SEMINAR ON BONE TUMORS

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MISSOURI DIVISION

March 7, 1964

GIVEN BY

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AND

Gwilym S. Lodwick, M. D.
Professor & Chairman
Department of Radiology
University of Missouri Medical Center

AT

Cochran Veterans Hospital
915 North Grand Blvd.
St. Louis, Missouri

Registration begins at 8:00 A. M.
Seminar begins at 9:00 A. M. Sharp

DIAGNOSES

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Please list your diagnoses on this page and send to:
Dr. David C. Dahlin
Department of Surgical Pathology
Mayo Clinic
Rochester, Minnesota

DIAGNOSES

Dr. Lodwick's Diagnosis	Dr. Dahlin's Diagnosis
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Case #1

This patient was a 12 year old colored female. Six months ago she sustained an injury which resulted in fracture of the left ankle and injury of the right femur. The femur was not X-rayed at that time. For the past three months she has had a painful swelling of the femur which has gradually enlarged.

The physical examination revealed a large, indurated swelling on the inner aspect of the right thigh. This was slightly tender. There was limitation of motion. Roentgenograms revealed a destructive lesion in the right femur with periosteal bony growth.

The lesion was biopsied following which a hip disarticulation was performed.

Case #2

In July of 1962 this 29 year old white female patient sought medical attention for disability of her right wrist and hand. Seventeen years prior to this, when she was eleven years old, a "giant cell tumor" was removed from the right lower radius and was followed by treatment with radium, in another hospital. Seven years later, resection of the distal end of the ulna was done because it had outgrown the radius.

In the following ten years she did fairly well, except for some trouble with the scar where the radium was applied. Several times, since the original operation, she had some blisters on the scar and always had some swelling and edema of the hand and fingers, distal to the operative site. Six months prior to her first hospital admission in September 1962, pain, swelling, and edema were increasing in severity. The pain was in the dorsum of the wrist. A roentgenogram of the wrist at that time in Ashland, Kentucky showed definite recurrence of the tumor. Physical examination revealed no motion of the involved wrist, and swelling and edema were marked. Radial pulse was absent. The scar was 1.5 x 2 inches, hard, thick and pitted in places. Skin and bone biopsy in September 1962 showed radiation osteitis.

In October 1962, she was back in the hospital for removal of the scar and skin grafting. In November 1962, the graft showed considerable enlargement and thickening with swelling of the hand and eventual marginal necrosis about suture lines. An amputation was finally decided upon and this was done in April 1963. Following examination of the amputation specimen (Slide 2A) and elective above the elbow amputation was done at the same time. She had done remarkably well postoperatively, except for restricted motion of the shoulder which required physiotherapy.

Three months prior to her October 1963 admission she noticed a mass in the right axilla which was small and nonpainful. On November 9, 1963 a forequarter amputation was carried out (Slide 2B).

Case #3

In July 1963 a knee cartilage was removed from this 13 year old female and at that time the roentgenographic findings were negative for tumor. However, the patient was unable to rehabilitate and continued to have a flexion contracture with almost no motion in the knee joint. The knee remained stiff and swollen and follow-up roentgenograms in November 1963 revealed an enlarged area of radiolucency along the inferior articulating portion of the condyle of the femur which was devoid of bony architecture. Around this there was a zone of sclerotic change. The joint surface did not appear to be completely destroyed.

The patient was operated upon through the knee joint. The lesion was curetted and the fragments were submitted for pathological examination.

Case #4

The patient is a 33 year old housewife who complained of intermittant pain in the right chest. The pain was not related to breathing or coughing. In addition, she noted a lump over one rib. There was no history of trauma.

On physical examination there was a palpable, indurated, tender mass on the 8th right rib.

Roentgenograms revealed two expanded cystic areas in the posterior and mid-axillary lines. The roentgenograms of the skull, long bones and shoulder girdle were negative.

The gross specimen consisted of a rib containing two areas of enlargement over which the cortex was thinned and was easily broken.

Case #5

The specimen was obtained from a 12 year old virgin female dog of mixed breed. The animal was noted to have a rapidly enlarging breast mass which had developed over a period of several months.

The specimen consisted of a small amount of skin, including the nipple, which was attached to a tumor mass measuring 70 mm. in greatest dimension. The mass was nodular and hard and it had a grayish white color.

