FOURTH SLIDE SEMINAR ON UNUSUAL TUMORS

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Moderators

Memorial Hospital, New York City

Nurses' Auditorium
Presbyterian Hospital
27 So. 9th St.
Newark 7, N.J.

Saturday, December 11, 1954, 2 P.M.

Slides prepared in the Bureau of Pathology
N.J. State Dept. of Health

Tumor material supplied through courtesy of
Drs. Stewart and Foote

Members are requested to study the slides submitted
and return their voting sheets before Nov. 29, 1954.

Please bring this folder with you to the meeting.
Case #1

Section #NJ6252

(M-54-11610)

Y.P. Female - White - Age 28 (in 1954)

Clinical History: In October 1953 this patient tripped and sprained her left ankle. Swelling developed in the dorsum of the foot. She saw a physician who advised ice compresses. No roentgenogram was done. Some but not all of the swelling subsided and the dorsum of the foot became black and blue. In January 1954 her physician had x-ray plates taken and these showed a lesion of the 5th metatarsal. Following this a biopsy was done and a diagnosis was made of giant cell tumor.

She was seen on the bone service of Memorial Hospital on 5-5-54. Previous films and biopsy were reviewed and the diagnosis of giant cell tumor confirmed. The patient was in the 8th month of pregnancy and she was desirous of going to term, deferring recommended surgical treatment. She was admitted to the hospital on 7-24-54. The swelling of the dorsum of the foot had increased. Films of the chest were negative.

On 7-29-54 the 5th metatarsal, tumor and digit were resected.

Gross Pathology: In summary the head and much of the shaft of the 5th metatarsal were replaced by a tumor mass 6 x 3 x 3 cm. The tissue was cellular soft and gray with scattered hemorrhages. Small bony spicules were distributed through the tumor.
Case #2

Section #NJ4212 (M-54-10951)

N.F. Female - White - Age 42 (in 1954)

First seen at Memorial Hospital 7-16-54

Clinical History: On the above date this patient complained of soreness in the left thorax and back and of intermittent pain in her right hip. She was unable to remain erect for long periods. She dated her illness to 1952 when she was in the tropical climate of Colombia worn out from work. She was then found to have anemia and was treated with B12 and liver; also with hormones because of menstrual irregularity. She had pain at her right costal margin which she thought related to a prior gallbladder operation. She was advised to return to the U.S. for a year's rest. In June '53 she had a check up in Pennsylvania for pain in her right side. No positive findings were reported. In November 1953 she first had pain on moving her right hip. This caused her to limp. The hip pain would last a few days and disappear for a few weeks, then return. In March 1954, a physician credited her right sided pain to a slipped cartilage. She saw various physicians.

In June 1954 x-ray studies were done. These showed discreet localized lytic areas in the left ileum as well as the right. On the right the anterior rim of the acetabulum was involved and lytic lesions were found in the neck and greater trochanteric regions of the right femur. She left for Barranquilla and was quite ill on arrival with a cold. She was hospitalized and during this stay a biopsy was done of the right sixth rib. The conference slide was prepared from this material.
Case #3

Section #NJ4161
(M-54-9622)

F.R. Female - White - Age 2 (in 1954)

First seen at Memorial Hospital 4-19-54

Clinical History: When this baby was six months old her mother first noted blood streaks with mucus in the child's stools. This was not associated with diarrhea or constipation. A pediatrician was consulted and he attributed the findings to a rectal fissure. Later, the child began to have a bloody discharge from the rectum without accompanying stools. The pediatrician was again consulted and he stated that she had polyps which would clear up at age three. The situation continued and in December, 1953 in addition to the bleeding, the child's rectum began to prolapse on bowel movements.

The baby was one of identical twins. The twin was not similarly affected.

Local digital examination of rectum was not revealing. Barium enema showed polyposis of the lower sigmoid and this was confirmed by proctoscopy. Several of the polypoid projections were snared off at the seven inch level but the upper limits could not be reached.

The child was discharged after several days but readmission was planned in view of known residue of disease. Further barium enema and fluoroscopy studies were done in May 1954 to map out the full distribution of the polyps. In June there was more rectal bleeding. The patient was readmitted and on 6-23-54 sigmoidectomy was carried out.

Gross Pathology: Segment of colon 9 cm. long. When opened there are about a dozen, raised, single but closely connected polypoid nodules about 1 to 1.5 cm. in greatest measurement. These polypoid projections extend to within 2.5 cm. of one resection margin and 1.5 cm. of the other. Their surfaces look smooth, pale brown and several appear blood stained but not definitely ulcerated. They no doubt cause partial obstruction. The lesions are confined to the mucosa and the submucosa and muscular coats are uninvolved.
Case #4

Section NJ4L253 (H- J-3842)

N.H. Female - White - Age 41 (in 1937)

Clinical History: In August 1935 she first developed a painful lump in the right hip and thigh. This gradually enlarged. X-ray films were taken and these disclosed a soft tissue mass. In September 1936 a local surgical excision was done. Pathological report was made of fibrosarcoma. In June 1937 she noticed a recurrent lump, moderately painful, at the upper end of the scar. She was referred to Memorial Hospital for further treatment.

On 7-27-37 there was a recurrent mass 12 x 12 x 6 cm. in the region of the greater trochanter and the lateral border of the thigh, rather deeply fixed. In the right groin was a firm solitary node 3 x 2.5 cm. which the examiner considered metastatic.

Sections of the original tumor were reported by Dr. Stewart as a radioresistant spindle cell sarcoma which he definitely considered malignant synovioma.

Treatment: The patient was considered inoperable. Films of the chest were negative. She was outlined for radiotherapy - 200 KV machine, 1/2 mm copper filtration, TSD 50 cm. Two portals were employed, right thigh anterior (13 x 13 cm.) and lateral (15.6 x 10.3 cm.). Treatments were delivered in single daily fractions of 250 r and each field received 4500 r. There was remarkable regression and at the end of the cycle of x-ray therapy there was no palpable tumor.

Follow-Up: In succeeding years there were numerous clinical and roentgen examinations with no further evidence of tumor. She developed post-roentgen skin changes and in 1944 she had a fracture of the right femur presumably on a basis of radiation osteitis. This did not heal well and for years she had to use crutches due to repeated pathological fractures occurring within the area of former x-ray treatment. This situation continued through 1952. She had one follow-up examination in 1953 with no new findings.

In June 1954 patient came in on a stretcher. She complained of weakness and nausea. She stated she had been her usual self until two months ago when there was an episode of hematemesis. Seven weeks later this was repeated. She had recently made x-ray films of chest which showed a large mass in the left hemithorax with evidence of pleural effusion. Physical examination revealed no significant findings at the site of former treatment.

The patient was admitted to the hospital on 6-21-54 and an extensive work-up carried out. To summarize, a thoracotomy was done on 7-30-54. There was a rubbery, solid and cystic, encapsulated tumor 12 x 8 cm. apparently arising in the posterior mediastinum, adherent to descending aorta, attached to thoracic wall posteriorly and to the upper and lower lobes anteriorly. The mass was not resectable. A specimen of the tumor was obtained and from this the conference sections were prepared.
Clinical History: This patient consulted his physician on October 6, 1949 with a chief complaint of pain in the right shoulder for 24 hours. It was dull, steady and not radiating, severe enough for him to quit work. It was not influenced by breathing, exercise or arm motions. He had no cough or dyspnea. Physical examination at this time was not revealing. A tentative diagnosis was made of gallbladder or cardiac disease. He was advised to enter the hospital for a full work-up but he declined.

On December 9, 1949 he returned stating he was having a similar attack. The first had lasted three days. He then stated he had had an intervening attack. He complained of malaise, headache and generalized body aching in addition to the shoulder pain. He had fever, 100.4 by mouth. Recently he had noted that on deep inspiration he had discomfort which extended from the right cervical region through the right side of the chest to the epigastric area. Patient was admitted for work-up. X-ray of the chest disclosed a moderately large tumor in the anterior mediastinum. On fluoroscopy the radiologist did not demonstrate expansile pulsation. Other studies were done--gallbladder series, barium enema, G-I series, and I-V pyelograms as well as esophagogram. Consensus of staff conference opinion was that the anterior mediastinal lesion was a dermoid. Exploration of the chest was recommended and he was referred to Memorial Hospital.

Treatment: On 12-22-49 thoracotomy was done. Within the anterior mediastinum just to the right and behind the sternum was a mass about 8 cm. in vertical and 5 cm. in A-P and transverse axis. It was lobulated and hard and could not be readily separated from the right mediastinal pleura or from the anterior surface of the superior vena cava. The tumor was removed by sharp dissection.

Gross Pathology: Roughly oval, rather well encapsulated mass 7 x 5 x 4 cm. On section capsule ranges from 1-2 mm. thick and looks edematous. Tumor for most part is rubbery with some areas that are firmer. Tumor is made up of three large lobulated components that look alike being grayish-white with areas of yellow necrosis. There are scattered areas of old and recent hemorrhage.
Case #6

Section #N34271 (W-50-5180)

M.S. Male - White - Married - Age 60 (in 1947)

First seen at Memorial Hospital - March 25, 1947

Clinical History: In March, 1946, this patient noticed a swelling in the lumbosacral region to the right of the midline. He saw a physician who made a diagnosis of benign cyst. In January, 1947, he slipped on the ice and fell backward on the right buttock. The patient believed that he injured this cyst since, following the fall, he noticed local pain and a spurt in growth. In the middle of February, 1947, he went to a physician who performed a local excision under a presumptive diagnosis of a large lipoma. The surgeon reported that he found a large organized growth which was due to an injury received a few weeks prior to operation. The wound was packed for drainage, and a biopsy taken at the time of operation was reported as fibrosarcoma. The patient was referred for further treatment.

Physical Examination: On 3/25/47 in the skin of the right sacroiliac region there was an 8 cm. transverse scar with serosanguinous drainage coming through a 0.5 cm. defect at the medial end of the scar. There was induration beneath the scar making it extremely difficult, if not impossible, to distinguish between residual tumor and postoperative induration.

Treatment: Films of the chest and sacrum were negative, and, in view of the known limited initial surgical procedure, it was felt confidently that there was residual tumor. Accordingly, on 4/9/47 wide surgical excision of the tumor-bearing area was done.

Gross Pathology(W-723): Specimen consisted of a skin ellipse 17 x 8 cm. with a partially healed scar in the center. At one end of the scar was a short fistula communicating with a hemorrhagic cavity in subcutaneous tissue and muscle. The cavity measured 6 x 3 x 2 cm. Its walls were ragged and lined by blood-stained granulation as well as several light gray nodules up to 2 cm. in diameter, which were composed of light gray, homogeneous, soft tissue.

Follow-up: In late May, 1948, having run a previously uncomplicated course, the patient complained of pain across the lower abdomen. Examination showed in the right groin an oblong, firm mass 4 x 2 cm. It was difficult to ascertain whether this was due to enlarged lymph nodes. This mass was not contiguous with the former operative site which did not show evidence of recurrent disease.

Films of the chest were negative and on 6/11/48 right groin dissection was done.

Gross Pathology(LB-1967): In summary, beneath the skin of the local excision, the prossector described 4 nodes, the largest measuring 1.2 cm. in diameter. This was described as light grayish-tan and rather homogeneous except for one hemorrhagic area.

