SAN ANTONIO SOCIETY OF PATHOLOGISTS
SAN ANTONIO, TEXAS

SEVENTEENTH ANNUAL
TUMOR SEMINAR
December 3, 1960

BROOKE GENERAL HOSPITAL
Brooke Army Medical Center
Fort Sam Houston, Texas
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San Antonio Society of Pathologists

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Conducted by

LAUREN V. ACKERMAN, M.D.
Professor of Surgical Pathology and Pathology
Washington University School of Medicine
Saint Louis, Missouri

BROOKE GENERAL HOSPITAL
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Fort Sam Houston, Texas

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CASE 1

THYROID—MEDULLARY CARCINOMA

Contributor.--Dr. Lauren V. Ackerman

History.--This 29-year-old white male was admitted to Barnes Hospital on June 25, 1959, with the complaint of a mass in the neck. He had been in good health until one year previously when an intermittent swelling in the right side of his neck was first noted. He denied difficulty with breathing or eating. In May the mass was biopsied in an osteopathic hospital and he was told it was cancer.

On physical examination blood pressure was 160/88 and he was afebrile. A recent scar was present in the left side of the neck beneath which several small nodules were palpated. Swelling was present in the region of the left sternocleidomastoid muscle. Indirect laryngoscopy showed no abnormalities, but a dark area was seen on the posterior wall of the nasopharynx opposite the left choana. The spleen was palpable, but the remainder of the physical examination disclosed no abnormalities.

X-ray examination of the chest and face demonstrated a calcified primary complex in the right lung, and a 2-cm., soft tissue mass in the left maxillary antrum which was interpreted as being a mucocele. On June 26 the nasopharynx and right cervical nodes were biopsied.

DISCUSSION: This tumor is an unusual form of carcinoma designated as medullary or solid by Hazard. He reported 21 out of 600 carcinomas of the thyroid. Fourteen patients were women and 7 were men, with an age range from 33 to 66 years. The regional cervical lymph nodes, like this case, contained metastases at the time of the original surgery in 10 of the 21 patients. Distant metastases occurred in 8 and were principally evident in the lungs, liver, and bone.

This tumor has a distinctive microscopic pattern. It has a form different from slowly growing cancer and the rapidly growing anaplastic cancers. It is not truly papillary and does not show psammoma bodies. It is relatively undifferentiated with considerable variation in the size and shape of cells. The most distinctive finding is the presence of amyloid in both the primary tumor
and the metastases. We do not have any information as to why this tumor is associated with amyloid. It does not occur in any other thyroid cancer. Serum paper electrophoresis determination done in one patient was without abnormalities. Patients with this type of thyroid cancer have a fairly good prognosis. Twelve of Hazard's patients were known to have survived more than 5 years after surgery.

**Diagnosis.--Thyroid--Medullary Carcinoma.**


![Fig. 1. Medullary carcinoma showing the undifferentiated character of the neoplasm with masses of amyloid. (x475. BGH Ill.)](image)
SALIVARY GLAND, PAROTID--SEBACEOUS LYMPHADENOMA

Contributor.--Dr. Lauren V. Ackerman

History.--A 77-year-old white male noticed a slowly and progressively enlarging but otherwise asymptomatic mass at the angle of the right mandible. Examination showed a 3 x 3 cm., firm, easily movable, nontender, spherical mass in the tail of the right parotid. No cervical lymph node enlargement was noted and the facial nerve was functional. Following a needle biopsy a sub-total parotidectomy with preservation of the seventh nerve was done. The postoperative course was uneventful.

DISCUSSION: This lesion is extremely rare within the parotid salivary gland. We have designated it as sebaceous lymphadenoma. Sebaceous glands can occur within the parotid (Mesa-Chavez). Rawson and Foote have reported two other instances of this lesion. We have seen two cases. The first case was in a 60-year-old white female and this was incorrectly diagnosed as mucoepidermoid carcinoma. The second case is the one in this Seminar. The mass measured 3 x 3 cm. A diagnosis of sebaceous lymphadenoma was made on needle biopsy. The needle biopsy diagnosis was made because of the presence of sebaceous cells. "This is a sharply defined, thinly encapsulated lesion formed by sebaceous glands set in a lymphocytic background. No salivary gland tissue, ducts, acini, or oncocyes are identified within the tumor. A few foci of foreign-body reaction to sebum from disrupted cysts are found. The large cysts, vacuoles, and vacuolated cells contain Sudan IV positive material. Mucicarmine stains fail to demonstrate intracytoplasmic mucicarminophilic material. Similarly periodic acid Schiff stains show only a faint coloration of the inspissated sebum in the larger cysts. This is not altered by diastase digestion. No sebaceous glands are found in the surrounding normal parotid parenchyma." (McGavran) The differential diagnosis from mucoepidermoid carcinoma is relatively simple. This lesion contains sudanophilic material but no epithelial mucin. Local excision is adequate.