Case #6

The patient was a 27 year old white female. She complained of pain in the left knee about five days before admission. Examination revealed some swelling of the knee. Several days later she complained of pain in the lower medial aspect of the left thigh. Roentgenograms revealed a tumor mass which had deposits of calcium scattered through it. The mass was palpable. It measured approximately 3 inches in diameter and was tender to palpation and was freely movable.

Operation revealed the tumor to be within muscle. It was thought to originate in muscle.

Case #7

This patient was a 19 year old white female. She was admitted to the hospital with a two week history of pain on the left side of the chest, radiating to the right shoulder. Past history was not remarkable. Roentgenograms of the chest taken two years ago were negative. On physical examination, there was marked tenderness in the left side of the chest posteriorly. The chest was symmetrical. The patient had a low grade pyrexia.

Roentgenograms of the chest, at this time, revealed a large, somewhat semicircular, homogeneous density in the posterior third of the left chest with poor definition of the entire left dome of the diaphragm.

A thoracotomy was performed and a large mass was found. This was attached to three ribs by a broad base. The mass and its rib attachment were excised en bloc.

The gross specimen consisted of a tumor mass measuring 13Cm. in diameter. It appeared well encapsulated. The lesion was cystic and had many large necrotic areas. The lesion eroded the central rib.

Case #8

The patient, a 55 year old female, was admitted with a bleeding lump of the left elbow. She stated the mass had been present for two years following a fall. The lesion had grown rapidly with active bleeding and pain recently.

Physical examination showed muscle atrophy of the left shoulder with limitation of movement of the left elbow. There was a large, bleeding 5 x 8 Cm. mass in the left elbow posteriorly.

Radiographic examination of the left elbow showed a large, soft tissue mass. There was destruction of a 6 or 8 Cm. segment of the proximal ulna with only a small fragment remaining of the olecranon process. There was considerable demineralization of the surrounding bone and suggestive erosion of the radius as well as the capitellum of the humerus.

A biopsy was done followed by amputation.

Case #9

This 19 year old white male was in good health until 1954 when he noted enlargement of the left leg. No pain or tenderness was noted. He was hospitalized in 1955 and was told he had a "bone cyst". He was operated upon and the cyst was "scraped out". He was told that not all of the tumor was removed. He underwent another operation and did well until one year later when another roentgenogram was made and he was told that he had a recurrence. No definitive therapy was conducted until referral to the University of Missouri Medical Center in 1959.

On physical examination there was enlargement of the distal left thigh with no limitation of motion. A review of the films taken in 1955 revealed a destructive cyst-like process in the distal metaphysis with destruction of the medial cortex and evidence of new bone formation in the soft tissues posteriorly. The roentgenograms taken in 1959 revealed marked progression of the disease process. There was growth of tumor into the soft tissues in the medial and posterior aspects of the mid-femur with multiple areas of new bone formation.

The left lower extremity was disarticulated following biopsy. The slide is from this operative specimen.

Case #10

This 14 year old female noted a mass in the right buttock following a fall two weeks prior to admission to the hospital. This was associated with pain which was aggravated by movement.

On physical examination, there was a 2 x 2 inch mass which seemed to be attached to the right iliac crest. Physical examination was otherwise unremarkable. Roentgenograms revealed a destructive process involving the entire iliac bone.

The lesion was biopsied.

Case #11

This 17 year old female was admitted January 2, 1963 complaining of a mass which had appeared over the right lower posterior rib cage within the past three weeks. It had grown larger and had been painful. The routine laboratory work was not remarkable. The roentgenograms of the chest, lumbar spine, right ribs and an IVP were normal. Gallbladder and complete GI series were negative. A biopsy was made over the rib cage. It was thought that the tumor most probably arose from a rib. (Slide 11A).

Several days later a thoracotomy was performed for the purpose of resection of the 7th rib on the right side. At that time a very extensive tumor infiltration was found around the vertebral column and within the muscles of the thoracic area. The tumor was not resectable, and a biopsy was taken (slide 11B).

The patient was treated on an out-patient basis by the radiotherapy department. The response was rather good. The patient did not develop paralysis. She did fairly well until mid-April when she developed marked abdominal swelling and pain. She was admitted with a swollen abdomen resembling a term pregnancy. The admission white blood count was 6,000/ Cu. mm. with 84% Segs., 14% Lymphs, and 2% Stabs. Hemoglobin 10.2 grams %. The patient developed some deviation of the right eye and it was thought that this may have tumor extension. The patient progressed rapidly downhill and expired May 25th. 1963.

