Set 82

Case 1

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

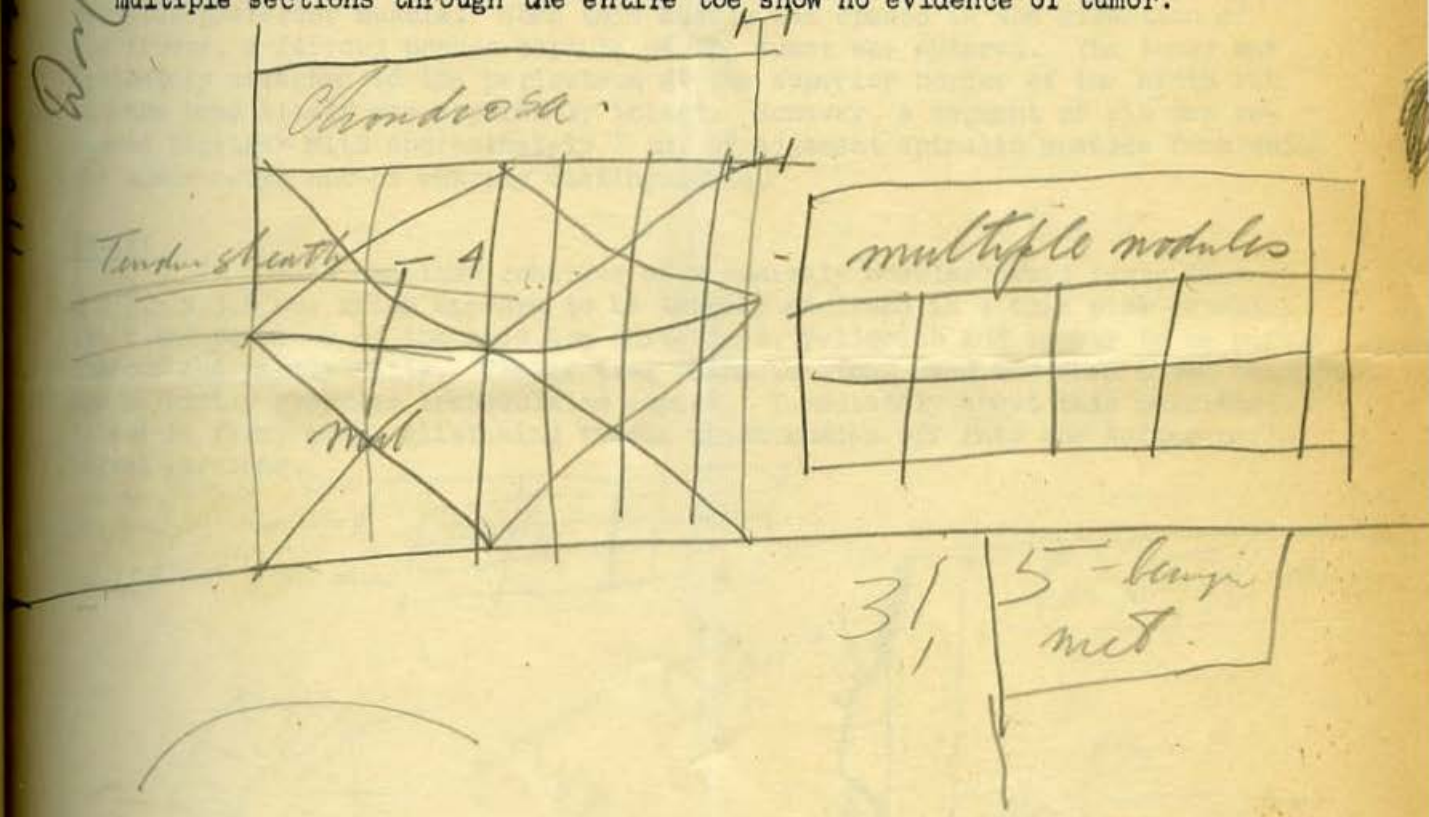
Submitted by: Col. Charles Farinacci
Brooke Army Medical Center

P&S 48447

History:

This patient, a 23-year old white male, FAAML Acc. No. S-12422, had a tumor on the plantar surface, distal phalanx of the right second toe of one year's duration. It had slowly grown in size and recently there had been ulceration of the overlying skin. The tumor was found to be attached to the flexor tendon sheath but was not attached to the periosteum or underlying bone at the time of operation.

The tumor measured 3.2 x 2.4 x 2.8 cm. and grossly appeared to be a chondroma which was attached to the overlying skin and soft tissues. A poor x-ray film was submitted and several competent radiologists agreed that this tumor does not involve bone. Subsequently the toe was removed and multiple sections through the entire toe show no evidence of tumor.



258 W 23rd St

Case 2

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Submitted by: Dr. Homer Kesten
White Plains Hospital
(#33561)

F&S 47963

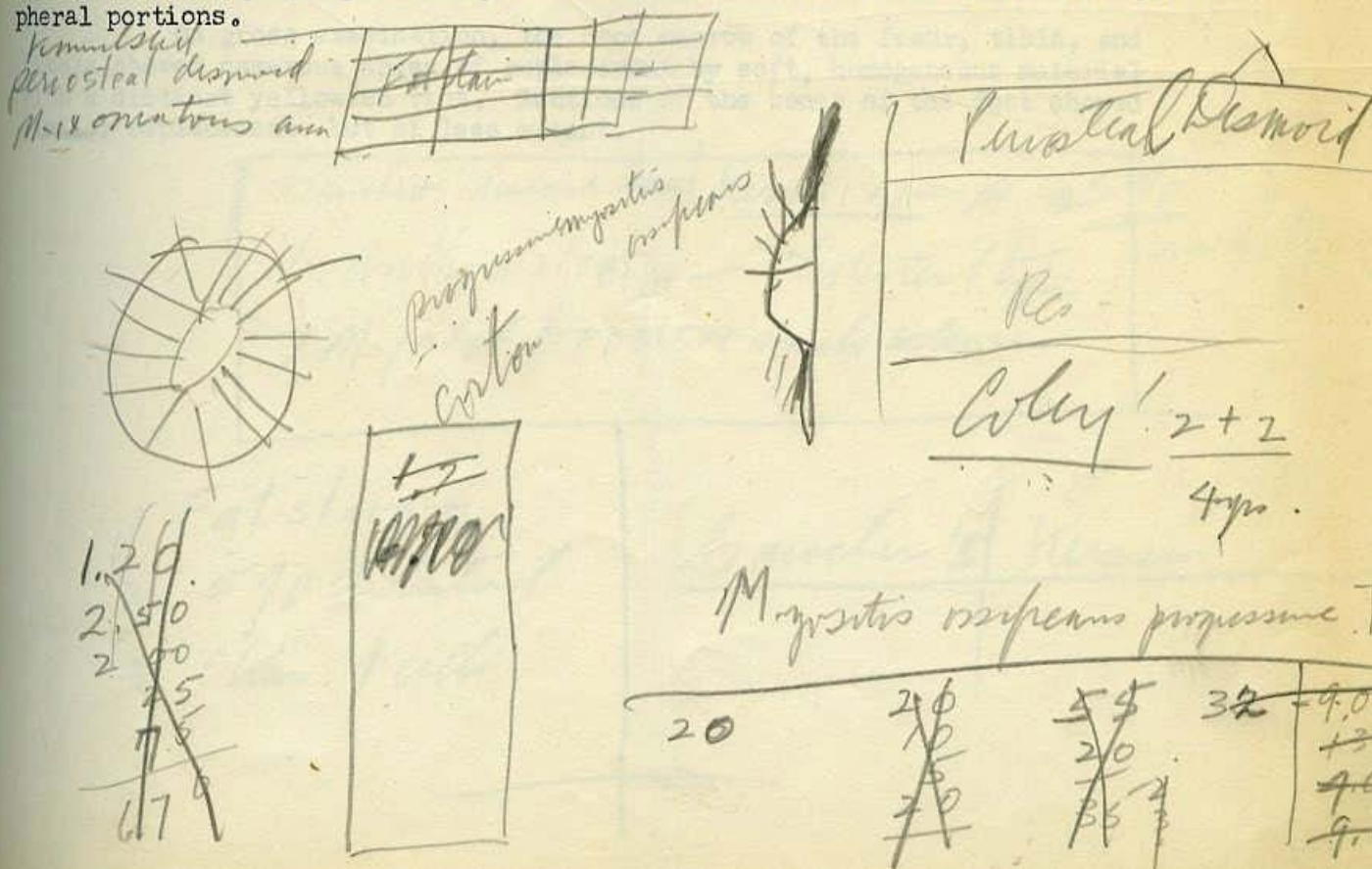
History:

Boy, age 8 years. For approximately 8 months this otherwise normal boy had noted a painless, slowly growing mass on the back overlying the ninth rib between the angle of the scapula and the midline. It is not attached to the skin and appears to lie in the axis of the latissimus dorsi muscle at its upper border. However, when the arm is adducted the scapula seems to overlie the mass and it is more readily palpated when the arm is abducted. The axillary nodes are normal as are lungs and heart, to physical examination and x-ray. Blood count normal.