Follow-up Continued: On 3/18/50 the patient noticed a lump in the region of the scar, in the right sacroiliac area. When examined on 1/6/50, there was a 2 cm. subcutaneous recurrence. On 4/7/50 this local recurrence was excised.

Gross Pathology(50-5180): In summary, in the subcutaneous tissue were five nodules, the largest 2.5 cm. in diam. These nodules were rounded, homogeneous, grayish-white. The two conference slides are from this material.
Case #7

Section #NJ4270

D.L. Female - White - Age 19 (in 1934)

First seen at Memorial Hospital - July 3, 1934

Clinical History: In the fall of 1932 this patient fell in the gymnasium striking her right buttock. The soreness soon disappeared. She was examined immediately after her fall by the school doctor who made a diagnosis of muscle strain. In February 1933 while on a sleigh ride she fell and struck the same area. On self-examination she found a lump in the right buttock which was soft but somewhat tender. It was the size of a golf ball (which if true would make it 1.62 inches in diameter, the then official pellet size of the Professional Golfers Association). She did nothing about this for 13 months during which time the mass had become grapefruit-sized. She saw a doctor who advised an operation which was done in June 1934. She was referred for high voltage x-ray therapy.

Physical Examination: This showed nothing but the scar from a recent surgical examination.

Treatment: On 7/3/34 the area formerly occupied by the tumor was treated with 200 KV x-ray, 1/2 mm. copper filtration, TSD 50 cm. A large 21 x 18 cm. portal was employed and a massive single dose of 750 r was delivered. She received one more treatment of this sort on 8/27/34.

Follow-up: Patient was followed each year in the OPD after 1934 and had no noteworthy complaint until July 1951 when she developed pain in the chest while scrubbing a floor. This was described as a sticking pain under the left costal margin, especially on bending and deep respiration. Films of the chest showed a shadow in the anterior right lung. This was described as a unicentric lesion situated anteriorly and merging with the right border of the heart shadow.

Treatment: All efforts at diagnosis will not be enumerated since they were not contributory, and hence thoracotomy was done on 9/21/51. Right upper lobectomy was done. At operation there was a 6 cm. tumor in the anteromedial portion of the right upper lobe. No other site of tumor was found in the thorax but the operator thought he could palpate two large masses in the liver.

Gross Pathology (51-14538): In summary, the tumor was 5 x 4 x 4 cm. orange-yellow to yellowish-tan. It was soft and more or less rounded. This is the source of the conference slide.
Clinical History: This patient was first seen by her family physician in January, 1950, when she complained of chronic RLQ pain, constipation, and nervousness, the latter apparently occasioned by the illness of her parents. She stated that her menstrual periods were regular, of 4 to 5 days duration with normal flow.

Physical examination at this time revealed pain and tenderness over the RLQ with a small palpable mass in the region of the right ovary. The uterus felt enlarged and was thought to contain fibroids. The right ovarian mass was considered an ovarian cyst. Operation was recommended but refused since the patient desired to wait until her parents' health improved. During the ensuing several months she was examined on several occasions with essentially similar findings.

On 10/12/50 this patient apparently had an exacerbation of abdominal pain and was seen by a physician other than her family doctor who was out of town. This physician thought the patient was suffering from subacute appendicitis. On the following day the family physician returned and on the next day laparotomy was done. There was some free fluid in the peritoneal cavity. The uterus was greatly enlarged and multiple fibroids were present. The right ovary, tube and broad ligament were one solid mass densely attached to the right side of the pelvis. A complete hysterectomy was done. The operator was not able to remove a small tip of the cervix which was closely adherent to the bladder.

Gross Pathology: Available notes on the gross pathology are confusing. The specimen was described as a distorted uterus without cervix. A submucosal fibroid was described and it was stated that the fundus was distorted by a degenerating fibroid. It was stated that there was prolongation of the latter fibroid into the parametrial tissues. Two tubes were identified and one ovary. A large portion of the uterus was later examined. It showed no grossly recognizable fibroid, but the uterine wall was greatly thickened and there were islands of softer more homogeneous, white tissue, the distribution of which was very like that seen in adenomyosis.
Section #NJ4364

A.F. Female - White - Age 39 - Married

First seen at Memorial Hospital - February 9, 1949

**Clinical History:** This patient complained of lumps in both breasts. These were first noticed in 1946 and she had been followed periodically by her family physician. During this time she noticed that her breasts became fuller and tender, particularly before menstruation. This disappeared at the end of her periods.

**Physical Examination:** In summary, this examination showed what was clinically regarded as bilateral fibrocystic disease. Pelvic examination showed a lacerated cervix with friable areas.

**Treatment:** Biopsy of the cervix was reported as suspicious but a definite diagnosis of carcinoma could not be made. The patient on re-examination was found to have a small pelvic mass. It was decided to explore the abdomen with intent to do an hysterectomy, and at the same procedure biopsy of the right breast was proposed. On 3/lh/49 the local excision of breast was first done, and following pathologic report by frozen section of benign cystic disease, the abdomen was opened. The operator's notes are not available at present, but the uterus, cervix and both tubes, and ovaries were removed.

**Gross Pathology (49-15720):** In summary, the uterus was moderately enlarged and contained a subserous fibroid 2.5 cm. in diameter. The endometrium and cervix showed no gross evidence of tumor. The right adnexa were essentially negative. The opposite Fallopian tube was unremarkable with the exception of adhesions between the fimbriated end and ovary. The left ovary measured 9 cm. in greatest dimension. Part of this enlargement was due to a 4 cm., smooth-walled cyst. There was another similar, partly blood-stained cyst. In addition, there was a circumscribed, solid mass 3 x 2.5 x 2 cm. This was surrounded by ovarian tissue which was quite thin as the tumor caused external bulging of the organ. On section it was not certain whether this solid mass had arisen in a cyst. The tumor was fairly soft, homogeneous, and granular. The fimbriated end of the tube was adherent to the rim of ovarian tissue that was external to the superior portion of this solid tumor.

For the information of participants, sections were made of the entire cervix and none of these showed tumor. The endometrium was negative microscopically as well as grossly.
Case #10

Section #NJ4365 (M-51-7561)
(Case of Dr. Wm. O. Russell, Houston, Texas)

W.M.P. Female - Colored - Age 54

Clinical History: This patient was first seen on February 23, 1951, because of a sore on her foot, present "for about seven years." Referral information received from the patient's local physician advised that a lesion had been present for about twenty years. In January, 1950, a walnut-sized growth with an ulcerated surface was present on the medial aspect of the left foot near the base of the great toe. This was removed surgically in January, 1950. In October, 1950, the patient returned to her physician with a large, draining, ulcerated mass originating at the site of the previous surgery. Biopsy at that time was reported as "low grade squamous cell carcinoma with mixed xanthomatous chronic inflammation." Between November 8, 1950, and December 15, 1950, x-ray therapy was instituted in a tumor dose of approximately 1600 r.

When seen at the hospital on February 23, 1951, there was a painful, ulcerating lesion as described above. X-ray studies of the left foot at the time of admission revealed "disuse osteoporosis of the bones of the anterior left foot."

On 3/20/51 surgery was carried out which included an amputation of the left leg at approximately mid-thigh level and a left inguinal node dissection.

Note: Very little of the skin tumor was left in the block. Suffice it to say that it looked just like the groin mass in case your section of skin does not show tumor.
1. Osteosarcoma
   - Event Cell Tumor Malignant
   - Transplant

2. Plasma Cell Myeloma

3. Sarcoma Soft Tissue

4. Febr Se (could have been syn. Sa.)

5. Maley Tumor - Met - Testis
   - Prostate
   - Thyroid (maley)

6. Melanoma

7. Ab. soft ped Sa mit.

8. End. lymph. stimul. cancer.
   - Sarcina (will diff)

9. Adenocarcinoma (?)

10. ?Sweet Blot Ch - Mucin stain
Fourth Annual
SLIDE SEMINAR
Saturday, December 11, 1954
Presbyterian Hospital, Newark, N.J.

Sponsored by
N.J. SOCIETY OF CLINICAL PATHOLOGISTS
and
NEW JERSEY STATE DEPARTMENT OF HEALTH

Moderators
Dr. Fred A. Stewart - Dr. Frank Foote
Memorial Hospital, New York

Micro slides prepared in Bureau of Pathology,
N.J. State Dept. of Health
Tumor material supplied by Drs. Stewart and Foote
Dr. Stewart: I don't know whether I'm crazy or stupid or both. I haven't any good idea of what the diagnosis is. Maybe you have. We'll take a look at the lantern slide a little later and find out how many really know what it is. Anyhow, she was a woman. It's obvious because it says she was pregnant; twenty-eight years old; white.

In October 1953 she tripped and sprained her left ankle. She had a swelling of the dorsum of the foot. Evidently her sprain was not anything very dramatic or very serious because she saw a physician who told her to put an ice-pack on it, and that's all. He took no X-rays. The swelling disappeared, leaving the dorsum of the foot a little black and blue.

Realizing that we had a tumor later on, we naturally wonder whether, by any chance, she had bled into an aneurysmal bone cyst. There isn't any proof of it. Three months later the swelling evidently had continued and then they take X-ray films. They see a lesion of the fifth metatarsal. Then a biopsy was done in another hospital, and a diagnosis of a giant cell tumor was made. Well, looking at that biopsy, I don't see what else could have been said. I don't think you would have said that, however, if you had looked at the films and had seen the biopsy at the same time. Anyhow, I called it a giant cell tumor. I didn't look at the films either.

I don't know what treatment was recommended at that time. I presume that they suggested that it should be treated by curettage. Anyhow, on account of her pregnancy - she was then rather late, in her eighth month of pregnancy - she did not accept treatment at that time, and she went to term. One month afterwards she was admitted to the hospital, and there was a good bit of increase in the swelling of the foot. On the 29th of July of this past year her fifth metatarsal and corresponding digit were resected. In other words, they sliced off a bit of the lateral border of the foot, quite a little bit of the lateral border of the foot.

She is, I understand, walking fairly well on what amounts to most of the foot remaining. In the growth we had a tumor which occupied the head and practically all of the shaft of the fifth metatarsal. It measured 6 x 3 x 3 cm. It was very cellular looking, soft and gray, and had scattered hemorrhages in it and small bone spicules distributed throughout.

This case disturbed me a great deal. In the beginning I said, "This doesn't look at all like the original giant cell tumor. We've got to call it an osteogenic sarcoma." It's been carried along as an osteogenic sarcoma. I looked at it again when these slides came through and got sore at Dr. Foote and said, "What did you shove this thing in for?"
He said, "Well, first you called it a giant cell tumor and now you call it an osteogenic sarcoma."

I said, "Now I don't know what to call it."

It's a very bad case for a conference if you can't get up and say you know exactly what something is - they think you're either crazy or stupid. I was completely in the hole. I wasn't sure, when I looked at it again, whether the areas you saw in the slide - We might throw that one slide on very quickly - the micro. - whether those areas were bits of bone in the process of formation or whether they were in process of destruction. I didn't find any area, except for those areas, that I didn't think could be fitted into some part of almost any giant cell tumor. The giant cells had fewer than average nuclei for a benign giant cell tumor. There were an awful lot of intervening stromal elements which might have excited some suspicion.

There were elongated cells which did not usually fit with the stromal element of the average benign giant cell tumor. In the gross the lesion had gone right through the cortex. There was no demarcation from surrounding muscle and fascia. In other words, it had shown itself as aggressive, and we were very much in the hole.

