for four months and during this time the pain subsided spontaneously. At this time a chest x-ray showed emphysema of the right lung with dense hilar markings. The patient's occupation was that of a lumberman. He had been a moderate cigarette smoker for many years. One brother had died of cancer of the stomach.

In October 1950 he entered the Veteran's Administration Hospital for the second time, complaining of weakness and a chronic cough that had recently been productive of bloody sputum.

Treatment:

Two bronchoscopic examinations were performed and mucosal changes suggestive of cancer were noted in the carina and in the stump of the left main bronchus. Bleeding points in these areas were touched with silver nitrate. On each occasion biopsies were taken and secretions aspirated for cytological study. Both biopsies were reported as showing well-differentiated squamous cell car-
cinoma and the comment was made that the changes suggested carcinoma in situ. Malignant cells were found in the secretions. Radiological examination showed increased hilar markings as the only change.

He expired six weeks after admission.
Case No. 3

Contributor: W.D. Seybold, M.D., and B.L. Newton, M.D.,
Houston, Texas

C.M.M. Male - White - Age 42 (1952)

Clinical History:

In June, 1952, the patient developed a cough with fever and malaise. Another episode of fever was reported as occurring in July, 1952. At that time, he was treated with antibiotics and the symptoms disappeared. Patient had smoked cigarettes for a number of years and had a family history of carcinoma.

Physical Examination:

There was respiratory lag of the right lung with dullness, inspiratory rales, and pain to percussion in the right infrascapular area.

Laboratory Findings:

Hematological studies were essentially negative except for suspicious appearing cells seen on Papanicolaou smear and in the cell block of the bronchial secretions.

Roentgenological Studies:

X-ray examination revealed a diffuse infiltrative lesion in the right lower lobe.

Treatment:

In November, 1952, a right pneumonectomy was performed with exploratory removal of hilar and mediastinal glands.

Gross Pathology:

Specimen consisted of the resected right lung in two parts, the lower lobe measuring 16x14x6 cm. and the middle and upper lobes measuring 15x12x7 cm. Pleural surfaces were lusterless and of the usual color. Hilar surfaces revealed enlarged lymph nodes which did not appear anthracotic. Cut surfaces of the lower lobe revealed diffuse areas of induration, grey to mottled red tan and mucoid. Two similar small areas were present in the upper lobe.
Case No. 4


F. W. C. Female - White - Age 23 (1952)

Clinical History:

Patient had had progressive headache for six weeks prior to admission. She had no other complaints with the exception of a chronic cough of several months duration, with perhaps five episodes of hemoptysis. About ten days prior to admission, she was hospitalized for five days and given blood for anemia. Three days prior to admission, she returned home apparently somewhat improved, however two days before admission, she could be aroused in the morning only with difficulty. Chief complaint at time of admission was semi-coma, having been present for several days.

Physical Examination:

Physical examination revealed a markedly emaciated and dehydrated young woman, extremely drowsy, who could converse only with difficulty. There was mental depression and a fixed and dilated right pupil with some slight blurring of the nasal margin of the right disc. There were bilateral Babinski's present and there was moderate hemiparesis of the right upper extremity. In addition there was a slight rigidity of the neck, but this was not marked.

Laboratory Findings:

Lumbar puncture revealed slightly xanthochromic fluid. The protein was 54 mgm%. There were only two lymphocytes in the fluid. The pressure was within normal limits.

Roentgenological Studies:

X-ray of the chest showed a very large, circular mass lying in the right mid-lung extending from the right cardiac border to the periphery, indicating a peripheral origin of this tumor. Skull films were not remarkable.
Treatment:

A right subtemporo decompression was performed. The brain was markedly tense and on opening the dura, it herniated out into the wound. A needle introduced into the temporal lobe aspirated yellowish brain tissue. This was interpreted by the pathologist as necrotic brain. The patient expired several hours after surgery.

Gross Pathology:

Pertinent pathologic changes were in the lung and the brain. The right lung weighed 1000 grams. A mass was palpated in the lateral posterior part of the right lower lung. This measured approximately 8 cm. in diameter. On section a large part of the tumor was necrotic. In most areas it was clearly delimited from the surrounding tissue by a 3 to 4 mm. fibrous appearing capsule. The tumor was soft and a mottled grey-red hemorrhagic color. No definite relationship to the major bronchi was noted. There was atelectasis of the remaining part of the lobe with focal areas of fibrosis. A complete examination of the tracheal bronchial tree was not remarkable.