At operation the latissimus dorsi muscle was divided and the spinalis group retracted medially to reveal a walnut-size tumor beneath the serratus posterior muscle. When this muscle was opened in the direction of its fibers, a fibrous pseudo-capsule of the tumor was entered. The tumor was intimately attached to the periosteum at the superior border of the ninth rib but the bone itself was apparently intact. However, a segment of rib was resected together with approximately 2 cm. of adjacent spinalis muscles from which the tumor could not be sharply distinguished.

Gross:

This specimen consists of a coarsely nodular ovoid tumor mass 3 x 3.5 x 3.5 cm. which appears to be largely enclosed in a thin pink capsule. The outer portions of the mass are quite soft, yellowish and appear to be partly fibrous and partly fatty. The central third is stony hard and when sawed through has a faintly granular trabeculated aspect. Immediately about this calcified tissue is firm, grey, glistening tissue which shades off into the softer peripheral portions.



Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Case 3

Submitted by: Dr. Maurice Richter
(73024)

P&S 48088

History:

The patient was a woman 76 years of age, admitted for gangrene of the toes of the left foot. The right leg had been amputated below the knee for gangrene 2 years previously. Until the age of 71 she was reasonably well but then developed "fibrosis of the bones" or "osteosclerosis", and a large spleen and liver. Details of this illness are not available.

On admission, the toes of the left foot were gangrenous, the liver edge was 3 fingers below the costal margin, and the tip of the spleen was at the iliac crest.

X-ray examination of the toes of the left foot showed marked generalized de-calcification, and an erosion of the terminal part of the big toe, with soft tissue infiltration. X-rays of the thorax showed diffuse osteoplastic processes involving bones of thoracic cage and upper portions of humeri.

Blood counts made at intervals over the last year showed progressive increase in leucocytes from 10,200 to 70,000 per c.mm. Neutrophiles were generally between 60% and 70%, and myelocytes and myeloblasts were present in small numbers. The red count remained at about 4,000,000 and hemoglobin between 10 and 11 grams.

Amputation of the left leg was performed above the knee.

On gross examination, the bone marrow of the femur, tibia, and fibula showed numerous areas of replacement by soft, homogeneous material with a distinct yellowish tint. Sections of the bones of the foot showed similar replacement, but of less extent.

Gaucher's disease — Kerasin ~~+~~ +5% under 1%
X anthrometabis — Cholesterol type
→ Myelofibrosis & myelo sclerosis

1. Fat stain +
2. 5% Cholesterol
3. Char. cells

Gaucher's Kerasin

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Case 4

P&S 48069

Submitted by: Dr. Frank Vellios
Indiana Univ. Med. Center
(74943 & 75045)

HISTORY:

The patient was a 7-year old boy who had noted unilateral exophthalmos in September 1954, produced by a mass in the orbit. A craniotomy was done removing about 6 gms of pale brown, moderately firm tissue, (specimen 74943). Following this biopsy procedure he had further surgery including exenteration of the orbit on December 29, 1954. The tumor extended into the antrum and base of the skull and was not completely removed. The ophthalmologist at surgery thought the site of origin probably was in the antrum.

Highly malig. + Sarcoma +
Chondrosa. ~~Sarcoma~~
Rhabdomyo +

Dead - recurred
No distant metastases.

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Case 5

Submitted by: Dr. John Pearce
New York Hospital
(S-55-605)

P&S 48389

History: 33 year old female bookeeper.

1½ years dizzy spells.

6 months episode of vomiting without nausea. This was repeated 2-3 times every week.

5 months ago she was told she had a tumor - survey refused.

Severe nausea and vomiting have continued since. Denies abdominal pain. Weight loss of 15 pounds.

Examination:

BP 115/75. In left lower quadrant there is a 12 cm. in diameter firm slightly movable mass. Pelvic examination negative. IVP negative.

Operation:

A grey dark lobulated cystic tumor was removed from the left lumbar gutter. The cysts contained yellow fluid. There were also some 1-2 cm. firm white parts in the tumor. The tumor seemed to originate close to the bifurcation of the aorta.

glomus - pere

1 glomangioma — 2 lymphangiopericytoma

1. get B&W & Color photograph reproduction

glomus (lymphangiopericytoma type)

5/21 mit.

Case 6

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Submitted by: Dr. Homer Kesten
(54-1887)

R&S 46738 - History:

35-year old white male.

1939: Myringotomy for suppurative otitis media.

1943: Simple mastoidectomy for acute mastoiditis; tissue found was peculiar in appearance and was submitted for examination.

1952: Persistent signs of mastoid disease. Polyp removed from middle ear, projecting through drum.

1954: Persistent signs of mastoid disease. Radical mastoidectomy performed. Soft red, jelly-like tissue found loose in mastoid cavity, extending from middle ear, and infiltrating the overlying skin and sternomastoid muscle. The bone and dural plate appear intact and uninvolved.

Arthur Purdy Stout Club Seminar
June 11, 1955 - New York City

Case 7

P&S 48388

Submitted by: Dr. John Pearce
New York Hospital
S-54-7650

History: (Male, adult)

Four months prior to admission the patient noted depression, emotional lability. Thinking became slow, speech slow. He was unable to find or select proper words, nor to write these down. He became unable to perform simple addition. Started limping with left leg.

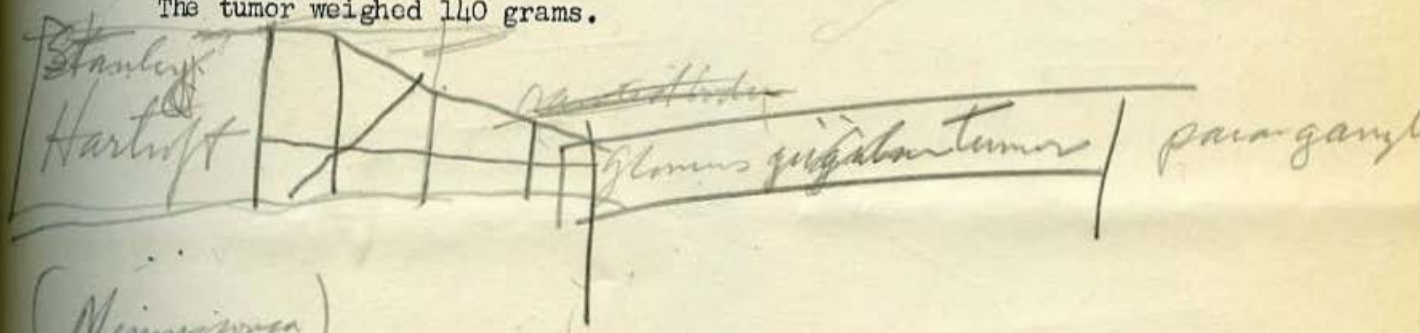
Examination: Well developed white male. Slow mentation. Left homonymous hemianopsia. Spastic paresis in left upper and both lower extremities, most marked in left lower extremity. Prostate four times enlarged.

Ventriculogram showed a "space occupying lesion" in right temporal region.

Craniotomy showed a vascular tumor of the right petrous ridge.

700

The tumor weighed 140 grams.



(Meningioma)

Kernohan's fascicle.

Alan Wolf — says it is

green
Cowden Stain

Case 8

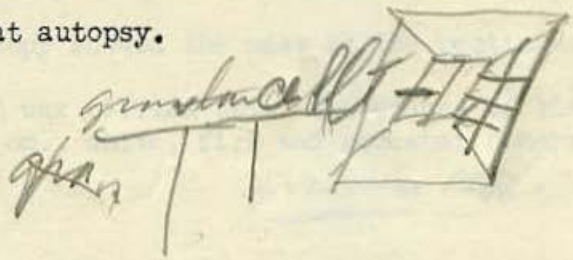
Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Submitted by: Dr. John Pickren
St. Albans Naval Hosp.
54-116

P&S 48429

Male, age 65 - dead of uremia following carcinoma of urinary bladder.