Diagnosis.--Salivary Gland, Parotid--Sebaceous Lymphadenoma.

Fig. 2. Intermingling of lymphoid tissue, squamous epithelium, and vacuolated sebaceous cells. (x 105. BGH III.)
CASE 3

SALIVARY GLAND, PAROTID--MUCOEPIDERMOID CARCINOMA

Contributor.--Dr. A. O. Severance, Baptist Memorial Hospital, San Antonio.

History.--A 75-year-old white female was operated on November 13, 1956, for a mass in the left parotid gland which had been present for 3 years and had increased in size in the preceding 6 months. She had no pain nor other complaints. The specimen measured 6.3 x 3.2 x 1.9 cm. and consisted of lobulated fatty tissue and parotid gland tissue, with a 2.2-cm. spherical nodule covered by a fibrous capsule at one end of the specimen. The cut surface was grayish yellow with minute brown specks. The tumor was not completely encapsulated, but extended into the surrounding tissue with finger-like projections.

DISCUSSION: This is a classic example of a mucoepidermoid tumor of salivary gland origin. It is not microscopically cancer but is a well-differentiated neoplasm with dilated duct-like zones that are lined by mucin-secreting cells and by squamous cells. If they are stained with mucicarmine many of the cells show mucin within their cytoplasm and in numerous instances there is free mucin. We used to call a lesion such as this a benign type of mucoepidermoid tumor. There is no doubt that patients who have tumors with this type of pattern do well. However, we have all had experience with an unfavorable outcome. If this type of tumor is incompletely excised or ducts are ruptured, the presence of mucin helps spread the tumor. I have seen this tumor arise from salivary gland tissue within the oral cavity as well as from the submaxillary gland. About one-half of these neoplasms are cystic in nature. In Foote's series there were 33 patients with low-grade tumors such as this who were followed 5 years or longer. Twenty-five patients were alive and free from disease, 5 were lost to follow-up or died from unrelated diseases, and 3 died from tumor. Woolner's patients had no metastases with tumors of this pattern. This lesion has to be differentiated from several benign lesions. We have seen epidermal inclusion cysts involve the parotid and have also observed instances of obstruction to ducts because of stones, with resulting dilatation of ducts and squamous metaplasia.

Diagnosis.--Salivary Gland, Parotid--Mucoepidermoid Carcinoma.

Fig. 3. Well-differentiated mucoepidermoid carcinoma. The tumor shows squamous epithelium and vacuolated cells that contain mucin. (x275. W.U. Ill. 60-5938)
CASE 4

SALIVARY GLAND, PAROTID--CARCINOMA, UNCLASSIFIED

Contributor.--Dr. A. O. Severance, Baptist Memorial Hospital, San Antonio.

History.--A 41-year-old colored female had a very small tender nodule beneath the right ear for 3 years. When first noted it was thought to be a lymph node and was not connected to the parotid. For the past year the mass had grown more rapidly until it was a definite nodular tender mass in the parotid extending behind the lobe of the ear. There was radiating pain extending down in the distribution of the nerves over the right side of the face, and tinnitus. At the time of surgery in December 1959 the mass also extended anteriorly. The specimen measured 4 x 3.5 x 3 cm. Much of it was pinkish-tan, lobulated salivary-gland type of tissue, but at one end, somewhat toward the middle and extending to the edges of the line of excision, was a firm area which on cut surface was grayish-white with a trabeculated, flabby, nodular, somewhat granular appearance resembling tumor tissue.

DISCUSSION: This tumor involving the parotid salivary gland is highly undifferentiated and has a rather prominent stromal background. The margin of the tumor is quite well delimited and in some zones tumor is accompanied by lymphoid tissue and remnants of ducts. Connective tissue stain is not helpful. The mucin stain is negative.

The individual cells are epithelial in nature, growing in masses with very little stroma and with innumerable mitotic figures. I can see no conclusive evidence of origin from duct epithelium although there are several suggestive zones. I always worry in cases of this nature that the lesion may be metastatic. I presume I have been given all the available information. I could conceive of this being metastatic breast cancer. It is certainly not the conventional type of tumor involving parotid salivary gland. I suspect it will recur. The question arises as to whether the patient should have had an incisional biopsy first and then a decision could have been made as to the type of treatment, surgery or irradiation.