Then we have the phosphatase reports. The pre-operative alkaline was 8.6. That shouldn't fit with a giant cell tumor. Immediately after operation it dropped to 3.5. Dr. Woodward had run the tissue phosphatase. It was high. The tumor phosphatase from the tissue area was high, so I said, of course, it's got to be an osteogenic sarcoma; there's nothing else it can be.

There was nothing otherwise in the blood chemistry suggestive. Then I suggested to one of the resident staff that he take it up to Jaffee to see what Jaffee thought about it. Perhaps I shouldn't quote Jaffee because it was taken up to him one of the nights that this annual course of Jaffee's was being given, and he was doubtless under pressure, and I know how I feel when I'm thinking about something else, and someone comes and shoves a difficult slide under your nose.

But, anyhow, his answer was, I think, a bit equivocal. I don't think he was very sure of what it was. He spoke of the strap cells, as he called them, and by that I assume that he meant the blunt elements which looked like a cross between the usual stromal cell you see in a giant cell tumor and a fibroblast. He said to the fellow, "You don't think they're muscle, do you?"

The chap said, "Obviously not because this is right in the middle of the bone."
Jaffee ended up by saying something about perhaps it ought to be called a mesothelioma. Well, I never heard the word mesothelioma applied to a bone tumor. Perhaps there's nothing unusual about it or irregular about it, but you always think of mesothelioma as something else because you think of the things Purdy Stout calls mesotheliomas. The term mesothelioma would mean to me that Jaffee thought the tumor was malignant.

The resident asked him frankly if he thought it was malignant, and he said, "I don't think so if it has been resected."

Well, there you are. That leaves you sort of cold. I didn't know that malignancy of a tumor depended on whether or not it was resected. I think what he really meant to say was, "It looks malignant, but it's in a metatarsal, and perhaps one would be less apt to find a tumor that ran a malignant course in a metatarsal." I didn't know that about a metatarsal tumor. It is certainly true about a tumor of a phalanx. I think there are not more than one or two tumors of phalanges in the entire bone tumor literature, but this was a metatarsal not a phalanx.

Again, I feel that I'm crazy or stupid. Next I go to George Changus who is one of our own boys who has done a lot with tissue phosphatases and has been pretty well mixed up in the bone tumor field for some time, and he said, "No, this isn't malignant." He had had some of the material when the resection was done, and he had run the tissue phosphatases - not microchemically, but cytochemically - and run the alkaline phosphatases. He didn't run the acid.

You know, he would expect to get acid in the giant cells of a giant cell tumor. They belong, in that respect to the macrophage system and also in the small stromal cells. He would have gotten the alkaline phosphatase had those cells been the cells of an osteogenic sarcoma, not had they been constituents of a chondrosarcoma, or, rather a chondroblastoma, which I thought about a little bit. Is it possible we've got a thing something like a Codman tumor of a metatarsal?

The only acid phosphatase really in that tumor was right around the areas where that osteoid is being laid down and out in the shell of residual bone remaining - the tumor has pretty well gone through to the outside where there were efforts at regeneration. So it's hard to account for the elevated blood phosphatase of 8.5. It's hard for me to account for it, anyhow, and it's also very hard to account for the very high tissue phosphatase. The two things don't seem to line up, but perhaps we don't know enough about the amount of phosphatase that must be demonstrated within a tumor in relation to the amount that will show up in the serum.
So Jaffee equivocates. Changus said definitely not a malign­
nant tumor. He brought up one notion, and that is that the
patient might have had a fracture, and in the late stages of
pregnancy might have been in a state of calcium deficit.
Walking around on a bone that was already the site of what
was perhaps a giant cell tumor, it might have tended to ex­
pand the lesion way beyond its supposed underlying capacities.

We just don't know about those things. What else have we got?
Well, the X-ray reports are of no aid at all. The radiologist
at the hospital did not read these reports. These were read
by a resident who was an Oriental and who, I think, does not
want the Pathology Department to lose face anywhere along the
line, because when we made a diagnosis of giant cell tumor in
the biopsy, the report on the film comes back consistent with
a giant cell tumor. Later on, when I suggested that it might
be a chondroblastoma - a benign chondroblastoma - the report
from the X-ray department comes back consistent with a chon­
droblastoma. As a matter of fact, if anyone with any sense
looked at the film, it doesn't look like either one. So let's
say the X-ray does us no good at all.

I said to myself that if I'd suggested it looked like Oolong
tea, it would probably come back that way.

Let me read you Lichtenstein's letter. We got a rush out to
Lichtenstein. We said, "You have written a book about bone
tumors. Now what do you think about it?"

The letter comes back like this. "The problem you present is
a very interesting one. This past year ---". This is per­
haps a little more positive than anything else. "This past
year I have had the opportunity to see material from a number
of comparable tumors---" And I think that number is about six.
That's a lot. "--- which seem to fall in the general category
of [other osteoid tissue forming tumors] set up in my classi­
fication of bone tumors." I suffer because I haven't read the
classification. I didn't know about it. "They vary appreci­
ably in this cytologic pattern in their cellularity and in
the extent of osteoid and bone formation. This particular tu­
mor, as compared with the others, is moderately cellular and
shows relatively little bone formation. Despite its signifi­
cant increase in size reflected in the roentgenograph of
7/21/54 as compared with the early film taken in January '54,
and despite apparent penetration of the periosteal connective
tissue in one area of the section, my impression is that it is
not malignant (osteogenic sarcoma).

If I had seen the case back in July, my inclination would have
been to recommend conservative surgical excision and, of course,
close clinical follow-up. Since you make no mention of it, I
presume there has been no local recurrence following, say, am·
putation, or were you holding out on me?
I might add that due to the bone forming character of the tumor, slight elevation in the serum alkaline phosphatase activity and its restoration to normal following surgery, is not at all surprising.

Well, the one thing I get out of that is that he is really quite convinced that this lesion is benign, but he isn't a hundred per cent convinced or he wouldn't ask for this close clinical follow-up. If you're sure that something is all right, you don't care particularly what the clinical follow-up is. You hope she'll be able to walk on it.

Changus wants to put the case in a diagnosis of inflammation and repair. That's the old Mallory term, of course, for giant cell tumor, or osteoblastoma, or whatever you want to call it. I've got a lot of regard for his opinion. There are in it cells I can't understand. There aren't any atypical mitoses with the possible exception that I thought I might have seen one abnormal metaphase, but I'm not sure what it might mean, or if it is there.

The lesion grew, but the patient was pregnant, possibly with venous congestion. Who knows whether that would mean anything? I don't particularly know. Grossly the lesion looked aggressive. It had broken through the cortex. Radiographically, as you will see shortly, there was a Codman triangle. The experts think it is not a malignant bone tumor, and we have to accept their opinion and force ourselves, I think, to acknowledge the observation that there is a bone lesion that looks and locally acts malignant, and still it isn't.

We might, for the time being - and that's what I will do mentally with this case - shove it into Lichtenstein's category of [other osteoid tissue tumors], while reserving some doubt. I would very much like to know what the history of this patient will be during the next five years. If she survives, it won't mean anything. If she doesn't survive, we will then know that we were wrong in placing it in the category of benign lesions.

May we see these X-ray films a moment?

There is the first one. It doesn't show up very well. I can see something at the proximal end of the metatarsal which looks like rarefaction. I can see that the contour of the bone on the lateral aspect looks a little on the weak side. I can see the shaft irregularly sticking up a little bit beyond the expanded portion. You see what's happened to it. It doesn't look like a benign bone tumor to me. Here it is. We've just learned something new. Here's a part of it here. There's the other part up there. The thing is everywhere rarefied. It is ragged. The destruction is irregular. It looks as if osteoid growth or bony growth is extending...
outward. There is no intact shell. It is broken out. The shaft is well up into the rarefied portion of the bone. There is a very distinct pattern of what I call a Codman triangle. It surely fulfills my own ideas of what a malignant bone tumor ought to look like. There is the tumor. That may be inflammation and repair, but it's awfully funny looking inflammation and repair. Let's see what you called it.

DIAGNOSES:

Giant Cell Tumor (Gt Cell T of Bone) 6
Giant Cell Tumor Benign 2
Giant Cell Tumor Malignant (Osteogenic sarcoma) 15
Giant Cell Tumor with Bone Formation 2
Malignant Osteoclastoma 1
Chondroblastoma 7
Osteogenic Fibroma 2

We've got 19 in favor of a benign lesion and 16 against its being a benign lesion. We've gotten down to an election, and the majority won in the last election. I suppose we've got to stick with the majority. If we stick with the majority, we can also say that authority as we know it; namely, the people who have spent most of their time on bone tumors, people like Jaffee and Lichtenstein - and I will also say Changus - the majority is with the experts regarding the lesion as benign.

That's all for that case. I should call for questions, but I think you will see from the way I have presented this case that I probably couldn't answer the questions. I still would be very glad to listen to them.

Dr. A. Hobson Davis: (Paterson, N.J.) Do you consider the probability of some of the giant cell tumors as being malignant, or do you look on all of them as benign?

Dr. Stewart: No, I think there's a very definite group of malignant giant cell tumors. Coley and Farrell and I reported one group back in, I think, it was just before the war, 1941, 1942, or somewhere around there. But I think when the giant cell tumor becomes malignant, I don't think it looks like an osteogenic sarcoma. It is, I think, in an entirely different category. I think you can tell the difference, when you get a classical one, between that and an osteogenic sarcoma. That's what we tried to do the other night, distinguish between the giant cell tumor that became malignant spontaneously and the giant cell tumor that became malignant after over-radiation.

Of course, there are occasional examples of giant cell tumors that will metastasize and still look exactly like a benign giant cell tumor. We predicted that that would be the case in that paper without having any notion that someone was going to come up with that very sort of case shortly. It wasn't very long after that paper was out that some chap in California sent
me a beautiful example of metastasis of a giant cell tumor—lung metastasis of a giant cell tumor—and the metastases looked exactly like a benign giant cell tumor.

Since then one or two reports have appeared in the British literature on metastases of giant cell tumors where the metastatic lesions still could not be distinguished from a benign giant cell tumor.

They certainly aren't common, and I am trying to think of the number that have metastasized, have become malignant, in the rather large Mayo Clinic group reported by—I quoted that the other night. It was about a year ago in Cancer, perhaps a little less. They had a fair number that was malignant; the only trouble was they had all been treated by X-ray. Ghormley was his name. Ghormley didn't try to distinguish between the ones that had become malignant spontaneously and the ones where X-ray treatment might have been a factor in making them get malignant. I suppose it's bad advertising to even suggest that anything you've done for a tumor might have helped it along a little bit, and they weren't any too anxious to quote the facts.

MEMORIAL HOSPITAL DIAGNOSIS: Osteogenic sarcoma

Case #2, NJ4212

Case No. 2 is rather easy. It has only one thing that to me is of special interest. This was a forty-two year old woman who complained of soreness in the left thorax and back and intermittent pain in the hip. She dated her illness from '52 when she was in the tropics—and tired. She had anemia. She was treated with B12 and so forth, also hormones because of menstrual irregularity. Pain in the right costal margin which she thought might have resulted from a gallbladder operation. She came back to the states for a year's rest and had a check-up for pain. No positive findings reported. Five months later she had pain again in her hip. She limped.

In another six months she got some films taken again and she had localized lytic areas in various bones in the left ileum and in the right. Her right anterior rim of the acetabulum was involved and lytic lesions were found in the neck and greater trochanter regions, and so forth.