Specimen submitted is the pituitary gland, removed routinely at autopsy.



W23d.St

Case 9

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

P&S 48387

Submitted by: Dr. John Pearce
(S-55-765)

History:

28-year old draftsman. For 1½ years patient had noted occasional bright red blood on paper after bowel movements. No blood on stool but burning with movements.

Examination: 1 cm. inside sphincter is a 0.5 cm. polypoid firm mass on anterior rectal wall.

Barium enema: Negative.

Proctoscopy showed the mass at the pectinate line.

Excision was carried out. Two pieces of tissue were removed, the larger 1 x 0.5 x 0.5 cm., white, firm and somewhat hemorrhagic.

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Case 10

Submitted by: Dr. John Pearce
New York Hospital
(S-55-609)

P&S 48391 - Male Age 51.

CC: Inability to pass urine.

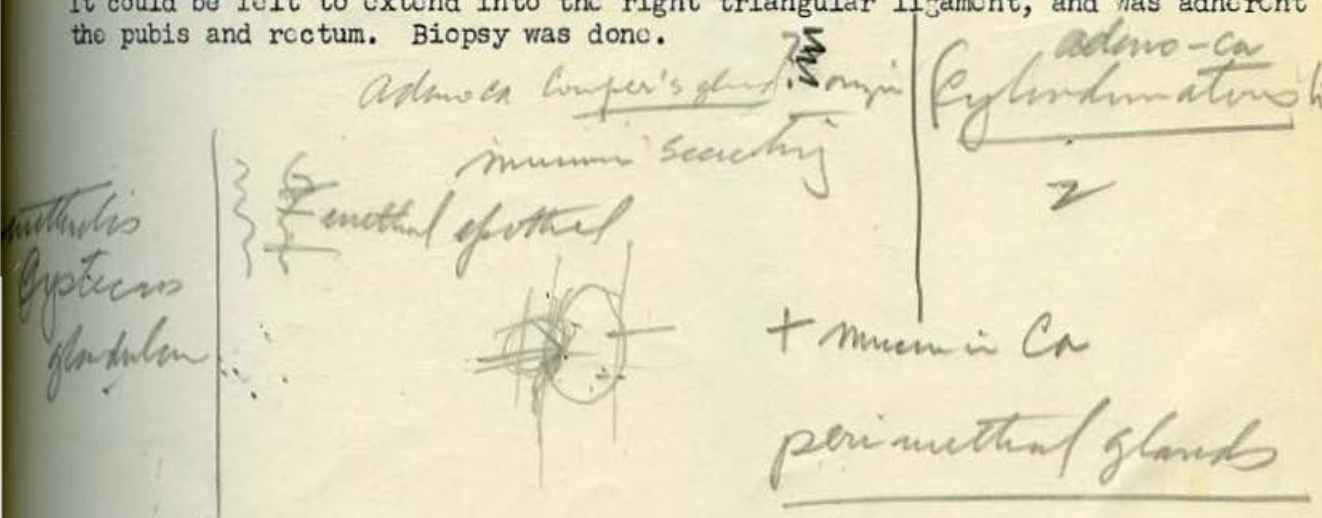
PI: The patient was well until 3 years ago, when he first noted urinary hesitancy and frequency. He consulted a urologist, who did a transurethral resection of the prostate. Though the pathological report was said to show no carcinoma, the physician must have suspected malignancy, and advised a perineal prostatectomy, which the patient refused. He consulted another physician, who biopsied a lesion on the anterior rectal wall, which showed "a carcinoma of gland". Because of urinary retention 14 and again 7 months ago, transurethral resections were again performed. On one of these occasions, the tissue was "suspected of carcinoma". A bilateral orchidectomy followed the third transurethral resection, which left him with incontinence. His general health and weight gradually declined and he again developed urinary retention a month before admission.

The remainder of the history was non-contributory.

PX: A chronically ill man with normal vital signs. Filling of the prostatic area, as palpated rectally, was a mass about four times the size of a normal prostate which extended laterally beyond the confines of the prostate, and felt fixed. Examination under anesthesia confirmed this, and revealed the mass to lie mostly on the right. The right thigh was smaller than the left, and the right knee jerk hyperactive.

LAB: Urine 2 plus alb., many red and white blood cells. Hemogram normal. BUN: 16 mg.%, Acid Phos. 0.7 units. Chest x-ray showed a pulmonary fibrosis. Pyelograms were essentially normal, and no x-ray evidence of metastases was found.

COURSE: On cystoscopy and urethroscopy, hard tumor tissue was seen to be growing in the urethra in the prostatic region, and extending to the external sphincter. It could be felt to extend into the right triangular ligament, and was adherent to the pubis and rectum. Biopsy was done.



Case 11

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Submitted by: Dr. A. D. DeSanto
Mercy Hospital
San Diego, California

P&S 48146 - History:

Ovarian tumor from a fifty year old Indian woman. It was partly cystic and measured about 20 cm. in diameter. The tissue was yellow.

granulosa - arrhenoblastoma
gyandroblastoma

Secondary

granulosa + arrhenoblastoma
lipoids

gyandroblastoma

arrhenoblastoma gyn

De Santo.

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Case 12

P&S 48669

Submitted by: Dr. Elson B. Helwig
A.F.I.P., Washington DC
(AFIP 695697)

History:

37-year old white male with massive GI hemorrhage 2 years ago; another episode requiring 13 units of blood at present; 2 GI series in past have been negative for ulcer. Preoperative diagnosis: Bleeding duodenal ulcer. Atypical ulcer symptoms for 2 years. At surgery a submucous nodule of duodenum adjacent to ampulla was excised.

Gross:

The specimen consists of a roughly spherical mass measuring 1.7 cm. in diameter. One surface is composed of duodenal mucosa 1.3 cm. in diameter. This presents a centrally depressed ulcerated area 0.2 cm. in diameter. The cut surface of the mass is made up of rather soft pale brown tissue with a lobulated appearance.

Arthur Purdy Stout Club - Seminar
June 11, 1955 - New York City

Case 13

Submitted by: Dr. Raffaele Lattes

History:

A-46390. Patient: F.W. - 29 year old male.

Admitted to Presbyterian Hospital in February 1955 with CC: Left lower quadrant pain of 2 months duration.

PH: Except for an episode of dysentery in Australia 3 years ago, the patient's past history has been essentially negative.

PI: About 2 months prior to admission the patient noted insidious onset of LLQ tenderness which became more painful on motion or with increase of intra-abdominal pressure. There were no other symptoms.

PX: A well developed, well nourished male in no distress. Abdomen: guarding over whole left of abdomen, and several palpable distinct masses which were slightly tender in LLQ, the largest apparently the size of a lemon.

L...: Proctoscopy: negative. Stool guaiac: negative. Barium enema: No intrinsic disease of colon. It was felt that the palpated mass was definitely below the left kidney.

COURSE: On Feb. 10, 1955, the patient had an exploratory laparotomy, at which time a large multicystic mass was found attached to the peritoneum just lateral to the descending colon, but also adherent to the greater omentum. The mass extended over the brim of the pelvis, always on the left side. It measured about 20x14x5 cm and it was composed of a large number of cysts containing a clear yellowish fluid. This mass was dissected and apparently completely excised. Some of the cysts were broken and their contents spilled into the peritoneum cavity.

Gross Description: Specimen consists of an irregular 20x12x5 cm. mass of grape clustered cystic structures. The cysts are thin walled, varying in size from 5 cm to 0.2 cm in diameter and are filled with clear yellow serous fluid. A broad apron of membraneous, adipose and vascular tissue with the appearance of omentum is attached to one aspect of the tumor mass. On palpation, the mass seems to be most indurated in the region of the omental attachment. Cross section shows the mass to consist of the above described cystic structures, through and through, with more numerous smaller cystic masses in the region of the omental attachment.

Set 8.