Diagnosis.--Salivary Gland, Parotid--Carcinoma, unclassified.
Fig. 4. Cellular tumor involving the parotid salivary gland. It is probably primary in this area. (x350. W.U. Ill. 60-5939)
 LYMPH NODE, AXILLARY--HYPERPLASIA (GIANT LYMPH NODE)

Contributor.--Dr. A. O. Severance, Baptist Memorial Hospital, San Antonio.

History.--A 26-year-old white female was operated on September 16, 1958, for a slightly tender, freely movable tumor mass in the left axilla which had been noticed August 7, 1958. There were no enlarged lymph nodes elsewhere. The roughly ovoid specimen measured 5.8 x 5.7 x 2.7 cm. Cut surface appeared granular and pinkish-tan, and bulged slightly. There were a few focal areas of hemorrhage.

DISCUSSION: Large lymph nodes often present difficulties in their interpretation for it is usually considered that if a lymph node is large, it must be malignant. There are times when such is not the case. The largest benign lymph node I have seen measured 17 cm. in its greatest diameter. Castleman's article emphasizes the large size of some mediastinal lymph nodes erroneously diagnosed as thymoma. We have seen extremely large lymph nodes in inguinal, retroperitoneal, and mediastinal lymph node zones. This problem was brought forcibly to our attention by a patient with a large inguinal node and a large retroperitoneal mass. The surgeon was sure the patient had a cancer, probably lymphoma. First we received the inguinal lymph nodes and then, following an exploratory laparotomy, retroperitoneal lymph nodes, none of which showed changes we could call lymphoma. Finally we had to send these lymph nodes away to Dr. Rappaport for his expert opinion. He stated that these nodes were merely large lymph nodes. The lymph node in this case falls into this category. To my mind it is just a large lymph node.

We have been impressed by several findings that have helped to resolve the differential diagnosis between hyperplastic lymph nodes and those completely replaced by lymphoma. This particular lymph node has considerable proliferation of small vessels. The germinal centers are broad and have a somewhat syncytial appearance. The centers of the follicles are partially hyalinized with prominent small vessels. Reticulum stains often help in establishing the presence of the vessels. Around the germinal centers there is cuffing of the lymphocytes. The reticulum stain in this case was extremely helpful.

Diagnosis.--Lymph Node, Axillary--Hyperplasia (Giant Lymph Node)
Fig. 5. A germinal center of a hyperplastic lymph node stained with a reticulin stain to bring out the vessels in the germinal center stained black. (x170. EGH III.)
CASE 6

MEDIASTINUM--HODGKIN'S DISEASE, GRANULOMA TYPE

Contributor.--Dr. Norman H. Jacob, Santa Rosa Hospital, San Antonio

History.--A 22-year-old white married female had a mass in the right neck for three months. Chest x-rays showed a large mediastinal mass just anterior to the esophagus and trachea in the midmediastinum and partially in the anterior mediastinum. Serum phosphorus and serum calcium were within normal limits. Operation showed a huge lobulated mass in the anterior-superior mediastinum extending up beneath the clavicle on the right and almost to the clavicle on the left, enveloping the anterior mediastinum, great veins, root of the aorta, pulmonary artery, and right atrium, and extending posteriorly up the apex of the chest in the per mediastinal area and along the right innominate vein. As much of the entire tumor was resected as could be visualized. Fragments of tumor showed external lobulation and on the cut surface was firm and grayish white.

DISCUSSION.--This lesion apparently represents a conglomerate mass of lymph nodes. Microscopically there are dense bands of fibrous tissue and also a fine network of connective tissue. Eosinophils are present and also rather obvious Reed-Sternberg cells. I believe, therefore, that this represents Hodgkin's disease of the granuloma type. The fine fibrosis indicates a probably poor prognosis (Lukes).

Mediastinal tumors in the past incorrectly diagnosed as thymomas fall into several categories. Undifferentiated small-cell cancers of the bronchus often have massive mediastinal masses. Hodgkin's disease can manifest itself as a primary mediastinal mass and sometimes can be readily removed. In the past these lesions were labeled by Lowenhaupt as the granulomatous type of thymoma. We believe that there is no such lesion and that lesions so labeled represent Hodgkin's disease. Frequently Hodgkin's disease in the mediastinum may be of the paragranuloma type and, therefore, it is not too rare for such patients to have a relatively good prognosis (Harrison). If such a lesion is removed and diagnosed as Hodgkin's disease, postoperative irradiation therapy must be given.

Diagnosis.--Mediastinum--Hodgkin's Disease, Granuloma Type.


Fig. 6-A. Reed-Sternberg cells showing the extremely prominent nucleoli. (x760. BGH III.)
Fig. 6-B. Reed-Sternberg cells showing the extremely prominent nucleoli. (x1620. BGH III.)