She left Colombia and came to New York. She was hospitalized. She was a very difficult patient to do anything for. She was a missionary. She was also a paranoid which probably explains why she was a missionary.

She had myeloma and sternal puncture and cells described as plasma cells. They use the word plasmablasts, whatever they may be. I am not a hematologist, and I certainly am not
hematologist enough to distinguish a plasmablast. I have a hard enough time to find a plasma cell.

They were binucleate and apparently reasonably classical. The peripheral blood contained good representation of immature members of the red cells, the granulocytic series, showing no doubt that she had a lot more marrow replacement by her myeloma than the films revealed. Her plasma protein was not elevated nor was her AG ratio disturbed. She had several transfusions, and a positive Bence-Jones occured once. There were several negatives. You know the Bence-Jones is often excreted intermittently. When last seen she was doing badly under urethane treatment, and her radiographic lesions were expanding.

There is the slide you have. I have stated that the diagnosis of plasma cell myeloma was made, so this only brings back to your mind the appearance of the slide and introduces the one feature that made the case unusual and interesting from the point of view of discussion. That feature is these collections of pink-staining crystalline material within the marrow.

I wonder if anyone has any opinion about the nature of that crystalline material. I saw it myself for the first - Dr. Foote reminded me - several years ago in a case I got from Dr. William Boyd. At that time I assured him with great authority that the material was amyloid, and he swallowed that. I don't remember that there were nice looking crystals the way it is here, so maybe I had more reason to say that. I am also sure that we never did an amyloid stain but just used authority, you know, to show him it was amyloid.

This time we did do an amyloid stain, and that is not amyloid. Does anyone have any idea what it is?

Dr. Alfred Angrist (New York, N.Y.): Albumose and protein.

Dr. Stewart: You are quite right, Dr. Angrist. This is said by Geschickter of - where is Geschickter now? He's in Florida, I guess -- to be Bence-Jones albumose or whatever you call it nowadays. Maybe the name has changed. Anyhow, it's Bence-Jones. He stated that it had been crystallized and so identified.

This slide is one that Dr. Allan picked up, I think, at the Veterans Hospital, I'm not sure. This happens to be a myeloma kidney where the crystalline material - the Bence-Jones crystalline material is filling the tubules. You can see scattered plasma cells elsewhere in the kidney. I didn't bring the slide out for that purpose, but only to show that crystalline material.

I have another slide showing the thing in a node which was
replaced with plasmacytoma - plasma cell myeloma - but it's not as good as the lantern slide of the marrow material we have, and by no means as good as the crystalline material shown in these renal tubules.

**DIAGNOSES:**

- Plasmacytoma 2
- Plasma Cell Myeloma 3
- Myeloma 15
- Hodgkin's 1
- Hemangioendothelioma (Malignant) 1
- Hemangiopericytoma 1
- Ewing's Tumor 3
- Reticulum Cell Ca 1
- Osteolytic Sarcoma 1
- Osteogenic Sarcoma 1
- Metastatic Carcinoma (Hypernephroid, Islet Cell, Neuroblastoma) 5

I think the matter of diagnoses are more of historical interest than anything else.

Fifteen people said myeloma without being specific, and that's quite all right by me.

We've got 20 diagnoses of plasma cell myeloma which should satisfy the requirement to fix the majority.

Any questions here?

**MEMORIAL HOSPITAL DIAGNOSIS: Atypical plasma cell myeloma**

**Case #3 (NJ 4161)**

The third case is rather interesting. I had never seen anything like it before. I am not at all sure what it is. It's a baby, one of identical twins; other twin not affected. The baby, when six months old, had blood streaks with mucus in the stools. No diarrhea, no constipation. The pediatrician said the child had a fissure. Later the child had bloody discharge without accompanying stools. Again the pediatrician was consulted and this time stated that she had polyps which would clear up at the age of three. That, undoubtedly, is the parent's statement without much significance. I don't see why any pediatrician who saw the child at one age would select the exact period at which it would disappear, especially something like this.

The situation continued, and the next item was prolapse. They felt nothing on digital examination, and a barium enema was given, revealing a polyposis of the lower sigmoid which proctoscopy confirmed. They snared off several of the polyloid projections, but the upper limits of the lesion could not be reached, and the child was discharged with readmission planned later on.
The fluoroscopy was repeated, and shortly thereafter there was more rectal bleeding, and in June of this year this infant had a sigmoidectomy with anastomosis. We got a piece of colon 9 cm. long, and on opening it there were about a dozen raised, discrete, but rather closely opposed, closely connected polypoid nodules. These nodules did not look like the usual polyposis. They were too big. They were smooth, mound-like affairs. They were non-stalked. They didn't look at all like the gut that is the site of the standard polyposis. They were confined to the mucosa and the tissue immediately underneath. They didn't go down into the muscularis at all.

Suppose we look at the gross of the lesion.

There it is. You can see that that isn't the appearance of the usual polyposis. It looks, more than anything else, like a plexiform neuroma. It might well be confused with plexiform neuroma. I've never seen anything like that in the gut, but if this was a subcutaneous lesion, it would be a rather classical pattern, one that you would pick out almost instantly as a plexiform neuroma. Well, that's not what it is, obviously.

I had no particular idea how common polyposis was in children. If anybody had asked me about it, I probably would have said, "I never heard of such a thing", which would have been true because I hadn't paid too much attention to that. I looked it up a little bit, and again I did a certain amount of consultation on this case, asking people who had more experience with children's tumors than I had, and I've gotten a certain amount of information, but still not too much.

Apparently polyps in children are quite a bit more frequent than I had any idea of. J. G. Kerr, in 1948, in the American Journal of Surgery, reported a hundred polyps in children, the youngest nine months old, and of the hundred, ninety-five were children under five. That sounds like an awful lot of polyps in children, but Dr. Kerr is from Texas, and it may be that just as everything else is very big in the State of Texas, so likewise, is the number of polyps in children. That's what he said, a hundred polyps in children. He's from Dallas.

The symptoms he describes are rather typical in this case. They had bleeding and mucus and without pain. He said that sometimes these polyps performed a self-amputation which relieved the children of further need for care, and it may be that that's what this pediatrician had in mind when he told the child's parents that the polyps would clear up. That is not unreasonable.

He says these polyps in children are usually not familial. It is not part of a familial polyposis, and you will note that this child was one of identical twins, and the statement is made that the other twin was not similarly affected.
Kerr had two cancers in his patients, but after a long time. He described them as the usual adenocarcinomas, and one developed at the age of twenty-four years, and the other at the age of twelve. Each was clearly traceable to polyposis first recognized in infancy. But I can't imagine that this sort of lesion would turn into the usual adenocarcinoma. It doesn't look like the right sort of thing in the beginning. Perhaps the hundred polyps that Kerr is describing are quite different from the sort of thing we are seeing in the present material.

I looked up Dorothy Anderson's data on childhood tumors she had in the Stout issue of the Journal, and I find that at the Baby's Hospital, among five thousand admissions, she had five colon and fifty-three rectal polyps, so apparently they are not at all rare in the infant or in childhood. Dorothy Anderson didn't have any malignant ones. I wasn't sure at all that the polyps she was describing were the sort of thing we had, so I sent her the slide and asked her to show it to Stout and get his opinion, too. He writes back:

"Dear Dr. Stewart: Your section 4161 presents a picture new to me." So with her fifty-five polyps in children, she hasn't got anything like this. She said: "It falls in a group of embryonal tumors, probably a mixed cell type." I don't know exactly what she means there. We might discuss it a little later.

"The only previous mixed embryonal tumor of the intestinal mucosa which I have seen was a malignant myoblastoma of the colon." I don't think that letter has ever been checked over because why should a malignant myoblastoma of the colon be a mixed tumor? All these letters you get back on these rare tumors seem to be a little confused, don't they? "The spindle cells in the present tumor I believe to be embryonal muscle probably smooth muscle, but a trichome, or some other appropriate stain, would be required to prove it", and so forth. "The polypoid structure, of course, results from the presence of this tissue and is not due to simple mucosal hyperplasia". I think that is quite correct.

"Dr. Stout has just now seen this slide. He has seen another slide from this tumor which showed an additional feature of well differentiated ganglion cells in the superficial part of the tumor." Now, I don't think she means that. I think she means he has seen another slide of a tumor of this sort because I am very sure he didn't see any other slide of this tumor unless he received a slide from the collection over here, and I don't think he did. She must mean that he has seen another tumor of the same sort that had ganglion cells in the superficial part.

I went back and looked at this, and it hasn't got any ganglion cells although that probably wouldn't make any difference.

"This supports the idea of something on the order of an
embryonal rest or tissue malformation. He---"quoting Stout---"is unwilling to say whether it is malignant since he has never seen a similar case." She just gets through telling me that he has seen either another slide from this case, which we figured out must be another case, and then she says he's never seen a similar case. Where are we again?

"He thinks the tumor cells present in this slide are all of one type, some showing myxomatous degeneration." She goes on: Thank you for sending me this section. I am returning it; I am sorry about the delay", and so forth.

Let's take a look at the micro.

The epithelium doesn't seem to be taking any particular part in that process. It's got a few mucosal cysts, but that isn't the thing that's making this polyp kick up and semi-obstruct and ulcerate and bleed and slough. That's the sort of stuff that bothers me. I think they are muscle cells. I think they belong presumably with the muscularis mucosa. They are certainly the main constituent of the tumor. They are very closely packed. They are uniform. I think they are pretty full of mitoses, are they not? Although I boast so often that we don't pay any attention to mitoses. There they are. As a matter of fact, I didn't pay any attention to them, and in making the lantern slide they were picked out beautifully. None of them look off color; none of them look screwy at all.

If you had that tumor in the cervix, if you had it in the vagina, if you had it in the bladder, if you had it in the prostatic area of a young boy, you would immediately say, "That is sarcoma botryoides", and I don't see how you can get out of saying that it is much the same sort of thing here although you just can't quite figure out how it got there or why it got there. We don't know of any complex embryonal mix-up situation such as those commonly thought to be concerned in the development of botryoid sarcomas. It would seem to be an area of rather simple embryological development with no reason to invoke any peculiar circumstances.

The only thing I can do is accept the fact that here is a strange embryonal looking spindle cell tumor in the gut which looks like sarcoma botryoides. I have never seen it before. I judge that the people at Presbyterian have not seen it before except possibly Dr. Stout, and on that we seem to be just a little confused. So far nothing whatever has happened to this child. We don't know what's going to happen.

Are there any questions on this case?

Oh, we might look at the diagnoses.
DIAGNOSES: Leiomyosarcoma
Polyoid Mucosal Sarcoma
Neurogenic Sarcoma
Neurofibromatous Polyposis
Congenital Fibromatosis
Fibroadenomata
Hemangiomata
Hemangioendothelioma
Multiple Leiomyoma (Hamartoma)
Leiomyomata Dysplasia
Polyposis
Entamebiases

Only 18 merely made a diagnosis of polyposis; 3 of leiomyosarcoma. Certainly, it's not the usual leiomyosarcoma. Then they go all over the lot pretty much, but 18 diagnoses of simple polyposis, I don't think you would be warranted in accepting this as anything like the usual polyposis.

Have you any questions on this? I can't answer them, I'm sure, because you never saw one like it, I don't suppose. I never saw one like it, and other people never saw one like it.