Case 1

Arthur Purdy Stout Club
Seminar - June 11, 1955

P&S 48447 (4th Army Area Med. Lab. S-12422)

Microscopic: This is a multinodular tumor with a matrix of hyaline cartilage and a very considerable number of cells which are usually solitary and enclosed in capsules but this is not invariably the case. There is some tendency for the cells to be most numerous at the periphery of the nodules but this is not nearly as striking as in some cases. The original sections show a little powdery calcification in spots but it is insignificant in amount and there is no evidence of ossification. The sections submitted show the tumor nodules in conglomeration pushing their way into the corium. No mitoses are detected. None of the chondroblasts can be described as a wholly adult fully differentiated chondroblast.

Discussion: The diagnosis of cartilaginous tumor arising in a flexor tendon sheath of a toe is easy enough in this case. What makes the growth of interest is the rarety of such tumors and especially the decision as to whether or not it should be considered a chondroma or a chondrosarcoma. When Verner and I made our report on Chondrosarcomas of the Soft Tissues, we surveyed the occurrence of tendon sheath cartilaginous tumors. We found that differentiated chondromas of tendon sheaths of the fingers and toes were known and recognized. At the Presbyterian Hospital up to 1952, four had been removed from the fingers and two from the toes. All of them were solitary, not attached to bone, none reached a diameter greater than 2 cm., and all were made up of differentiated hyaline or fibrocartilage and some showed calcification. Four were followed from 17 months to 7-1/3 years and none had recurrences. We have had no chondrosarcomas in the soft tissues of the fingers and toes and none has been reported. Two of the cases reported by Stout and Verner were in the hands and feet: one was in the dorsum of the foot and had not recurred 2 years after removal. The other was in the palm of the hand and attempts to trace him after excision failed. The really vital question is to decide whether this tumor is to be considered benign or malignant. It happens that differentiation in all of the 7 cases reported by Verner and Stout was less good than in this case and in most of them cellularity was greater in the peripheral zones of the nodules. However, in this case cellularity is far greater than in the usual chondroma and while the majority of the cells are enclosed in capsules, there are a good many where even with the trichrome stain no capsule can be detected. I do not feel that I have a great enough background of experience with chondrosarcomas to be certain that I can differentiate them all from benign chondromas. I feel I must suggest the possibility that this is a chondrosarcoma by making the diagnosis with a point of interrogation after it.

DIAGNOSIS: Chondrosarcoma (?) of toe.
CHONDROID TUMOR OF SOFT TISSUE, a la LICHTENSTEIN

Arthur Purdy Stout, M.D.

Ref:

Stout, A.P., and Verner, E.W.: Chondrosarcoma of the Extraskeletal Soft Tissues; Cancer 6: 581-590, 1953.

Chondrosa

Arthur Purdy Stout Club
Seminar - June 11, 1955

Case 2.

P&S 47963 (White Plains Hosp. #33561)

Microscopic: Buried in exceedingly dense fibrous tissue is a small mass of differentiated cancellous bone. The marrow spaces contain a little fat but are largely filled with edematous fibroblastic tissue which is rich in capillaries in some areas and has almost none in others. I cannot surely identify any marrow cells. The fibrous elements in which this piece of bone is set have the appearance of the fibroblastic tissue often seen in hyperplastic cicatrices and in juvenile fibromatoses. Where this fibroblastic element comes into contact with adipose tissue, there is present a peculiar myxoid tissue which is relatively acellular but is furnished with a moderate number of capillaries which are very slender and run in various directions.

Discussion: Growths of this sort in young children which have such a bland innocuous appearance are of very great interest and importance because they may herald the approach of a very serious and distressing disease, namely myositis ossificans progressiva. Generally this disease first manifests itself in early childhood by the appearance of fibromatoses in various places on the trunk. These are just as often subcutaneous as they are intramuscular and are almost invariably multiple. Bone formation begins later and may not involve the fibromatoses at all. It forms in the muscles around the shoulder joint, hip joint and in the spine muscles. It does no good to cut it out, for it reforms in the tissues left behind and results in gradual splinting of the joints by intramuscular bone until motion is lost in the shoulder and hip joints and the spine is also splinted. Surgery and radiotherapy do no good. Cortisone and Cortone have been used and give some relief of pain and slow the progress of ossification.

Is this present case the beginning of this dreadful disease? I think there is too little knowledge available to enable us to predict it but it is a possibility. I am particularly interested in this lesion because of this possibility and also because of the peculiar myxoid reaction which appears at the periphery of the fibromatosis area. I do not know what it means but I do not believe it is either myxoma or liposarcoma.

If this is not myositis ossificans progressiva or a sort of forme fruste thereof, I have not any other explanation for it. It will be a most interesting case to follow.

DIAGNOSIS: Myositis ossificans progressiva (?) of back.

Arthur Purdy Stout, M.D.

Ref:

Riley, H.D. Jr., and Christie, A.: Myositis ossificans progressiva, Pediatrics 8: 753-767, 1951

Stout, A.P.: Juvenile Fibromatoses, Cancer 7: 953-978, 1954

Vehlinger, E.: Myositis Ossificans Progressiva, Ergebn.d. med. Strahlenforsch. 7: 175-220, 1936

Arthur Purdy Stout Club
Seminar - June 11, 1955

Case 3

P&S 48088 (University Hosp. N.Y. #73024)

Microscopic: This case belongs to a field in which my ignorance is abysmal so that I would much prefer to have it discussed by Dr. Richter, who no doubt put it in to show me up for the ignoramus that I am. At least it will keep me from getting a swelled head. What I have to say is my own uncoached production. Well, Dr. Richter was kind enough to tell us that the bone marrow in the three large bones of the lower extremity was replaced by a soft homogeneous material with a distinct yellow tint. Even I can see that the central marrow cavity is replaced by a dense fibroblastic tissue containing many foam cells which must have contained lipid. The fibrous tissue extends up into the Haversian system for a short distance and foam cells go a little further. The bone adjacent to the medulla shows aseptic necrosis and necrobiosis and almost no evidence of new bone formation. Where the Haversian canals are outside the zone of fibrosis, there are a number of dilated engorged capillaries and the marrow contains a very fair number of ordinary marrow cells except perhaps the nucleated reds are numerous.

Discussion: Even I can guess from the history and from the sections submitted that there is a myelosclerosis in the bones of this extremity. Apparently she must have had a similar diseased status of her bones five years before, and because at that time she had an enlarged liver and spleen, she may have had agnogenic myeloid metaplasia of the spleen. In the meantime she had the other leg amputated for gangrene. We are not told whether or not this was for vascular disease or whether the gangrene had anything to do with the myelosclerosis. Now she has gangrene of the remaining foot, "osteoplastic processes involving bones of thoracic cage and upper portions of humeri", increase in leucocytes up to 70,000 per c.mm., neutrophiles generally between 60 and 70 per cent, and a few myelocytes and myeloblasts, a large liver, a barely palpable spleen, and very little anemia. It would seem to me that much of this could be accounted for by myelosclerosis with an increasing amount of extra-myelogenous hematopoiesis and probably no leukemia, although I never feel any confidence when I say this. What may have been the cause of all this remains obscure so far as the history is concerned. I am also uncertain whether to regard the gangrene in the extremities as secondary to senile or diabetic arteriosclerosis or to suppose it is related to the bone marrow disease.

DIAGNOSIS: Myelosclerosis of femur, tibia and fibula.

Arthur Purdy Stout, M.D.

Xanthomatosis

P&S 48069 - (I.U.M.C. 94943, 75045)

Microscopic: This orbital tumor is characteristic of a number of comparable tumors, is like others that are found in the orbits of young children in some respects but possibly differs in others. In one of your sections representing the tissue removed at the first operation the tumor is largely undifferentiated. Most of the cells are rather small, rounded, have rare empty vacuoles and are packed together in solid masses. Very occasionally spider-web cells are present with peripherally arranged vacuoles and centrally placed multiple nuclei. There are two variants from this picture. One can find areas where the cells are not closely packed, assume a stellate appearance and even sometimes seem to have a rounded cell enclosed in a capsule. Closer study however has convinced me that this is not the case; the supposed capsules are simply vacuoles. These cells are set in a myxoid matrix. The second variant comes from tissue removed at the margin of the tumor where it encounters the tissues of the orbit. Here one can find groups of fat cells intermingled with myxoid areas and foamy giant cells. These areas are at the margin of the tumor but not in it. The other slide made from the tissue removed at the second operation shows most of the features seen in the first slide but added to this are groups of cells both mono- and multinucleated with acidophile cytoplasm which shows the unmistakable characteristics of striated muscle although no cross striations are detected.