There was recent hemorrhage in the area of the right frontal lobe, at the operative site. There was softening of the brain in this area and a large hemorrhagic appearing mass of soft tissue measuring 5 cm. in diameter permeated through the softened cortex. Further sectioning showed that the tumor mass was moderately firm and separated from the brain tissue easily. It appeared to be surrounded by a zone of reaction suggesting a capsule. Section through the tumor mass showed a mottled grey and red hemorrhagic appearing tissue.

The slide contains sections of the lung and the intercranial tumor.
Case No. 5

Accession No. 326001

(No Initials) Male - White - Age 59 (1951)

Clinical History:

This middle-aged farmer was first seen in December 1948 with a diagnosis of pneumonitis of the right lung. Pneumonectomy was done one year later. The patient was asymptomatic until he re-entered the hospital in March 1951. He stated that he had been ill with temperatures of 99 to 101, and that he had had persistent diarrhea for two months since the onset of this illness. He complained of flushing and swelling of his face, a slight tremor in his hands, and excessive perspiration.

Physical Examination:

Findings were negative with the exception of profuse perspiration, cold hands, and a fine tremor of the outstretched fingers.

Laboratory Studies:

Glucose tolerance was abnormal, BMR's were plus 26 and plus 27. Urinalysis and hematology were normal.

Radiological Examination:

Pre-pneumonectomy films showed an area of increased density in the right cardiophrenic angle with slight elevation of the right hemi-diaphragm with the appearance of slight atelectasis.

Treatment:

Small amounts of insulin failed to relieve the symptoms. His course went steadily downhill and he expired in September 1951.

Gross Pathology:

The pleura had some fibrinous adhesions over the lower lobe. Section of the three lobes revealed atelectasis of the lower lobe. The parenchyma of the lower lobe appears to have an
increase in the fibrous tissue. The bronchi were dilated. The lower lobe bronchus had a soft, pinkish grey mass within the bronchus which measured 2 x 2 cm. The tumor did not seem to invade the surrounding lung parenchyma but seemed to be fairly well circumscribed.

The slide contains two pieces of tissue; one is lung tissue from the pneumonectomy section; the second is liver from the autopsy tissue.
Contributor: Armed Forces Institute of Pathology, Washington, D.C., Accession No. 186537

(No initials) Male - White - Age 51 (1946)

Clinical History:

This tumor occurred in a 51 year old white man with a history of pneumonia on three separate occasions and a suspicion of effusion or empyema with one of those attacks at the age of 12. Pneumonia had last been recorded in 1917 when the patient was 23 years of age and at that time involved the upper lobe of the right lung. During an attack of "influenza" in 1942, a roentgenogram of the chest revealed an unexpected mass which increased somewhat in size, but produced no symptoms during the four years that elapsed before it was removed in 1946.

Treatment:

At operation the tumor was seen in the interlobar fissure between the upper and middle lobes and it was easily removed.

Gross Pathology:

Grossly, the tumor measured 10 x 3.5 x 7.5 cm.; it was firm, somewhat nodular, and much of the cut surface resembled a uterine fibroid. Some areas were reddish brown, soft and edematous and at the center of the tumor a few foci of cystic degeneration were apparent.
Case No. 7

Contributor: Jarrett E. Williams, M.D., Hendrick Memorial Hospital, Abilene, Texas

G.C. Female - White - Age 45 (1952)

Clinical History:

In 1945, the patient noted fever, chills, general malaise, and a persistent cough which was productive of a mucoid white, non-purulent sputum. X-ray disclosed what was interpreted as an upper mediastinal mass (these films have been lost). An unknown amount of x-radiation therapy was applied with regression of the symptoms. The patient was comparatively free of symptoms until seven years later when she was again given x-ray therapy with apparent improvement. Her chief complaints during her illness were dyspnea, not produced by exertion, a brassy non-productive cough, hoarseness, and afternoon temperature rise.

Roentgenological Studies:

Chest films done in April 1952 showed an area of consolidation in the right middle lobe area with very slight infiltration at the upper and lower lobes near the middle lobe border. Eight months later, an increase in the extension into the lower portion of the right upper lobe and the upper portion of the right lower lobe was noted.

Treatment:

Patient received nearly all antibiotics and stated that greater relief was obtained from triple sulfa. Bronchoscopy was performed in April 1952 and showed no evidence of blockage of the middle lobe orifice. There was no tumor or evidence of ulceration. Bronchoscopy was repeated eight months later. Several large, firm, membraneous-appearing clumps occluding the right intermediary bronchus were removed with considerable difficulty. Marked improvement was noted in her breathing. Right pneumonectomy was decided upon and performed a short time later. Progress was excellent with only one episode of her former symptoms during the ensuing fourteen months to date.
The removed right lung was firm and smaller than normal. The interlobar fissures were obliterated by dense fibrous adhesions. The pleura showed numerous shaggy, fibrous adhesions. On section, firm areas of consolidation were found in the upper, middle, and lower lobes. These were most numerous in the middle and lower lobes. Coalescing nodules formed large areas of pulmonary consolidation in which many had a central area of a lighter homogenous grey white tissue. Generally, the nodules were a grey white color. Several hilar lymph nodes were enlarged and showed their replacement with the same type of grey white tissue.
Case No. 8

Contributor: L.V. Ackerman, M.D., Barnes Hospital, St. Louis, Mo.