Dr. Arnold L. Statsinger (East Orange, N.J.): I would like to clear up a point of confusion. Dr. Stout did see a slide on this same case. He made the comment that he thought it was related to an embryonal rest.

Dr. Stewart: The section I had I looked at the ganglion cells. They trace up to the tumor, but they are not sitting on top of it.

Dr. Statsinger: There were several clusters of these ganglion-like cells high up in the mucosa - superficial epithelium.

Dr. Stewart: Not in the slide I've got. I specifically got it out and searched for them. They are undoubtedly in the slide that he saw, but I do not have them in my slide. What kind of embryonal tumors do you see? I don't know; I haven't the least idea.

Dr. Alfred Angrist (New York, N.Y.): Any history of tuberculosis in this child at all?

Dr. Stewart: No history that I know about. I never thought of it.

Dr. Angrist: Just a wild idea.

Dr. Casilli: I want to inject a note to make this a little bit more confusing. Could this be an expression of fibrocystic disease of the pancreas?

-15-
Dr. Stewart: I don't know. I never thought of such a thing. Dr. Shaffer says he wants my diagnosis for the record. I am going to say sarcoma botryoides of the gut - whatever that means.

Dr. C. L. Corley (Newark, N.J.): In our slides there were several areas in which there was homogenous material which looked like osteoid, or we thought possibly amyloid, but we could not be sure, and we wondered what you thought.

Dr. Stewart: I don't know. I don't think that's infrequent in smooth muscle tumors - degenerated smooth muscle.

Dr. Corley: If there were osteoid, could that be a so-called mesenchymoma?

Dr. Stewart: I don't think it's osteoid. Now let's worry about the work - you call it mesenchymoma; I call it mesenchymoma, but we mean the same thing. At the risk of disagreeing with my colleagues, I just hate the word "mesenchymoma". To me a mesenchymoma would be a tumor of mesenchyme, and I don't think this is a tumor of mesenchyme. If you mean a tumor which has every possible connective tissue element in it, I would rather have a different name than mesenchymoma -- rather tell what I saw -- well, it's just a matter of personal preference. I just don't like the word "mesenchymoma". Maybe you like it. If so, fine.

MEMORIAL HOSPITAL DIAGNOSIS: Sarcomatous polyp.

Case #4, NJ4253

The next case is another woman of forty-one. We only put this case in for one purpose, and that is to show that some of these connective tissue tumors do funny things and because the standard member of the group may act in a certain fashion in response to therapeutic agents, it doesn't necessarily prove that all tumors in the same category must act the same way. It proves, too, that faced with inoperable situations, it is not always the thing to do to think that you know all about it.

Here's this poor patient in such-and-such a situation, let her die in peace not do anything, because this tumor violated, or has to date violated, all rules. I like to think of tumors of this sort as being out of sympathy with the host. They don't react properly; they don't interdigitate properly. The host, in some manner or other, must be exhibiting something in the way of resistance. It is so difficult to define. There is no definition, but something happens, of course, on the part of the host to make tumors act differently. It can't always be the tumor.

This woman is operated for a soft tissue mass which was called a
fibrosarcoma. In 1935 it started. In 1937 she get an recurrence, and she comes in to Memorial. She had a great big recurrent mass 12 x 12 x 6 down in the region of the greater trochanter and the lateral border of the thigh, deeply fixed. A node in the groin was considered metastatic; it probably wasn't. We saw the sections of the original tumor, and I thought it was a synovioma. Why do I think it's a synovioma? Well, I can't prove it's a synovioma. All I can say is that there is a certain appearance to the nuclei of those spindle cells -- I think of them as sort of flat discoid nuclei, extremely uniform which we have noticed peculiarly in the spindle cell element of otherwise classical synoviomas where the epithelioid constituents clearly pointed to a diagnosis of synovioma. On that basis, from time to time, we have made a diagnosis of synovioma when the dual constituents were not present. I am not trying to force that diagnosis on anyone. Anyone who wishes to call it a fibrosarcoma, I am perfectly happy. I am only showing the case because of what happened.

In any event, one would not have expected to find a tumor of this sort in an inoperable situation where radiotherapy could have been expected to cause a regression of the disease and produce what has amounted to a rather long-term interval of freedom from symptoms. Remember this was in 1937, and those were the days when we in the laboratory were looking at sections and casually writing down such-and-such a diagnosis, radiosensitive or radioresistant. It doesn't mean very much. We thought we knew a lot more than we now know that we knew, and I wrote this down, radioresistant, wiping the matter out conceivably, before treatment was concerned. But someone went ahead and treated her anyhow. I imagine if someone had come up to me and said, "Shall we treat her?" I would have said, "No, let her go home and die in peace." Fortunately, they didn't ask. She got X-ray treatment, she ran up to a dose of -- I don't know much, I can't tell, it's not measured that way. It says 4500 r. per field, only two portals, but I have no idea that that was put into the center of the tumor.

But, anyhow, the tumor all went away, and she had repeated examinations. She got a fractured femur eventually from radiation osteitis. So far she hadn't any osteogenic sarcoma. This didn't heal well, and she was on crutches for a long time, but finally it cleared up. In 1953 she was locally in very good shape.

In 1954, this last June, she comes in on a stretcher. She is weak and nauseated. She felt fine until two months before when she had hematemesis. Seven weeks later this was repeated. She had recent X-ray films of the chest, and she had a big mass in the left hemithorax. Chances are it was producing pressure on the esophagus.

She had no significant lesions at the site of former treatment.
She came in to the hospital on a stretcher, as I say, and after extensive work-up—now this is, of course, the days of the thoracic surgeon—, she was nevertheless explored, perhaps with hope against hope that she might have a paravertebral benign neurilemmoma or something of the sort of large size.

But, anyhow, they got into a rubbery, solid, cystic, encapsulated mass 12 x 8, arising in the posterior mediastinum and adherent to the descending aorta, attached to the thoracic wall posteriorly and to the upper and lower lobes of the lung anteriorly. It was totally unresectable. A biopsy was obtained, and the biopsy sections you have. Although I can't find the original sections now, the appearance of these sections is consistent with the report made on the first sections, so this is undoubtedly a metastasis of a tumor that should have metastasized many years before and killed the patient. It was a metastasis after seventeen years, and now what are you going to do about it?

The first time you wouldn't have treated her if you had followed advice, but you did treat her and she got complete regression, so it's a good rule to follow that when any tumor acts in a foolish fashion, not according to Hoyle, and against the opinion of the pathologist, it is well, perhaps, to adjust treatment to the situation that the pathologist might perhaps not recommend. So in this situation instead of saying that nothing can be done for the patient, with a great big attached mediastinal mass, you treat the patient by X-ray.

That was done, and I checked on her chart. This was in June. She was in the hospital the day before yesterday with the film showing a very marked degree of shrinkage in this mediastinal mass, so perhaps it will act like the original and she might conceivably -- although improbably -- get another seventeen years. Tumors from time to time fool the individual who really thinks he knows something about them.

May we have the pictures?

There's the tumor. There's no use going into it again. Let's have the diagnoses.

**DIAGNOSES:**

- Spindle Cell Sarcoma 7
- Malignant Synovioma 8
- Fibrosarcoma 15
- Leiomyosarcoma 1
- Neurilemmoma 1
- Malignant Schwannoma 1
- Liposarcoma 1
- Myxoma 1

There you are. Spindle cell sarcoma. That satisfies me. Someone else said malignant synovioma, 8; 15 fibrosarcoma. I would
accept anything in the way of sarcoma. I wouldn’t know how to make a diagnosis of liposarcoma on that material, but I would swallow any of the others except the neurilemmoma and the malignant schwannoma. That could not possibly be a benign nerve tumor.

Is there anything else I can say about this particular case? Are there any questions? (No reply)

The case is not presented as a diagnostic problem, but entirely as an example of unexpected behavior.

MEMORIAL HOSPITAL DIAGNOSIS: Synovioma

Case #5, NJ4211

I will go very quickly to the last case. This is a man, forty-two years old, who consults his physician on October 6, 1949, because he’s got pain in his shoulder, and has had it for twenty-four hours. It was dull, steady and not radiating, and severe enough to make him quit work. It was not influenced by breathing, exercise or arm motions. No cough or dyspnea. The physical examination was not revealing. His physician thought he had gallbladder or cardiac disease. He was advised to enter the hospital for work-up.

He entered the hospital in December at which time he stated that he was having a similar attack. The first had lasted three days. He then stated that he had had an intervening attack and complained of malaise, headache and generalized body aching, and so forth. There is no sense in my going in to these symptoms.

His film showed a large tumor in the anterior mediastinum. It did not pulsate. Other studies were of no particular interest. At the staff conference they thought the anterior mediastinal tumor was a dermoid. Exploration was recommended, and he was then referred to Memorial where this exploration was done. He had a thoracotomy on 12/22/49, and he had a mass in the anterior mediastinum, just to the right and behind the sternum. It was a large mass; it was 8 cm. in vertical and 5 cm. in A-P and transverse diameters. It was lobulated and hard and could not be readily separated from the mediastinal pleura or from the anterior surface of the superior vena cava. It was removed by sharp dissection, and the pathologist accepts the physician’s measurements with fair coincidence and finds the mass 7 x 5 x 4, encapsulated, with the capsule looking rather thick and edematous, rubbery, with firmer areas. It was made up of three large lobulated components that look alike, being grayish-white with areas of yellowish necrosis, areas of old and recent hemorrhage.
The only one of interest is a gross picture showing the cut surface above the encapsulation below.

This shows the make-up of the tumor which you will well recall.

Now let's have the diagnoses.

**DIAGNOSES:**

- Thymoma (Malignant) 15
- Seminoma 5
- Malignant Teratoma 5
- Embryonal Ca or Sa 2
- Fibrosarcoma 1
- Myeloma 1
- Parathyroid Adenoma 1
- Synovial Sarcoma 1
- Dysgerminoma 1

Thymoma malignant 15, Seminoma 5, and so forth, with malignant teratoma, embryonal carcinoma -- those are all there. Embryonal carcinoma sarcoma -- I suppose that means part of the teratoma. I don't see how you get the fibrosarcoma, the myeloma or the parathyroid adenoma or the synovia out of it.

Dysgerminoma, yes, that's all right. So we have possible 28 that are reasonably suggestive of the lesion. Now, is it teratoid? Well, there isn't anything to prove its teratoid nature.

Is it a seminoma? It becomes a seminoma if you wish to use that term for those thymic tumors that look like seminoma or in the same manner it becomes a dysgerminoma if you like to use that word for thymic lesions that look like an ovarian dysgerminoma. At any rate, it is the sort of tumor that occurs in the thymus as well as, of course, testis, ovary and pineal that resembles the common testicular tumor. We presume, of course, that it arises from the primary epithelial thymic anlage.

We won't discuss the histogenesis of thymic tumors or the appropriate classifications of thymic tumors. I don't think they are very good; I think they are very mixed up. I only hope we can get a better one out of our own material if we possibly can. Again, we want to discuss the course of this tumor. It is commonly supposed that the diagnosis of thymic carcinoma carries a rather evil connotation so far as cure is concerned.

I am showing this case to show that that isn't necessarily true because this patient was last seen four months ago at which time he almost reached his five-year span and he is perfectly well. Are there any questions on this case?

**Dr. Paul Kolisch (Phillipsburg, N.J.):** In the tumor that you speak of, did you have any hormonal studies of this patient?
Dr. Stewart: No.