DISCUSSION: This tumor has caused me to fluctuate several times about its interpretation. When I first saw it before the tissue removed at the second operation reached me, I presumed I was dealing with a malignant mesenchymoma made up of the embryonal undifferentiated round cell rhabdomyoblasts seen in children while the myxoid areas suggested chondroblasts to me. Now that I have restudied that early slide with greater care for this Seminar, I think that earlier impression was a mistake and that the myxoid areas are simply an attempt on the part of the rhabdomyoblasts to reproduce the appearance of the botryoid sarcoma of the urogenital organs in the pelves of young children. The myxoid fatty areas with giant cells adjacent to the tumor margin are simply expressions of fat necrosis. When the second slide is studied it seems to confirm the rhabdomyoblastic conception of the rounded cells because in certain areas there are cells both mono- and multinucleate with strongly acidophile stroma which are obviously rhabdomyoblastic. Here however we must exercise great caution not to mistake the proliferated remnants of striated muscle invaded and engulfed by tumor cells for differentiated rhabdomyoblasts. I believe that this hypothesis can be discarded in this case because there are a number of small mononuclear cells of about the same size as the other tumor cells which only differ from them because of the acidophile cytoplasm. I have never seen small isolated cells like this formed from remnants of invaded striated muscle.

Since I cannot prove that this tumor has formed any cell types other than rhabdomyoblasts I must classify it as a rhabdomyosarcoma. The orbit is a well recognized site for these tumors to develop in children. They are rare, for Reese has seen only about five or six cases, and Ingalls using much the same material as Reese, describes only four cases. From 1939 to the present time we have had sent to the Laboratory of Surgical Pathology, Columbia University, nine cases of rhabdomyosarcoma of the orbit, all but one in children. Six were below the age of 10 years; the youngest was 4 years old. The other four patients respectively were 13-14-16-25 years of age. Seven were males and 3 females. I do not have a follow-up on many of these cases. I know that one small boy of 4 with a tumor like this died with extensive blood borne metastases and one other child died with local extension to the brain and no metastases. I do not have enough experience to say, but it is my impression that

(continued)

when the tumor is made up of rounded cells like this it is probably more apt to metastasize than when it assumes the appearance of the sarcoma botryoides. When both types of tissue are present I don't know which to expect. Incidentally, two years ago the 1953 A.P.S. Club Seminar contained one of these orbital rhabdomyosarcomas. You will find there further discussion of the subject.

DIAGNOSIS: Rhabdomyosarcoma (juvenile) of orbit.

with chondrosa Arthur Purdy Stout, M.D.

Ref:

Reese, A.B.: Tumors of the Eye.
Paul B. Hoeber, Inc., New York 1951, pp. 437-444

Ingalls, R.G.: Tumors of the Orbit and Allied Pseudo Tumors.
Charles C. Thomas, Springfield, Ill, 1953, pp. 207-218.

Arthur Purdy Stout Club
Seminar - June 11, 1955

Case 5

P&S 48389 - Surg. Path. N.Y. Hosp. S-55-605

MICROSCOPIC: The real architecture of this tumor is best seen in a slender strip of the tumor including its capsule. Here one can see very clearly that there is a definite vascular pattern composed of anastomosing capillaries which enclose groups of tumor cells. These vary from rounded to short spindle shaped, they have a pale pink cytoplasm which frequently is vacuolated. This section shows a great many refractile granules in and around the cells. This appears to be artefactual or else blood pigment. In other sections the endocrine type of arrangement is present but is not as easily detected. There is no evidence of secretional activity on the part of the cells dor do they form rosettes or gland-like structures. In some places cellular degeneration has resulted in the formation of microscopic cystic spaces but none of these suggests gland formation.

DISCUSSION: As soon as one has grasped the essential endocrine arrangement of tumor cells and capillaries, the resemblance of this tumor to carotid body tumors and other non-chromaffin paragangliomas is sufficiently striking to suggest that this is such a tumor. But of course the ordinary paragangliomas whether chromaffinic and hormonally active or non-chromaffinic and hormonally inactive also can look like this tumor. As this tumor was not studied from the point of view of the presence or absence of chromaffin granules nor was any chemical study made of the tissue, we cannot say whether or not it was producing any epinephrine or nor-epinephrine. The chances are it was inactive, judging by the patient's reactions. This still does not tell us whether the tumor comes from paraganglionic cells or from the chemoreceptor system nor whether it should be called a paraganglioma or a non-chromaffin paraganglioma. Of the two hormonally inactive tumors in the retroperitoneum which are in our files, one came from between the kidneys and the other lay just below one kidney. They are in our files as paragangliomas but not non-chromaffin paragangliomas.

I would like to point out that this tumor looks entirely different from Hans Smetana's variety of non-chromaffin paragangliomas, otherwise alveolar sarcomas or organoid granular cell myoblastomas (my preference). Also it can be expected to behave quite differently, for the organoid granular cell myoblastomas are very malignant tumors with a high metastatic rate, while metastases of non-chromaffin paragangliomas are exceedingly uncommon. I shall have to wait until Rafe Lattes or some one else tells me how to distinguish between an inactive paraganglioma and a non-chromaffin paraganglioma (chemodectoma).

DIAGNOSIS: Paraganglioma of retroperitoneum.

Arthur Purdy Stout, M.D.

Case 5 - New York Hospital No. S-55-605 - P&S No. 48389
Paraganglioma of retroperitoneum.
Patient well with no evidence of recurrence when last seen, May 1956.

Arthur Purdy Stout Club
Seminar - June 11, 1955

P&S 46738 - (United Hosp. Portchester, N.Y. 54-1887)

MICROSCOPIC: This tumor has such a varied appearance that it is hard to describe. One is struck by the extreme vascularity of the tissue removed and also by the small dark hyperchromatic tumor cells which seem to be rounded when well preserved but elongated when in degeneration. Sometimes these tumor cells seem to be oriented about the rather thick-walled vessels, sometimes they surround a group of three or more blood vessels and sometimes they seem to have no relationship with the blood vessels. In one place in one section two gland-like lumens have been formed in a group of tumor cells. Elsewhere incomplete tube-like arrangements appear among the tumor cells. In several places there are quite large groups of thick walled blood vessels without any tumor cells among them. Sections show invasion of corium and of bone.

DISCUSSION: The interpretation of this case seems to me to lie between non-chromaffin paraganglioma of the middle ear derived from one or another of the various glomera jugulare and what has been called adenocarcinoma of the middle ear. I am greatly handicapped because I have never seen an adenocarcinoma arising in the middle ear. I am afraid that cases so called have not been studied with sufficient care and knowledge to make them credible. The only reason the question of adenocarcinoma is advanced in this case is the finding of structures which may be neoplastic gland formations in one or two places in the tumor. I have never before seen such formations in a non-chromaffin paraganglioma.

The history of this case is quite like that of many of the accepted cases of non-chromaffin paraganglioma. The story starts 15 years ago with myringotomy for suppurative otitis media. Eleven years ago, extension to mastoid; 3 years ago polypoid mass removed from the middle ear projecting through the drum and continuing mastoid symptoms; most recently radical mastoidectomy with tumor tissue extending into mastoid from middle ear and infiltrating overlying skin and sternomastoid muscle. While mastoid involvement is not common for glomus jugulare tumors, cases have been reported by Lattes and Waltner, and Figi and Weisman. I suppose the fact that tumor cells do not surround all of the vessels may mean that a kind of granulomatous vascular proliferation has taken place faster than the tumor cells can grow. My inclination in this case is to favor the diagnosis of non-chromaffin paraganglioma rather than adenocarcinoma and to suppose that the gland-like formations are fortuitous and with significance. But I am not sure.

DIAGNOSIS: Non-chromaffin paraganglioma of middle ear with extension to mastoid.

Arthur Purdy Stout, M.D.

Ref:

Campbell, E., Volk, B.M., and Burklund, C.W.: Total Resection of Temporal Bone for Malignancy of the Middle Ear; Ann. Surg. 134: 397-404, 1951 (called adenocarcinoma)

Figi, F.A., and Weisman, P.A.: Cancer and Chemodectoma in the Middle Ear and Mastoid; J.A.M.A. 156: 1157-1162, 1954.

Guild, S.R.: The Glomus Jugulare, A Nonchromaffin Paraganglion, in Man; Ann. Otol. Rhinol. & Laryngol. 62:1045-1072, 1953.