P.C. Female - White - Age 40 (1952)

Clinical History:

Patient had a thyroidectomy four years ago, apparently for a nodular toxic goiter. At that time a routine chest film showed "a spot on the lung". In about July 1952, she had x-rays by a mobile unit and she was told that she had a lesion in the right lung, lower lobe. She had no pulmonary symptoms - no cough, hemoptysis, dyspnea, or sputum. According to her local physician, the comparison of films from 1948 to the ones in July, 1952 disclosed a slight enlargement of the lesion. The rest of the clinical history and physical examination were essentially non-contributory.

Roentgenological Findings:

Films were made at Barnes Hospital on September 29, 1952 and read as follows: "Posterior anterior on right lateral views of chest - There is a round, circumscribed, 1 cm. in diameter density, which lies in the right lower lung field and is situated posteriorly in the right lower lobe. There is some suggestion that there may be calcium within this density. There is no evidence of hilar adenopathy nor evidence of atelectasis. The pulmonary lung fields otherwise are clear. The cardio-vascular contours are within normal limits. It would be of great value to have a laminagraphy to determine whether calcium is present within this density or not."

Treatment:

The patient had an exploratory thoracotomy on October 1, 1952 and wedge resection of the right lower lobe was performed. The patient had an uneventful recovery and left the hospital 12 days after surgery.
Gross Pathology:

The specimen consisted of the apical division of the lower lobe of the right lung and a tumor mass attached. The mass was round, well demarcated, 2.5 cm. in diameter, lobulated, firm, pearly white and appeared to be cartilage. Cut sections revealed no evidence of hemorrhage or necrosis. The portion of the lung measured 2.5 cm. in length.
Contributor: Robert A. Burger, M.D., Memorial Hospital, Houston, Texas, and Howard Barkley, M.D., Memorial Hospital, Houston, Texas

R.C.J. Male - White - Age 61 (1952)

Clinical History:

This patient had a back injury of about 40 years duration, with some recurrent discomfort. He had an x-ray of the back in February 1951, and again in October 1952, for this complaint and on the last film, a lesion was noted in the lower portion of the right lung. On review of the films, the same mass was found in the February 1951 films. There was no cough, pain, elevation of temperature or any other symptoms referable to the chest. Weight was constant at 150 lbs. He had had pneumonia on two occasions several years ago.

Physical Examination:

The only significant physical finding was a short, blowing systolic murmur in the aortic region.

Laboratory Findings:

Results of routine hematological, serological, and urinalysis examinations were essentially negative.

Roentgenological Examination:

There was a small rounded soft tissue mass, 2.5 cm. in diameter in the posterior part of the lower lobe of the right lung.

Treatment:

A right thoracotomy was performed, at which time a small subpleural tumor, which did not appear attached to the pleura, was found in the right lower lobe, posteriorly. The mass was well circumscribed and lay in the pulmonary parenchyma. This was removed without difficulty. Postoperative course was uneventful.
Gross Pathology:

Specimen consisted of an oval, well demarcated mass 2.9 x 2.4 x 2.2 cm. The surface was smooth and pink. The tissue cut with marked resistance and the cut section was glistening white with a whorled appearance.
Contributor: Franz Leidler, M.D., Veteran's Administration Hospital, Jefferson Barracks, Mo.

R. P. K. Male - White - Age 60 (1952)

Clinical History:

Patient was admitted on May 8, 1952 with left upper chest pain of ten months duration. He had lost 25 pounds in the last year and complained of increasing weakness over a two year period. He had had no hemoptysis and only a moderate amount of mucoid sputum.

Roentgenological Studies:

X-ray examination revealed a posterior mediastinal mass just to the right of the spine, with erosion of the 4th rib, posteriorly.

Treatment:

The patient was explored on May 15, 1952 and a tumor excised along with posterior segments of the 4th and 5th ribs. The 4th nerve root was dissected with the tumor.