Dr. Kolisch: Would you expect any rise in an individual like this whose primary is in the thymus?

Dr. Stewart: I have had no experience in the thymus. You would expect it in the testis with a pure dysgerminoma.

Dr. Kolisch: Aside from that there are occasional rises from the testis?

Dr. Stewart: To what extent can you prove that they occur in tumors that you know absolutely are unicellular?

Dr. Kolisch: I can't.

Dr. Stewart: That is just the point. You might possibly raise the question whether this could be a metastasis. To the anterior mediastinum, it is unusual. Posterior mediastinum - can you get a metastasis in the mediastinum? Can you get a chest metastasis with a testis tumor that you cannot localize, that you cannot palpate? The answer is "Yes". Usually under those circumstances, of course, it is choriomatus, but, of course, it doesn't have to be choriomatus. You can get a very tiny cryptic testicular seminoma. But this is presumably not such a tumor since at least nothing has happened and nothing has been done to the testis—nothing has happened in five years. So we could logically assume at least that it was primary in the area.

You can find in thymomas--I think it is perfectly easy to trace cells of this sort to the thymic reticulum. In this particular case they look very much like seminoma, but you get cases where they are scattered and are so localized that they must be originating within thymic tissue. I think it would be very interesting if you could prove that these tumors did have any hormone pattern. Certainly, it is very funny that the type occurs in four situations, all presumably hormone producers: testis, ovary, pineal and thymus, and they look identical. But I guess only in the pineal have they certainly proved to be hormone disturbers.

This patient did not have myasthenia gravis.

Are there any other questions? (No reply).

If not, we will have an intermission.

MEMORIAL HOSPITAL DIAGNOSIS: Thymoma Seminoma

(During the intermission a short business meeting was conducted and announcements were made.)
Dr. Casilli: We will now proceed with the second part of the program which will be given by Dr. Frank Foote.

Dr. Frank W. Foote, Jr.: Before we proceed with the second half, I want to take occasion both to compliment and to thank Dr. Gilbert and Dr. Shaffer for their great aid in preparing this nice illustrative material. I don't think I have ever seen better quality in microprojection and when one passes before your eyes that doesn't look just right, you can bear in mind that we brought that one over from the Island, and it's not their fault.

Case #6, NJ4271

Case No. 6 brings up the eternal triangle of the difficulties involved in the diagnosis of soft part sarcomas.

When this lantern slide comes up, if we added a couple of blood vessel tumors to it, we would have a pretty composite classification of soft part sarcomas in general. I greatly fear that that is going to be the future classification efforts in soft part sarcomas for a long, long time to come. If some genius could only inscribe a simple pattern of how to differentiate these devilish things easily, it would sound just like sheet music. Everybody would want to copy it. If we had it on sheet music, we might even get Liberace to play it, and then everybody would know about soft part sarcoma. Until then, though, I more or less despair.

DIAGNOSES:
- Rhabdomyosarcoma
- Leiomyosarcoma
- Neurofibrosarcoma
- Schwannoma Malignant
- Neurilemmoma
- Chordoma
- Chondrosarcoma
- Liposarcoma
- Fibrosarcoma
- Synovial Sarcoma
- Malignant Mesenchymoma

You will notice that essentially every one of the soft somatic tissues has been given notice, and the osseous system has not been entirely ignored. Leading the list are the supporters of neurogenic origin. That surprised me a little bit, but I am beginning to shake off surprises with less friction than formerly. Muscle stands in second choice followed by fibrous connective tissue, fat and synovial membrane. Chordoma surprised me a little bit when I first saw it, but only about ten days ago we had a chordoma that broadened my views on chordoma structure. This was clinically and radiographically typical of chordoma, but certain components of that chordoma in whole sections would have passed for any old fibrosarcoma. We fooled
Dr. Stewart on it with the greatest of ease, and we told him it was a chordoma and he nearly had a hemorrhage until we showed him the typical slides that were full of fibroliferous cells.

There is a great extent of liberality in the structural potentials of a wide variety of these soft part sarcomas. You will notice that the particular sections that were distributed to you were from recurrent lesions. The structural features seen in these two sections that were distributed compare very favorably with what was found in the initial surgical material, No. W-723. We will project three lantern slides just to refresh you briefly with the structural components. I will not talk about what these structures show, but I suppose that this tendency toward an interlacing pattern here with the rather bizarre hyperchromatic nuclei reminded a good many of the observers of the pattern seen in some neurogenic tumors.

Here we have myxomatous and spindle cells with it all a considerable variation in the aggregate.

This is at higher power. When we examined the first material from this case it was signed out in a routine way as spindle and giant cell sarcoma, most likely myogenic in origin. We were fairly well satisfied with it. The case aroused no particular comment at that time.

Now, the second clinical episode was the development of groin node metastases. I wish we could have distributed material from those lesions, but we are out of blocks on that particular number. After we examined the groin node metastases, we made a more specific diagnosis and we went back to the original material and we felt that there were very limited tell-tale areas in the first material examined.

It seemed to me that when you are trying to diagnose a specific type of a soft part sarcoma, that in a great majority of them you have to ignore most of the volume of what you see and hope that there is some definitive area of differentiation that will give you a proper histogenetic clue. I think we have found that in this case. I think that that clue lies in the small section of the two that were distributed, but I cannot be certain of that because I did not examine all of the slides.

In the slide that Dr. Shaffer sent me there are at least three areas of reasonable extent where the cytological quality of the tumor cells is pretty specific looking, and I think we can see that in the next lantern slide.

Does that section suggest any specific diagnosis to any of you? I hear at least four whispers of granular cell myoblastoma. Is that correct?
Dr. Foote: That micro was taken from the section that Dr. Shaffer sent back to me, and for your own satisfaction, when you get a chance, review the material and see if you cannot locate those areas in the small section of the two that were distributed.

That's not quite as good a lantern slide as the one before, but there is one of the typical granular cell myoblastomas taken from the tongue. So in this particular soft part sarcoma I think we've got a very good clue as to its basic histogenetic type. Up to this point are there any questions?

From the Floor: Is that lipoid?

Dr. Foote: Not lipoid. If you put special stains on these cells and the fat stains are negative, you will get a little faint tinctorial tinge with Best's carmine. If you are interested in the special staining reaction of these granular cell lesions, I would advise you to go back to the paper published by Raymond Bangle in 1951, as I recall. It was in Cancer, and he was working in Dr. Lillie's laboratory, and they really did throw the book at these lesions. We sent Ray a good bit of material to aid him in that histochemical study, and actually his work is just too detailed for me to carry in mind, and I haven't tried to memorize all the features of it.

I think that in passing we had better briefly mention the fact that the histogenesis of these granular lesions is certainly under considerable dispute and many that were in the past accepted as granular cell myoblastomas are now being related to neural origin, and the same Bangle that I referred to a moment ago has published an extremely pointed case I think in one of the 1952 issues of Cancer, where he reports the incidental finding of a typical granular cell lesion confined within the confines of a peripheral nerve. He was able to carry out all of his staining reactions done on other material with this lesion with exactly the same results that he had gotten when he had stained other lesions that would be regarded as benign granular myoblastomas.

Within the last five years I was able to find six articles supporting the neurogenic theory of the origin of at least some of these benign granular lesions. Pursuing it just a bit further, there is a growing body of evidence that in some instances the benign granular lesion is most apt to be concerned with origin from fat, so the doctrine of the benign granular myoblastoma has in recent years lost some ground, but certainly most observers will readily admit that a certain number of these lesions are directly related to muscle origin.

Actually whether this particular lesion that we are concerned
with today is of muscle or other origin, I wouldn't be able to say. I can only say that in all three of the surgical specimens that we had, that we can identify these rather typical looking granular cell elements, and so I suppose, more from instinct than anything else, we have called this tumor granular cell myoblastoma.

That is a vanishingly rare tumor in our experience, and if one can judge by what is recorded in the literature, that is no exaggeration. Several cases were reported from Memorial Hospital about 1951 or '52 in cancer as usual, and three satisfactory examples could be found from the extensive material there, and on a critical survey of all the literature available, we could only find four cases that seemed to meet rigid standards for inclusion.

A great many cases have been published as malignant granular cell myoblastoma, but we feel very strongly that the vast majority of these are mal-inclusions, but a little bit more of that as we go along to the next case.

Before we leave this, I think we have a few lantern slides.

Here is another one of the Memorial cases. This represents the benign looking component of the tumor.

There is this malignant variant. That tumor both recurred and metastasized, and it is of some interest that the metastases in this case were again to lymph nodes.

Here is the third case, and over on the left the benign looking component; over on the right the malignant variant.

In each of these other two cases that we have shown very briefly there were other areas that were extremely similar to the spindly, the myxoid and the gigantiform areas that were shown in the initial slides presented.

So, a vanishingly rare lesion which nevertheless seems to be subject to reasonable identification.

Are there any further comments or corrections on statements rendered on this case?

Dr. Murray Shulman (Irvington, N.J.): What about the possibility that some of these nerve tumors are histogenetically very capable of producing other kinds of cells? Some of them even produce fat-containing cells and so on. Rather than call it a myoblastoma originally with these other elements in it, what would you think of the possibility of it being a primary neurosarcoma of some type with these granular elements in it?

Dr. Foote: Perhaps there's a major accent opposed to this case.
I think in view of the histogenetic dispute that is waged on the identity of these peculiar granular cell lesions that when you have a presentation like this and no traceable background to accent on either nerve or muscle, that you've got to admit that the thing is right up in the air.

This lesion most importantly did involve muscle grossly which in itself doesn't mean very much. Goodness knows there are plenty of nerves and muscles, and if you want to relate this to fat, I think you'd have a greater barrier there, but in choosing between nerve and muscle as possibilities, I would just as soon take a fifty-fifty stand on it.

Dr. A.P. Gewanter (Somerville, N.J.): Would you expect palisading in the myoblastoma? I saw some definite palisading in the one I had.

Dr. Foote: In a myoblastoma that is granulated I would say no. I don't use the term myoblastoma myself unless it is qualified by the term granular cell. Now, that's a habit of personal terminology and isn't necessarily correct. Certainly, palisading in smooth muscle tumors are as common as pig tracks around the barn. Uterine myoma I think is the most frequent site of histologic palisading, and also a granular cell lesion certainly may arise from smooth muscle. They have been reported from the intestine, the bladder, the uterus, and we had one we thought we traced to the arrectores pilorum muscles.

Dr. Casilli: Dr. Foote, is the elimination of the so-called liposarcoma dependent on the presence or absence of fat?

Dr. Foote: Dr. Casilli, I think fat staining for liposarcomas as one of the most fruitless of our laboratory gestures, but when we have an honest-to-God liposarcoma, you don't need the fat stain. When you are trying to force a tumor down the fat alley, you don't know whether you can trust your fat stains, so there are so many tumors of all descriptions and designations, both connective tissue and epithelial, stained positively for fat, that I think it almost useless.

Bear in mind that I have been brought up in a fairly strict school of the application promiscuously of special staining methods. I notice in the last few years that Dr. Stewart has softened a little bit. I think it is because he has more people to do the stains.

We will live a long time before we have enough of an accumulation of this type of case from which to draw a pattern of expected clinical behavior. It is of some interest to me that two of the three cases we had that metastasized did go to lymph nodes. That's a little bit off average at low numbers.
If there are no further questions or comments on No. 6, we will go on over to another field of diagnostic and terminologic debate.