Lattes, R., and Waltner, J.G.: Nonchromaffin Paraganglioma of the Middle Ear (Carotid-Body-Like Tumor: Glomus-Jugulare Tumor) Cancer 2: 447-468, 1949.

Case 7 - New York Hospital No. S-54-7650 - P&S 48388 - Meningioma.
Had spinal fluid leak into mastoid cells with rhinorrhea.
This was repaired 5 months after excision of meningioma.
When last heard from was living in Venezuela without symptoms
eight months after original operation (July 1955).

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Case 7.

P&S 48388 (Surg. Path. N.Y. Hosp. 54-7650)

MICROSCOPIC: This tumor is composed of cords of rather large vaguely polygonal and elongated cells which are arranged in cords that are partly separated by slender fibrous strands often bearing capillaries. The cells have rather small nuclei in comparison with the cytoplasm. Frequently they form syncytial masses with multiple nuclei. A few large cells have bizarre hyperchromatic giant nuclei. Where the capillaries join the larger vessels and lumens are easy to see, the tumor cells seem oriented in small masses around the vascular wall. A striking and important feature is the tendency on the part of some of the tumor cells to form vaguely defined whorls. These are more easily recognized in low magnification than in high.

DISCUSSION: I suppose when a general pathologist is shown a section of a tumor inside the skull, he suspects that it is probably a metastatic tumor or one arising in the bony cranium as if it was primary in the brain or its accessory structures it would be shown to a neuropathologist rather than to him. I looked at this tumor and failed to associate it with any neoplasm occurring outside the central nervous system. I was struck by the organoid arrangement of capillaries and tumor cells suggestive of endocrine tumors but I could not fit it into the known microscopic morphology of any of them, including non-chromaffin paraganglioma. Now there is a structure on the borderline of the central nervous system and the rest of the body about the tumors of which the general pathologist has to know because they sometimes come outside of the central nervous system and invade his territory. I refer to tumors of the meninges. Fortunately the majority of these are quite easy to recognize. The commonest form is the so-called meningotheliomatous meningioma which is characterized by the growth of cells like the ones in the present tumor which ordinarily do not form any reticulin fibers and which produce the kind of whorls seen here. I believe therefor we are dealing with a meningioma. It is perhaps unusually vascular for the meningotheliomatous variety but I have learned that there can be great variations in meningiomas, not only in their vascularity but it is also possible for these cells derived from the pia arachnoid to take on the functions of fibroblasts and produce reticulin fibers. It was this phase of meningiomas which probably led Frank Mallory and after him Wilder Penfield to call these tumors meningeal fibroblastomas. Personally I think it was a mistake for Bailey and Bucy to call all of the tumors which develop in the meninges meningiomas, rather than give them the name of the dominant tissue. Thus I would prefer lipoma, osteoma, fibroma, angioma etc. of meninges rather than meningioma lipomatous, osteomatous, fibromatois, angiomatous etc. type. That is what is done in other parts of the body and I see no reason why the meninges should be excepted. More recent writers have divided into two groups. For example Lapresle, Netsky and Zimmerman follow Bailey and Bucy whole Dorothy Russell prefers to call the special tissue tumors like lipomas etc. by their proper names instead of lumping them all under the term meningioma. Of course it must be realized that a meningioma can manufacture bone for example by metaplasia in which case it would be proper to designate the tumor as a meningioma with osseous metaplasia.

DIAGNOSIS: Meningioma of cerebral meninges.

Arthur Purdy Stout, M.D.

Ref:

Bailey, P., and Bucy, P.C.: The Origin and Nature of Meningeal Tumors, Am. J. Cancer 15: 15-54, 1931

Lapresle, J., Netsky, M.G. and Zimmerman, H.M.: The Pathology of Meningiomas; Am. J. Path. 28: 757-791, 1952

Russell, D.S.: Meningeal Tumours: A Review. J. Clin. Path. 3: 191-211, 1950.

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Case 8.

P&S 48429 - LIV 54-116 St. Albans Naval Hospital

MICROSCOPIC: In the stalk of the hypophysis are seen three small foci of cells the largest of which is barely a millimeter in diameter. These clusters are composed of relatively large polygonal cells with small nuclei often excentrically placed and sometimes multiple. The cytoplasm is uniformly filled with fine acidophile granules. There is some tendency for capillaries to pass in among small cell groups and partly separate some of them from their neighbors. The effect however is not comparable to the organoid appearance of the organoid granular cell myoblastoma.

DISCUSSION: The appearance is so much like a granular cell myoblastoma that I can think of nothing else to call it. We have two similar cases on record in the Surgical Pathology Laboratory of Columbia University. What little I know regarding lesions of this sort in the pituitary I owe to a paper by Dr. W. A. Harland, one of the present residents in Surgical Pathology. He wrote it when he was at Emory University Medical School. He reported a large tumor of the hypophyseal stalk which killed a 39-year old negress. It measured 5.6 cm. in diameter and was simply an enlarged edition of the tumor in Dr. Pickren's case. After having studied the large tumor, Dr. Harland made it a point to take sections of the stalk of the pituitary in every case coming to autopsy and in a short period of time two more small tumors were encountered.

Small lesions of this sort were seen years ago in the hypophyseal stalk by Sternberg in 1921 and in the following year Priesel reported finding similar growths in 19 subjects at autopsy. Since that time there have been no case reports of these interesting lesions. There is a report by Schwidde et al in 1951 of a metastatic granular cell myoblastoma in the brain coming from a primary tumor in the thigh. This was an organoid type of tumor and obviously not from the hypophysis. We have the incomplete record of one malignant granular cell myoblastoma which was not the organoid type and was primary in the brain of an 11-year old boy. It was removed and three years later he had a huge recurrence growing outward to form a fungating mass in the scalp. Unfortunately I know no more about this case than this. It would seem very unlikely that it had anything to do with the stalk of the hypophysis.

DIAGNOSIS: Granular cell myoblastoma of stalk of hypophysis.

Arthur Purdy Stout, M.D.

Ref.:

Harland, W.A.: Granular-Cell Myoblastoma of the Hypophyseal Stalk; Cancer 6: 1134-1138, 1953.

Priesel, A.: Gewebsmissbildungen in der Neurohypophyse und am Infundibulum des Menschen, Virchow's Arch. f. path. Anat. 238:423-440, 1922.

Schwidde, J.T., Meyers, R., and Sweeney, D.B.: Intracerebral Metastatic Granular Cell Myoblastoma, J. Neuropath. & Exper. Neurol. 10: 30-39, 1951.

Sternberg, C.: Ein Choristom der Neurohypophyse bei ausgebreiteten Oedemen, Zentralbl. f. allg. Path. u. path. Anat. 31: 585-591, 1921.

P&S 48387 - (Surg. Path. N.Y. Hosp. S-55-765)

MICROSCOPIC: I am sure that no one will have any difficulty in recognizing this tumor as a granular cell myoblastoma of the common type which involves chiefly the submucosa but in my sections it can be found pressing up against and thinning the overlying glandular mucosa and in one place invading it. It does not appear to have involved the true muscle coat. The cells as usual have a voluminous cytoplasm with acidophile granular cells and small nuclei which occasionally are somewhat larger and hyperchromatic. The cells are moulded by pressure one against the other so that shapes vary. No mitoses are detected, no tumor cells inside nerve sheaths are recognized and no hyperplasia of overlying glandular mucosa. There is no tendency toward an organoid differentiation.

DISCUSSION: This case has been included not as a problem in diagnosis but chiefly to bring us up-to-date on the discussion which rages as to the nature of these tumors and their distribution.

When I discussed the subject of granular cell myoblastoma in the Seminar on Tumors of the Soft Tissues in 1951, we had 133 cases recorded in the Laboratory of Surgical Pathology. 121 were of the ordinary type like the present case and 12 were organoid tumors. At the present time we have 204 cases recorded and of these 30 are of the organoid type. We are interested first in learning about the frequency of these tumors in the alimentary. There are many in the oral cavity including several so-called congenital epulis cases, especially so in the tongue. They become much less common in the rest of the alimentary tract. We have one each in the esophagus and stomach, none in the small intestine, 3 in the appendix and one each in the ascending colon, rectum and perianal skin. This case is therefore only the second one I have seen in the rectum. I have not searched the literature but there is one other possible anal canal case reported by Rothchild and Grary. I cannot tell from their description whether the tumor was in the anal canal or the perianal skin. Aside from the soft tissues of the body and the skin, we have seen 9 cases in the female mammary gland, two of which were organoid and one of these metastasized to the lung. One in the male mammary gland, two in the uterus, and 1 each in the labium majus and broad ligament. We have recorded 8 laryngeal cases, one in the trachea, 1 organoid tumor in the nasal cavity, and another organoid tumor apparently primary in the lung. Two cases have been in the orbit, one in the urinary bladder, two cases in the stalk of the hypophysis and one probable in the brain of an 11-year old boy which recurred following removal and fungated out to form a huge mass in the scalp.