Gross Pathology:

Specimen consisted of an 8 cm. segment of the fifth rib, together with attached intercostal muscles, the fifth intercostal nerve and intercostal vessels. In the course of the fifth intercostal nerve near the posterior extremity of the rib was a large, almost spherical, encapsulated mass measuring 4.5 x 4.5 x 3.5 cm., firmly bound to the fifth intercostal nerve. The fifth intercostal nerve was seen coursing through the fibrous capsule of this mass. Its posterior extremity, together with the dorsal root ganglion, was identified. Branching from the posterior extremity of the fifth intercostal nerve were two fibrillar bands of yellowish white tissue, the larger of which measured 1.5 mm. in diameter and the smaller 0.5 mm. in diameter, which communicated with a bulbous enlargement and a second fibrillar structure which entered the substance of the above described nodule. It was from
this latter fibrillar structure that the nodular mass apparently arose. Cut section through this mass revealed it to be composed of irregular strands of interlacing yellowish grey fibrillar tissue which in many areas formed small lobulations ranging in diameter between 6 and 18 mm. An excavation was observed in the posterior 3 cm. of the rib on its internal surface in the region of attachment of the above described spherical mass.
Case No. 11

Contributor: University of Texas Research Tumor Registry, M.D. Anderson Hospital for Cancer Research, Houston, Texas

E.K. Female - White - Age 49 (1952)

Clinical History:

Following a slight cold, the patient developed a frequent cough and was told that she had "bronchitis". Two months after this illness, she noticed marked shortness of breath on exertion. She had another cold a month later with chest pain and was given penicillin. She gave a history of having a small, colorless lesion removed from under her eye (unknown date).

Physical Examination:

General condition was good. On auscultation, rales were heard over the right mid-lung region and over the right lower base of the lung.

Radiological Findings:

The conclusion on chest films done in October, 1952, was diffuse coalescent pulmonary metastases, primary site undetermined.

Treatment:

Bronchoscopy was performed in November, 1952, and no lesions were found in the main tracheobronchial tree. Dyspnea was still present and there was some cyanosis of the nailbeds. Nitrogen mustard therapy was administered with little relief of symptoms. Because of the unrevealing results of bronchoscopy, biopsy and diagnostic thoracotomy was recommended. This was performed in December, 1952, and small tumor nodules from the surface of the lung were removed. The patient showed slight improvement but still complained of pain over the area of incision.

Gross Pathology:

Two nodules of firm, granular, grey white tumor were seen in the lung tissue removed which measured 1 cm. in diameter.
Case No. 12

Contributor: John H. Childers, M.D., The University of Texas Medical Branch, Galveston, Texas

C. McC. Female - White - Age 26 (1952)

Clinical History:

This patient stated that in September, 1951, she had an acute upper respiratory infection which was followed one week later by precordial pain. The pain radiated down the left arm. In January, 1952, edema of the trunk from the abdomen downward and edema of the lower extremities was first noted. This was associated with dyspnea. Paroxysmal nocturnal dyspnea was noted in February, 1952. At this time, hemorrhagic fluid was removed from the pericardial sac. The venous pressure was increased.

Physical Examination:

The patient was in respiratory distress with breath sounds absent below the 9th rib on the left and harsh above this rib. The liver was enlarged and extended to the pelvis. Shifting dullness was present in the abdomen. Venous pressure in the arm was 32.5 and 28.5 cm. of water.

Roentgenological Findings:

Radiological examination of the chest in December, 1952, revealed a pleural effusion and opacity of the lower portion of the upper lobe and upper portion of the left lower lobe. Fluoroscopy showed poor movement of the diaphragm on the left. Pulsations of the right contour of the heart and at the level of the aortic knob appeared considerably decreased in intensity. Pleural effusion was present in the left chest. Repeated x-rays showed a thickening of the pericardium.

Laboratory Findings:

Many pericardial paracenteses were done for the relief of the symptoms. Examination of this fluid revealed no acid fast bacilli. Cell blocks on five occasions revealed red blood cells, mesothelial cells, and polymorphonuclear neutrophiles.
Treatment:

On September 9, 1952, a pericardecctomy was performed. The resected portion of pericardium measured 5 mm. in thickness. Much improvement was noted until symptoms recurred in November, 1952. One month later, the pericardium was again explored through the left chest. A thickened, greyish white firm pleural surface was noted over the lower lobe of the left lung, adjacent to the myocardium at the site of previous removal of the pericardium. Portions of this tissue were removed. Medications have included penicillin, aureomycin, streptomycin, and p-amino-salicylic acid.

Slide contains sections of pleura.
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Dr. David A. Wood and Dr. W. Edward Chamberlain  
May 15, 1953

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Please complete and mail your diagnosis in the enclosed envelope. 

**DO NOT SIGN YOUR NAME.** Results will be used for general discussion at the Conference.

I am a: Pathologist  
Radiologist

Please check one above.
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I am a:  
Pathologist  
Radiologist

Please check one above.