MEMORIAL HOSPITAL DIAGNOSIS: Metastatic Granular Myoblastoma

Case #7, NJ4270

We note that this individual first came under medical treatment in 1933.

DIAGNOSES: Pulmonary Adenomatosis 2
Bronchiolar Carcinoma; Adenoma 2
Alveolar Soft Part Ca or Sa 7
Malignant Myoblastoma 9
Liposarcoma 1
Spindle Cell Sarcoma (Synovial 1) 3
Oxyphil-Cell Ca of Thyroid, met. in Lung 1
Adrenocortical Carcinoma; Adrenal tumor 2
Renal Carcinoma 2
Met. Ca of Liver 1
Chordoma 1
Malignant Paraganlioma 1
Choriocarcinoma 1

You can note the accents for yourself there.

I want to ask a question. How many in the group here thought that this lung lesion was primary?

(About 7 hands were raised.)

Dr. Foote: Quite a number thought it was primary. How many thought it was metastatic?

(About 20 hands were raised.)

Dr. Foote: How many thought it was related to the old tumor of the buttock?

(About 8 hands were raised.)

Dr. Foote: A pretty fair percentage.

This case is something of a match of this earlier case that Dr. Stewart discussed with you. This patient had slides on file in the laboratory from the original surgical procedure, and they were identical with what we got out of the lung. So we had no alternative but to accept this pulmonary lesion as a very delayed metastasis--very delayed in clinical development, shall we say.

We notice actually only two accents in diagnosis; one, malignant
myoblastoma, and the other alveolar soft part sarcoma. I was somewhat surprised that the dominant diagnosis on this case was not nonchromaffin paraganglioma. Only one diagnostician made such a determination. I wonder if that isn't due to the fact that the one article that deals with this type under the diagnosis of nonchromaffin paraganglioma is published in the Military Surgeon which is not perhaps readily obtainable to most of us, and I am sure that lots of you read the journal Cancer, and this alveolar soft part sarcoma term has appeared there.

Why should we not make the diagnosis of malignant myoblastoma?

I don't know whether in this magnification you will see the point that I am going to try to make, but it is as follows: If you have this tumor under high power and study around all of these alveolar groupings, you will find that there is a delicate capillary if not sinusoidal circulation. That is a structural feature that is not found in the granular myoblastoma or granular neurogenic tumor, as you please. On those grounds alone, I would reject the identity in the granular group. Certainly a good many people have been influenced by a prior report from important sources describing such tumors as this under the heading of malignant granular cell myoblastoma. Right off-hand we can recall such publications as that of Laurel Ackerman, Crane, Klemperer, Brickersoff, of course; Konolkar and Shields Warren. All of those writers have recorded examples, but on critical review I think that Dr. Stout has rejected most of them himself, although I still think that he has one published under that structural classification.

We were able to study Dr. Klemperer's case and talk to him about it and he said that for some years he had been very dubious about that classification, and he at that time considered it a malinclusion. He also told us he had heard rumors that the lesion had metastasized, although he had reported it under the benign granular cell myoblastoma.

But if you follow the precedent from the literature, it is quite understandable why this diagnosis of malignant myoblastoma would be made.

In the past records of this lesion at Memorial there is sort of an interesting background. The material that has gradually accumulated there over a period of about seventeen years--and mostly from external sources--covered material which presented diagnoses ranging from alveolar liposarcoma to metastatic hypernephroma, hepatoma, adrenal cortical carcinoma, and in Smetana's report of the fourteen cases from the A.F.I.P., reported under the heading of nonchromaffin paraganglioma, pretty much that same diagnostic emphasis is made.

To date, about forty-odd tumors have been studied. They have,
with one exception, been in one way or another anatomically associated with striated muscle. Dr. Stewart can correct me if I quote this case erroneously. I think it was Dr. Fisher in England who sent him a lesion from a lung. It has a structure just like the case that you have seen today, and in this case of Fisher, as I recall, an autopsy was done, and the only other site of disease was cerebral metastasis.

Correct, Dr. Stewart?

Dr. Stewart: One other case in Brazil where there was metastasis primary in the lung.

Dr. Foote: All right. Two cases apparently primary in the lung.

Christopheson has been particularly interested in studying these cases from the standpoint of pleading a certain theory of histogenesis. If you can establish a clear case of intrapulmonic neoplasm of this type, you pull the Christopheson rug completely, because his thesis of origin is that these tumors start from a background of origin in muscle spindles. He has done great deal of work in support of that; most of which, as a matter of fact none of which, has yet been published. But Christopheson, in sticking to his guns in this argument, states that he won't at the present accept the long origin of these--he talked to me about one case, but we'll call it two cases--because it is possible to have an occult primary undisclosed in this disease, and he cites two pretty brilliant examples.

One of these was a young girl who had an axillary node removed, and it showed the classical structure that we have seen in this case. Following this she was well and followed six years until she developed pain in the back and was found on investigation to have one of these lesions in the psoas muscle. So he considers that an occult primary, and he cites another case where either lobectomy was done or some sort of excision of an intrapulmonic lesion, and at the time of the thoracotomy a clinical lipoma of the thigh that had been quiescent and essentially unnoteworthy was excised at the same time. The presumed lipoma had the same structure as the intrapulmonic lesion. So he continues to plead that the failure to find the tumor elsewhere than the lung does not entirely exclude his way of thinking about the possible histogenesis of this lesion.

Are there any questions up to this point?

(No reply)

Dr. Foote: To mention briefly in passing, Dr. Smetana has proposed that these tumors arise from glomic-like structures that lie in close relation to blood vessels as they traverse the striated musculature. He points out in his first publication
that Dr. Lent Johnson informed him of the existence in the
thigh of certain glomic-like lesions that stood pretty much
in the same relation to the femoral sheath as did the car-
otid body to the carotid sheath. He illustrates these
structures and proposes the possibility that these repre-
sent nonchromaffin paraganglionic glomera.

There seems to be at present a defect in the Smetana approach,
namely, that these structures have not been described all over
the body and perhaps Lent Johnson's structures constitute a re-
gional accent that will not be recapitulated in other parts of
the body where these tumors are well known to arise. There was
some point in Smetana's accenting these structures because half
of his cases did occur in the thigh.

I have heard a rumor that he has found supportive evidence of
this in other parts of the body, but I have not seen a publica-
tion of it, and you know how Madam Rumor is prone to go about.
We may not hear from that. But, at least, only those two his-
togenetic viewpoints have been expressed as far as I know if
you are willing to exclude the thesis of relationship with the
granular cell myoblastoma.

It might be worth mentioning very briefly that out of the Me-
memorial material totalling twelve cases, followed over a period
of many years except for two, that six of the patients have
died from metastases. This type of patient only survived last
year. That is the longest survival among the fatal cases. Most
of these tumors have caused death only after several or many
years. Half of the Smetana series is dead. It seems that his
cases ran a sluggish course for the most part but somewhat more
aggressive than the Memorial.

If there are no comments about Case No. 7.

(Requests from the floor for the diagnosis)

Dr. Foote: The diagnosis that we employ for this lesion is
alveolar soft part sarcoma, a tumor of undetermined histo-
genesis. I thought I said that while I was talking, but per-
haps I am getting forgetful.

MEMORIAL HOSPITAL DIAGNOSIS: Metastatic Alveolar Soft Part
Sarcoma

Case #8, NJ4363

No. 8 concerns another lesion that has its debatable histo-
genetic aspects. It concerns a lesion that within the last
few years has been sufficiently well documented so that you
can typify the clinical implications when the diagnosis of
this lesion type is made.
That is a blow-up of the section that was distributed by Dr. Shaffer. It is for only one purpose, namely, to point out the plexiform grouping of islands of tumor throughout the myometrium and over in this area a conglomerate aggregate creating considerable mass.

I was somewhat disappointed in the section that I got because it wasn't typical. The section I received--I don't find in these plexiform structures a surrounding vessel which is characteristic.

There is a pretty typical field of what I found in the slide that I got back, but it isn't what we had in the original material, and I thought the block that I sent was typical.

This is what I hoped your slide would show, and so I think it is a little unfair in discussing this case and stating that such-and-such a list of diagnoses was made when it probably would have been somewhat more different had a more typical block been submitted to you.

That just happens to be a copy of one of Robert Frank's 1932 photos.

**DIAGNOSES:**

- Malig. Granulosa Cell Tumor of Ovary: 3
- Endometriosis Stromal: 6
- Malignant Stromal Sarcoma: 11
- Adenomyosarcoma: 1
- Leiomyosarcoma: 5
- Spindle Cell Sarcoma: 1
- Mixed Mesodermal Tumor of Uterus: 4
- Teratoma: 1
- Mesenchymoma: 1
- Endolymphatic Stromal Myosis: 1
- Malignant Endolymphatic Stromal Myosis: 1

The diagnoses. You will notice that a good many men have not been deluded even in the absence of typical structure in the slides. We think that this is an example of so-called endolymphatic stromal proliferation, stromatous endometriosis or whatever term you care to select for it.

At least nineteen of the pathologists have attributed this lesion to endometrial origin, and it looks as though a pleasingly large number have been able to recognize its specific nature even in the absence of a perfectly typical section. That's interesting to me because it shows the path of progress. About seven or eight years ago--I am not going to say what state we were in because it's a southern state and I might get shot if I said this--one of these cases was shown down in that area, and there wasn't a single person present who recognized the lesion or had seen a publication of such a case.
In only the last few years has any real literature appeared on this subject. I took the trouble to make a very brief outline. To date, the following terms have been employed: Perithelioma in 1909 by Doran & Lockyer. In 1920, Casler described the lesion, but I do not recall exactly what term he employed. The next publication was Robert Frank, and he used two terms: fibromyosis and plexiform endolymphatic proliferation. That's the term I chose because then you don't have to defend the histogenetic background of the tumor.

A little later the term stromatous endometriosis was employed, and then endolymphatic stromalmyosis. The stromalmyosis, to me, is a bad term because that is an acknowledgment that you can't make up your mind about it; whereas, if you say proliferation you are undertaking no obligation.

There isn't any particular standardized term. Dr. Novak prefers to call these things very low grade endometrial sarcomas. I think there is a certain amount of logic in that which I think can become manifest by giving you just a brief summary from a very good review or article by Park in the Journal of Obstetrics and Gynecology of the British Empire published in 1949. He made exhaustive analysis of fifty reported cases on which there were adequate data in about forty-three. We find that the disease is commonest between the ages of forty and fifty where about thirty-five per cent of the total occur, that some form of uterine or vaginal bleeding is reported in more than half. In general, however, there is no constant symptom complex. Some of them have abdominal or pelvic pain, abdominal swelling, and occasionally dysmenorrhea.

The only constant cervical finding is an enlarged uterus which is symmetrical, but which is usually diagnosed as a fibroid or ovarian cyst. In the cases available 42 laparotomies had been performed, and in 12 of these 42, there was either visible or palpable spread of this process beyond the uterus, usually to the broad ligament and sometimes to the wall of the pelvis. In one case there were multiple scattered nodules all over the pelvic peritoneum and in fact much higher up. That was a single case report and that was reviewed just last week. I have a hunch that was not a bona fide case; suggestive, but not entirely clear as to meaning.