As for the cellular origin of these tumors, it remains still a hotly debated subject. Bangle who is now the leader of the crusade for a neurogenic origin seems to believe that because he and others manage to find granular tumor cells inside of nerve sheaths in a few tumors, this is sufficient evidence to prove his case. I cannot get excited about this because of the tissue culture studies of Murray which, while not positively conclusive as to the nature of the granular cell, are conclusive that it does not grow like any nervous tissues. In regard to the organoid granular cell myoblastomas variously called malignant non-chromaffin paragangliomas and alveolar sarcomas, no progress has been made so far as I am aware. Until there is conclusive proof that they are something else, I continue to call them malignant organoid granular cell myoblastomas. Further, I recognize that very occasionally the ordinary variety of granular cell myoblastoma can sometimes

(continued)

behave like a malignant tumor.

References:

Bangle, R., Jr.: An early granular cell myoblastoma confined within a small peripheral myelinated nerve. Cancer, 6: 790-793, 1953.

Christopherson, W.M., Foote, F.W., Jr., and Stewart, F.W.: Alveolar soft-part sarcomas, structurally characteristic tumors of uncertain histogenesis, Cancer, 5: 100-111, 1952.

Murray, M.R.: Cultural characteristics of three granular-cell myoblastomas, Cancer, 4: 857-865, 1951.

Ross, R.C., Miller, T.R., and Foote, F.W., Jr.: Malignant granular cell myoblastoma, Cancer, 5: 112-121, 1952.

Rothchild, T.P.E., and Crary, R.H.: Granular cell myoblastoma. A report of 5 cases.
Ann. Surg. 137: 530-538, 1953.

Smetana, H.F., and Scott, W.F., Jr.: Malignant tumors of non-chromaffin paraganglia, Mil. Surg. 109, 330-349, 1951.

Stout, A.P.: Tumors of the soft tissues, Section II, Fascicle 5, A.F.I.P., Washington, D.C. 1953, pp. 10-11, 39-46, 98-99.

Stout, A.P.: Seminar on tumors of the soft tissues, Am. Soc. Clin. Path., 1953, pp. 36-39.

DIAGNOSIS: Granular cell myoblastoma of rectum.

Case 9 - New York Hospital S-55-765 - P&S 48387 - Granular cell myoblastoma of rectum. Patient living and well, May 1956.

Case 10- New York Hospital No. S-55-609 - P&S 48391.
Carcinoma of Cowper's gland.
Lost to follow-up in spite of several letters.
Presumed dead.

P&S 43891 - (Surg. Path. N.Y. Hosp. S-55-609)

MICROSCOPIC: There will be no difficulty in recognizing this as a case of carcinoma. The extensive invasion and the marked tendency for the tumor to grow along nerve sheaths is particularly striking. It is also remarkable that the tumor has assumed the appearance of a cylindromatous carcinoma. The mucicarmine stain confirms the impression that the material in the gland-like spaces is probably mucin.

DISCUSSION: Since there have only been a handful of carcinomas involving the region of Cowpers glands and the membranous urethra, and since some of these cases undoubtedly have developed in Cowper's glands because the urethra itself seemed not invaded when the tumor was excised, it has been popular to assign all cases of adenocarcinoma arising in this region to an origin from Cowper's glands. The majority of modern authors take their cue from the article by Gutierrez who ignores the existence of the paraurethral glands found practically in the wall of the membraneous urethra which potentially are just as capable of giving rise to adenocarcinomas as is the case with Cowper's glands. These glands are well illustrated by Stieve in Mollendorff's Handbuch. As far as I can tell from reading, the undoubted cases of carcinoma of Cowper's glands do not involve the urethra itself and cause symptoms until they have been enlarging for some time. Rather they press first and indent the rectum where they can be palpated with the thumb on the perineum and the forefinger in the lower rectum or else, as in Griesan and Dickenson's case, they are felt on palpation of the perineum alone. A case that almost certainly arose in the para-urethral glands is included as one of ten urethral carcinomas reported by Lower and Hausfeld. Most of them were squamous or transitional cell carcinomas but this one was a glandular carcinoma that involved the urethra and obstructed it from the beginning. From the history and findings at operation of this present case, I do not see how it is possible to know whether it was primary in Cowper's or the para-urethral glands. Perhaps Dr. Pearce can give us more exact information which will help to decide the point. The fact that it is a cylindromatous carcinoma and that one or two of the older case reports of so-called carcinoma of Cowper's glands were said to be cylindromatous carcinomas is perhaps a point in favor of a Cowper's gland origin. The only trouble is that I do not know for sure whether the old cases that were cylindromatous came from the para-urethral or the bulbo-urethral glands.

Incidentally, there do not seem to be any proofs that the Cowper's gland carcinoma cases have had metastases - they have only displayed malignancy by invasive growth.

DIAGNOSIS: Carcinoma (cylindroma) of Cowper's (?) or para-urethral (?) glands.

Arthur Purdy Stout, M.D.

References:

Dixon, F.J., and Moore, R.A.: Tumors of the male sex organs, Sect. VIII, Fasc. 31B and 32, Atlas Tumor Path., AFIP, Wash., D.C. 1952, pp 150-153.

Griesan, W.A., and Dickenson, L.: Carcinoma of Cowper's gland, J. Urol. 65: 460-466, 1951.

Gutierrez, R.: Primary carcinoma of Cowper's gland, Surg. Gynec. & Obstet. 65: 238-248, 1937.

Lower, W.E., and Hausfeld, K.F., Primary carcinoma of the male urethra, Report of Ten Cases, J. Urol. 58: 192-206, 1947.

Oberndorfer, S.: Mannliche Geschlechtsorgane in Henke and Lubarsch's Handbuch der Speziellen Pathologischen Anatomie und Histologie, Vol. VI/3, Berlin, J. Springer, 1931, (Cowper's Glands pp 432-435)

Stieve, H., Harn-und Geschlechtsapparat in Mollendorff's Handbuch der Mikroskopischen Anat. des Menschen, VII/2, Berlin, J. Springer 1930, pp.237, 278-284 (paraureth. gl.) pp 272-278(bulbo-ureth. glands)

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Case 11.

P&S 48146 (Courtesy of Dr. D. A. DeSanto, Mercy Hospital San Diego, California, No. 594-55)

MICROSCOPIC: I felt it was worth our while to enter once more the troubled waters of ovarian tumors because they are so confusing to one who does not have constant access to the rare variants. I think we must feel grateful to Gunnar Teilum of Copenhagen for helping us to understand some of the more puzzling cases.

This tumor is composed of three principle elements: a small number of cords of cells of an epithelial aspect which look as if they ought to be forming tubes but very seldom have real lumens; larger masses of similar cells but without any tendency to form tubes or gland-like cords. The cells of these two groups are markedly vacuolated and they are all loaded with lipids as is easily seen in the Scharlach R stain. The third element is a fibrous stroma which in some places looks like ordinary parvicellular fibrous tissue and elsewhere is quite cellular, somewhat suggesting thecoma but obviously not that because these cells contain no lipids at all.

DISCUSSION: The striking features of this tumor characterize it exactly as a tumor of one of the masculine elements of the ovary. Teilum lumps these tumors together as androblastomas. This subvarient he calls androblastoma tubulare lipoides and believes it is derived from Sertoli cells. The interesting thing about Sertoli cells in the testis is that they are estrogen producing and presumably they do the same thing in the ovary. Thus according to Teilum the ovary produces (1) the androblastoma tubulare lipoides or Sertoli cell tumor which produces estrogen; (2) the arrhenoblastoma which produces androgen; (3) the ovarian Leydig cell tumor, so-called adrenal tumor, luteoma and masculinovoblastoma which produces androgen.

Two interesting cases of this sort have recently been reported by Burslem et al., to be added to those originally described by Teilum.