Autopsy examination was refused.

Case #12

This 28 year old white male patient was admitted on October 29, 1963 with the history of having slipped and fallen on the floor while at work. Following the fall he complained of pain in the area of the left anterior-superior iliac spine.

Roentgenogram showed avulsion of the inferior spinous process of the left ileum and the presence of a cyst or tumor.

Treatment consisted of excision of the tumor which grossly was intensely hemorrhagic.

Case #13

This 75 year old female had a chief complaint of backache. Eleven months ago she began experiencing back pain which became progressively worse. She subsequently developed pain in the hip with difficulty in walking. There had been a 21 pound weight loss.

There was no evidence of anemia and no Bence-Jones protein in the urine. The hemoglobin was 11.0 grams %, hematocrit 32% and white blood count 6,800/ Cu. mm. with a normal differential. The total protein was 8.8 grams % with 2 grams % albumin and 6.8 grams % globulin. The alkaline phosphatase was 3.8 B. U. Serum filter paper electrophoresis revealed a marked elevation of gamma globulin with a dense homogeneous band in the gamma fraction. The roentgenograms revealed multiple osteolytic lesions.

The slide is a section of bone marrow aspirate.

Case #14

This 68 year old woman had complained of pain in the left knee for five or six months. The original diagnosis was osteoarthritis.

The roentgenogram showed periosteal reaction and medullary destruction. The knee was explored.

Case #15

A 52 year old white woman had had pain in the left pelvis for one year. At abdominal exploration a specimen was removed from a tumor which filled the left side of the pelvis. Roentgenograms showed lesions of left femur and ischium. Material on section submitted is from the lesion of the ischium.

Case #16

A 22 year old man registered with the complaint of "low back pain" of three years duration. It was intermittent but progressively becoming worse and more frequent. On examination there was tenderness over the left part of the sacrum and a mass attached to the anterior surface of the sacrum was palpable. Roentgenograms showed a "destructive process" in the lower sacrum mainly on the left.

Case #17

A 15 year old white boy registered in July 1960 having had pain in right buttock for one year. In February, 1960 he had had curettage and grafting for a tumor of the ischium and pubis. On registration the "lesion was asymptomatic as far as the boy was concerned". Roentgenograms revealed a large expanding lesion of the right pubis and ischium. The lesion was excised.

Case #18

A 30 year old colored man had noted tender swelling above his right knee for two months. Roentgenograms "suggested a giant cell tumor" and frozen sections appeared to corroborate this. Additional material was then curetted from the lesion.

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MISSOURI SOCIETY OF PATHOLOGISTS

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March 7, 1964

Diagnoses

Dr. Lodwick's Diagnoses	Dr. Dahlin's Diagnoses
1. Ewing's Sarcoma	Osteogenic Sarcoma ✓
2. Osteogenic Sarcoma	Osteogenic Sarcoma ✓
3. Benign Chondroblastoma	Benign Chondroblastoma ✓
4. Fibrous Dysplasia	Fibrous Dysplasia ✓
5. No Roentgenogram	Osteogenic Sarcoma in mixed tumor, breast of dog ?
6. Myositis Ossificans	Myositis Ossificans ✓
7. Ewing's Sarcoma	Ewing's Sarcoma ✓
8. Fibrosarcoma	Anaplastic Fibrosarcoma vs. reticulum cell sarcoma
9. Chondromyxoid Fibroma	Chondromyxoid Fibroma ✓
10. Chondrosarcoma	Chondroblastic Osteogenic Sarcoma ✓
11. Roentgenograms not applicable	Malignant Lymphoma ✓
12. Aneurysmal Bone Cyst	"Brown" tumor of hyperparathyroidism? ✓
13. Multiple Myeloma	Multiple Myeloma ✓
14. Fibrosarcoma	Fibroblastic Osteogenic Sarcoma ✓
15. Fibrous Dysplasia with secondary malignancy, probably fibrosarcoma	Chondrosarcoma ✓
16. A benign lesion, probably Chordoma	Osteoblastoma (Giant Osteoid Osteoma) ✓
17. Giant Cell Tumor	Aneurysmal Bone Cyst ✓
18. Osteogenic Sarcoma or Fibrosarcoma	Osteogenic Sarcoma ✓