Endometriosis was found in 7 of the 42 patients who were operated, and this usually involved the ovary or the uterine peritoneum. In only 4 was there an associated adenomyosis. Until the Park article there was the greatest discrepancy in literary commentators about the course and prognosis of this disease. Some even implied that it was strictly benign. In review of the 43 cases documented, 5 have died as a direct result of the disease. This has been due to local pelvic spread. After operation they have lived for as long as 4 to 17 years, so it has been invariably sluggish. In addition to the 5 fatal cases 5
others had clinical recurrences, and so the rate of total recurrence in this lesion is as high as 23 per cent, and in all probability that figure is low because of the known ability of this lesion to recur many years after initial effort of operative removal.

I could not find clear evidence from Park's paper or reviewing the various articles that he cited that any distant metastases had occurred. There are three possibilities, one based on clinical evidence, another on X-ray evidence, and the third on histologic evidence, but that was Goodall's case, and there is some doubt expressed in the author's mind as to whether or not it was actually from the pelvic tumor. So that gives us at least a bird's-eye view of the rather infrequent and rather startlingly typical uterine tumor.

Dr. M.R. Rush (Long Branch, N.J.): Has there ever been any tie-up with this lesion and a functional tumor on the ovary or a cortical stromal cell hyperplasia?

Dr. Foote: I don't recall a single mention of that in about 10 articles that I have read on this subject. I also don't think that any emphasis was made in the study of the ovaries from the standpoint of cortical stromal hyperplasia. I don't recall any other coexisting tumor except an ovarian cyst. Of course, uterine fibromyomas have been reported in quite a number. It's a funny thing, you go a long, long time between cases like this. In the fifteen years that I have been in Dr. Stewart's laboratory until yesterday we had had one case. Case No. 2 occurred yesterday afternoon. It was in a huge fibroid uterus.

If there is no further comment, we will hurry on to Case No. 9.

MEMORIAL HOSPITAL DIAGNOSIS: Endolymphatic stromal proliferation. (? of sarcoma)

Case #9, N.J 4364

Case No. 9 concerns a tumor that is actually an incidental finding. This woman was operated on on account of a pelvic mass, and you will notice that the cervical specimen showed a 9 cm. left ovary which was principally enlarged due to a smooth wall cyst. The mass with which we will concern ourselves is only a little 3 x 2.5 x 2 cm. proposition from which our conference section was prepared.

DIAGNOSES: Granulosa Cell Tumor 5
Adenoacanthoma 8
Carcinoma 11
Metastatic Adeno-Carcinoma (Krukenberg) 1
Metastatic Adenocarcinoma Primary Fallopian Tube 1
Mullerian Carcinoma of Endometriosis 1
Serous Cystadenoma (c Squamous Metaplasia - 1) 4
Malignant Pseudomucinous Cystadenoma 1
Brenner Tumor 1
Gynandroblastoma 1

I was somewhat relieved that the majority decided to vote malignant on this case. Adeno-acanthoma carcinoma seemed to predominate the thinking. I was expecting a larger group of benign diagnoses because this tumor is extremely orderly. Let's refresh our minds in the structural features of the slide which Dr. Gilbert and Dr. Shaffer prepared.

I think that is the typical field of glandular and what I would interpret epidermoid metaplasia hence giving rise to the term adeno-acanthoma, incidentally, a term coined by Herksheimer in 1907.

A little higher power, but notice that is a pretty orderly glandular pattern and a pretty smooth quality in that epidermoid component. We had a conference in Albany about a month ago, and such a tumor as this was shown from the endometrium. By far the ruling opinion of that conference was that the lesion of the uterus was not malignant. I felt impelled to quote a remarkable case and I would like to mention that case very briefly in passing.

This is another slightly higher powered illustration of the case.

There is a structurally comparable case to me in spite of the fact that there was not much eosin in this. They don't put much eosin in the New York Hospital slides, and that is where this one came from.

This is the case of Dr. Andrew Marquetti. It was a young woman in her 20's. She had uterine bleeding. She had a curetage. They got this sort of stuff out of the curettages.

This case went all over the United States and I guess to several foreign countries. At that time there was the limited New York Society of Gynecological Pathologists who met in dark rooms about once every two months, about 14 in number, and Dr. Marquetti brought that case to one of the conferences. Out of all those present he and Dr. Stewart were the only ones who made a diagnosis of low-grade adeno-acanthoma. That was about 1937 or 1938.

Anyhow, to shorten the story, Dr. Marquetti didn't move recklessly. But over a period of several years there were several curettages and always a structure like this. Finally, he became convinced that this was not any spontaneous and self-limited disease and he insisted on doing a hysterectomy, as I recall, in the eleventh year after the first material was
secured. He did the hysterectomy and to his dismay found, when he got in, that she had ovarian metastases. So at least that case more or less satisfies my own mind that over a long pull that structural quality may be associated with the ability to metastasize. That's the only uterine case of that sort that I have seen that did yield metastases.

Perhaps I am somewhat relieved that the predominant accent here is inclined towards a malignant tumor. You remember the Albany conference, don't you, Dr. Angrist? Have I misquoted the proceedings there?

Dr. Angrist: Hardly!

Dr. Foote: I always feel very, very abject in front of my peers and professors.

Let me point out that the endometrium in this case was carefully studied and essentially normal. There wasn't any lesion in the endometrium. Some people have postulated a primary in the endometrium for a perfectly sound reason, of course.

If this is a primary low-grade adeno-acanthoma of the ovary, just how rare is this lesion? Well, it's pretty rare, a whole lot rarer than I thought. I remember the case recorded was in 1945 by Melody Falkner and Stone, and their illustration looks almost identical with this. All in all, in bringing up the literature to 1953, I can only find eight primary ovarian adeno-acanthomas in the literature, and almost all of these were very short term in their follow-ups. There was one case that was reported by Garnett and Crane, a bulky cystic tumor, and this patient did die with generalized metastases. That's the only fatal case that I can find out of the eight, but they are all too thinly documented from the standpoint of time.

If we consider this is a primary ovarian adeno-acanthoma, can we speculate on its histogenesis?

How many of you thought you saw endometrial tissue in the sections?

(About six hands were raised.)

Dr. Foote: Thank goodness for a loyal few! I thought I saw some, but that's about as much as I can make out of it.

In any event, out of the eight cases that have been reported, five have been in association with endometriosis, and I had a fair idea that this lesion in the ovary might have arisen on the basis of a pre-existing endometriosis.

If we view this as a possible tumor in the ovary arising in endometriosis, just how many cases are there in the literature
of ovarian carcinoma arising in endometriosis? That's awfully thin, too, but the most extensive article on the subject was written by Hertig and some co-workers in 1950, and out of their own extensive material they thought that they had three convincing and three possible examples. They thought there were only 8 published cases that they could accept. There appeared to be about a dozen good cases of ovarian carcinoma arising in endometriosis. It is of some interest that in those cases alleged to arise in endometriosis, adeno-acanthoma is frequently represented and much more frequently than you would expect on a chance basis, since in corpus cancer you expect not over 3 per cent to be adeno-acanthomatous. The chances are that we have a good many more tumors of the ovary arising in endometriosis than we can ever identify.

Would someone care to broaden the comments or to make any correc-
tions?

Dr. J. Churg (Paterson, N.J.): There have been some reports in the literature about the possible relationship of adeno-acantha-

Dr. Foote: I came across one such report. Do you have another one still in mind?

Dr. Churg: No, that's the one.

Dr. Foote: That was one of the earlier reported cases, and critically reviewed by Hertig and his group. He makes the statement that he thinks it is either a Brenner tumor or a peculiar arrhenoblastoma. He excluded that case from his count. I cannot recall whose report that is.

Dr. Churg: It was a report by Spear. I think it was from Flower Hospital. There have been two or three cases that have been considered in the uterus.

Dr. Foote: In the uterus. I have seen one case myself of a Brenner tumor. I just passed it up as coincidental, perhaps incorrectly. There are allegations that Brenner tumors may on occasion be functional tumors?

Dr. Churg: Malignant tumors.

Dr. Foote: I haven't come across a generally accepted case of malignant Brenner tumor although I am aware that the occasional reference to it has been made.

MEMORIAL HOSPITAL DIAGNOSIS: Adenoacanthoma squamous metaplasia

Case #10, NJ4365

Let's go on now to the last case which will take just a moment.

-36-
This case was supplied us some years ago by Dr. Russell in Texas. Two sections were distributed in one of these I had hoped to show you the primary tumor on the foot, but I am afraid that in some of these sections the block had already given up all of its tumor, so you may have a blank in some of your skin sections of the presumed and undoubted primary tumor. I am sure that the groin node metastases came through all right for everybody.

This case was simply picked up as a collector's item to illustrate once again the very large potential that the sweat glands have for reproducing tumors that commonly arise in both major and minor salivary glands.

**DIAGNOSES:**
- Sebaceous Gland Ca
- Sweat Gland Ca or Malig. Hydradenoma
- Mucoepidermoid Ca of Sweat Gland Origin
- Mucus Cell Ca of Skin
- Metatypical Epidermoid Ca
- Skin Appendage Origin-Recurrent Ca
- Malignant Synovioma

I notice there are only two accents on diagnosis; one on sebaceous gland carcinoma, the other on sweat gland. We vote the sweat gland carcinoma and call it a muco-epidermoid variant.

For the satisfaction of those who chose sebaceous gland origin we can show sections of the mucicarmine which I think will at least convince you of the presence of mucus-forming cells.

That is from the primary tumor H and E, and we have just a little island of residual tumor there.

Here it is at a little higher power. These pale cells through here are rich in mucus, and perhaps the degree of granularity suggested a sebaceous element.

Here it is more emphatic still--pools of mucus accumulation.

This is from the groin node metastasis, I am sure. You will notice that a great many of these mucus-bearing cells are present in the metastasis. That is true of many of the salivary tumors also.

Here is the mucicarmine of the primary. See the squamous epithelium here.

That is from the node metastasis, again showing the presence of mucus-containing cells.

If there is going to be no discussion on this case, both for Dr. Stewart and myself, we want to thank all of you again for the privilege to meet with you. We have all had a mighty good time.

Dr. Casilli: I am sure that you will all go home with something to think about, and I am sure also, as in the previous years, we will take home some knowledge which is new.

Thank you again. The meeting is adjourned.

(The meeting adjourned at four-forty o'clock).
January 7, 1955

Dear Doctors,

Greetings on the New Year!

The tumor slide seminar of last month was an eminent success judged by attendance and interest. Those of you who attended, we are sure benefited by the discussions. We are hoping that very soon the transcript of the meeting will be printed and sent to each of you. In the meantime we thought you would be interested in having the Stewart-Foote diagnoses on the seminar cases. Here they are:

Case #1 - (NJ4252) Osteogenic sarcoma
2 - (NJ4212) atypical plasma cell myeloma
3 - (NJ4161) sarcomatous polyp.
4 - (NJ4253) synovialoma
5 - (NJ4211) thymoma
6 - (NJ4271) metastatic granular myoblastoma
7 - (NJ4270) metastatic alveolar soft part sarcoma
8 - (NJ4363) endolymphatic stromal proliferation
9 - (NJ4364) adenoacanthoma
10 - (NJ4365) mucoepidermoid Ca. sweat glands & node

We shall soon begin to call on you on our regular field trips. In the meantime, send us any interesting or important specimens for recording in our slide files. Also, use our services as freely as required.

Sincerely yours,

E.L. Shaffer, Ph.D.,
Director of Laboratories

E.O. Gilbert, D.V.M.
Principal Histologist