DIAGNOSIS: Androblastoma tubulare lipoides of ovary.

Arthur Purdy Stout, M.D.

with a touch of granulosa + theca.

References:

Burslem, R.W., Langley, F.A., and Woodcock, A.S.: A clinicopathological study of oestrogenic ovarian tumours; Cancer 7:522-538:1954.

Langley, F.A., "Sertoli" and "Leydig" cells in relation to ovarian tumours; J. Clin. Path. 7:10-17:1954.

Teilum, G.: Estrogen-producing Sertoli cell tumors (androblastoma tubulare lipoides) of the human testis and ovary. Homologous ovarian and testicular tumours: III. J. Clin. Endocrinology 9:301-318:1949.

Teilum, G.: Classification of ovarian tumours; Acta Obstet. & Gynec. Scand. 31: 292-312: 1952.

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Vase 12.

P&S 48669 - (AFIP Accession 695697)
Case of Dr. Elson B. Helwig.

MICROSCOPIC: This tumor lies partly in the mucosa and partly in the submucosa of the duodenum. Its superficial surface is eroded and beneath this the tumor cells are intermingled with inflammatory cells so that the details of their morphology are obscured. When a deeper zone is reached where the tumor cells are intact and not degenerate, it is possible to see that they vary from a polygonal to a cylindrical shape, that they do not appear to form either tubes or rosettes, and that they are often arranged in twisted cords with mucicarmine, although one can occasionally detect a pinkish flush in the cytoplasm there are no frank vacuoles containing mucin. The H&E and mucicarmine stains make the cytoplasm look nongranular but with Masson's trichrome stain it is possible to observe that it contains many very tiny granules which are not uniformly distributed throughout the cytoplasm but often are found only in one part of it and some cells seem to lack any granules. Since they are acidophile, the cells which have only part of the cytoplasm containing them have a patchy flushed appearance. Where cell cords are composed of cylindrical cells the nuclei of adjacent cells often are oriented to opposite poles of the cells.

DISCUSSION: Tumors of this sort in the duodenum always raise the question of the differentiation of the carcinoid tumor from a heterotopic islet cell tumor assuming that there are no symptoms suggestive of hyperinsulinism or of the rare syndrome suggesting hypersecretion on the part of the carcinoid cells. Assuming that this tumor does not display any clinical evidences of hypersecretion, how can one distinguish between the two tumor types if the Masson-Fontana ammoniacal silver stain is negative or unavailable? Both the islet cell tumor and the carcinoid can grow and form twisted cords as this tumor has done. But in my experience the cytoplasm of the islet cell tumor is uniformly filled with fine granules while the carcinoid tumor will have a patchy arrangement of the cytoplasmic granules just as is true of the basigranular cell of the crypts of Lieberkuhn has granules only in the basal pole of the cell. More often than not these granules in tumor cells even after proper fixation in formalin or Bouin's fluid will fail to blacken with ammoniacal silver. Erspamer believed this was due to the fact that the granules do not at the moment contain the specific secretion which he originally called enteramin but which more recently has been called serotonin. When this is absent the granules are simply acidophile. Because these cells have this patchy arrangement of acidophile granules, I believe this tumor is a carcinoid.

We have 150 carcinoid tumors registered in the Laboratory of Surgical Pathology of Columbia University. Only 7 of them were in the duodenum and only one of the 7 is known to have metastasized. Two of these were Presbyterian Hospital cases, both of them small tumors like this one.

There are only 3 islet cell adenomas of the duodenum in our files - one from Presbyterian Hospital and two from other institutions.

In case you are not aware of the recent observations and investigations of enteramin or serotonin, Erspamer found that it is an indole derivative 5-hydroxytryptamin. When injected it can increase peristalsis, constrict the bronchi and raise pulmonary arterial pressure. If injected subcutaneously

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it produces local congestion with venous spasm and flushing. During the past three and a half years there have been reported from different countries a total of ten cases all of whom showed the following: valvular disease of the right side of the heart, changing cyanosis or patchy flushing of the skin and pulmonary stenosis. All ten patients had carcinoids of the ileum which had metastasized to the liver. All of the various reporters were convinced that hypersecretion of serotonin by the carcinoid tumors had produced the peculiar symptomatology.

DIAGNOSIS: Carcinoid tumor of duodenum.
CHEMODECTOMA a la HELWIG

Arthur Purdy Stout, M.D.

References:

Brantwood, A.W., and Bain, A.D.: Carcinoid tumor of small intestine with hepatic metastases, pulmonary stenosis and atypical cyanosis. Lancet 2: 1259-1262, 1954.

Erspamer, V.: Caratteristiche delle cellule enterochromaffini tipiche e della cellule pre enterocromaffini argentofile; Anat. Anz. 86: 379-388, 1938.

Erspamer, V.: R.C. Sci. farmitalia 1: 193- 1954.

Hedinger, Ch., and Gloor, R.: Metastasierende Dunndarm Karzinoide, Tricuspidaklappen Veranderungen und Pulmonal stenose - Ein Neves Syndrom., Schweiz. Med. Wchnschr. 89: 942-946, 1954.

Stout, A.P.: Carcinoid tumors of the rectum derived from Erspamer's pre-enterochrome cells. Am. J. Path. 18: 993-1009, 1942.

SEM. 82113

Case 13.

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Surg. Path. A-46390 - Presbyterian Hospital, N. Y.

MICROSCOPIC: The general appearance of this growth with its many tube-like spaces, many large and some small, suggests lymphangioma. It must be apparent, however, that the cells lining the spaces look a lot more like mesothelial cells than they do like endothelium and the deciding factor comes from the mucicarmine stain which shows that the amorphous material in some of the cysts is stained pink to red. Since the cells do not look like epithelium it seems safe to assume that the tumor is a diffuse or multicentric tubular mesothelioma. The stroma supporting these tubes and cysts is fibrous and well differentiated in most places. Occasionally it is more cellular and approaches the appearance of fibrosarcoma. In some areas where this has occurred the proliferated tubes are much more numerous and seem to blend with the fibrous stroma as if both were parts of the tumor.

DISCUSSION: In the most recent review of our mesotheliomas which I made for the Archives d' Anatomie Pathologique about 17 months ago (through December 1953), I found that we had recorded 165 mesotheliomas of which 71 were in the peritoneum. If one subtracts from this number the 19 cases of what have been called adenomatoid tumors of the genital sphere this leaves 52 cases, - 11 benign and 41 malignant. Eight of the benign were fibrous and three tubular or papillary. The malignant cases included both solitary and diffuse samples of pure fibrous, pure tubular and mixed fibrous and tubular. We have to decide whether the present case is benign or malignant. I believe it is certainly malignant because of its extensive growth and the way in which the gland-like forms have proliferated as multiple small structures intermingled with the fibrosarcoma-like areas. While most of the tubular structures are separated by a distinct basement membrane from the fibrous stroma there are some places where the two intermingle as if the cells were continuous. This suggests to me that in these areas at least we are dealing with the mixed type of fibrous and tubular mesothelioma. These are key cases because they reinforce the conception gained from tissue culture that mesothelial tumor cells can either differentiate as do the normal serous cells and secrete hyaluronic acid or they can take up their other function demonstrated first by Maximow for normal serous cells of forming reticulin fibers. A splendid example of a tumor function in both of these capacities has been published by Stumpf.

Incidentally since the tumors called adenomatoid tumors or benign mesotheliomas of the genital sphere have been mentioned, I think I shall have to withdraw from the stand I have formerly taken presuming these tumors to have been derived from mesothelium and adopt the hypothesis of Teilum that they are probably mesonephromas. At least for the tumors of the genital sphere this is a more reasonable explanation.

DIAGNOSIS: Malignant mesothelioma (diffuse, mixed) of peritoneum.
Simulating lymphangioma -

Arthur Purdy Stout, M. D.

References:

Stout, A.P.: Les mesotheliomes de la plevre, du peritoine et du pericarde, La Semaine des Hop. Paris (Arch. d'Anat. Path) 30:A115-A119,1954.

Stumpf, H.H.: Diffuse mixed type mesothelioma of the peritoneum, Cancer 7: 142-148: 1954.

Teilum, G.: Histogenesis and classification of mesonephric tumors of the female and male genital system and relationship to benign so-called adenomatoid tumors (mesotheliomas). A comparative histological study. Acta Path. et Microbiol. Scand. 34:431-481: 1954.