In children, hyperplasia of lymphoid tissue is the universal rule, often to the degree of autoimmune disease. The lymphoid hyperplasia may present as a soft cervical node (Cervical). In this case, it is a soft, rubbery mass that does not move with swallowing. Lesions in the neck are not incorrectly diagnosed as malignant lymphoma.
CASE 7

SMALL BOWEL, ILEUM--LYMPHOSARCOMA

Contributors.--Drs. D. L. Galindo and D. L. Rosenstein, Robert B. Green Memorial Hospital, San Antonio

History.--A 4-year-old boy developed generalized abdominal pain with vomiting and bloody diarrhea 12 hours prior to admission. The abdomen was flat and soft with hyperactive bowel sounds, and proctoscopy was negative. At surgery an ileocecal intussusception and a large tumor of the terminal ileum were found. The cecum and a portion of the ileum including all of the tumor were removed, as well as several enlarged nodes in the mesentery. Sixty-eight lymph nodes from the cecal region and 7 from the ileal region were examined.

DISCUSSION: The tumor arising in the ileum is, I believe, a lymphosarcoma with relatively large cells, oval or vesicular nuclei, with inconspicuous nucleoli. This lesion has extended through all the layers of the bowel. Intussusception can occur with lymphosarcoma. Invariably the prognosis is poor in this group. The lymph nodes I had the opportunity to examine showed no evidence of lymphosarcoma, but I did not have the opportunity of seeing all of the 75 nodes. If any of these nodes were positive, postoperative irradiation should be considered.

In children, hyperplasia of lymphoid tissue in the ileocecal area may be the cause of intussusception and this lymphomatous hyperplasia may present as a soft tumor mass (Sarason). We had such a case in a child, age 4, and care must be taken to make sure the lesion is not incorrectly diagnosed as malignant lymphoma.

Diagnosis.--Small Bowel, Ileum--Lymphosarcoma.

Fig. 7. Relatively undifferentiated lymphosarcoma. (x760.)

BGH III.
CASE 8
BONE, Tibia--Giant Cell Tumor

Contributor.—Lt Colonel James L. Hansen, MC, Brooke General Hospital, Fort Sam Houston

History.—A 35-year-old Latin-American male had dislocated his left knee when playing football. He noted a dull ache in cold, wet weather, and progressive enlargement of a lump on the left lateral tibia for several years. On August 13, 1958, he slipped and fell on his buttocks, and was sent to the hospital with the diagnosis of a fracture. The specimen consisted of approximately 100 grams of curettings of an irregular-shaped bony tumor. It was grayish brown, and was generally firm and calcified, with a moderate amount of fibrofatty tissue. Fragments of bone were lightly adherent to fibromembranous tissue.

DISCUSSION: The history suggests that this lesion was within the bone and the x-ray confirms this impression. Radiographically it looks rather typical of a giant cell tumor. Microscopically this tumor shows great variation in its pattern. There are areas of collagenization with large masses of foam cells. In other zones the stroma is rather cellular and at times mitotic figures are present. Giant cells are rather numerous. There has been some doubt cast on the origin of the giant cells because it has been shown that they contain acid phosphatase. One patient in whom giant cell tumor metastasized to the lung showed elevation of the acid phosphatase. Grading of these tumors is somewhat unreliable. If the stroma is highly undifferentiated, obviously it is malignant. We have seen giant cell tumors with a perfectly benign pattern, however, that have metastasized. We do not, therefore, use the term "benign giant cell tumor of bone." In patients who develop fractures or in whom the tumor has gone through the cortex, implantation can occur. This is a particularly difficult area in which to treat a giant cell tumor. A fairly high percentage of these tumors will recur. It has also been demonstrated that if you are very strict in your criteria for diagnosing a giant cell tumor, one out of five will probably be malignant. This neoplasm must therefore be treated with respect.

Diagnosis.—Bone, Tibia--Giant Cell Tumor.


Fig. 8. Giant cell tumor which has an abundance of "xanthoma" cells. (x250. W.U. Ill.)
CASE 9

SOFT TISSUE, LEG--PLEXIFORM NEUROFIBROMA, RECURRENT

Contributor.--Dr. A. M. Richmond, Nix Hospital Clinical Laboratory, San Antonio

History.--A pink spot appeared on the left lower leg of a one-month-old male; then hair began growing over the area and over adjacent nodular masses. When he was 4 months of age operation revealed an elongated subfascial tumor mass extending into intermuscular septae and adhering very firmly to the lower one-third of the fibula and lateral malleolus. It extensively involved the lower one-third of the leg and was thought to extend to the medial malleolus. Numerous nodules reappeared in the same area and one year later operation revealed a tubular tumor mass 23 cm. long involving the entire peroneal nerve. The mass had deep branching extension involving skin and deep structures, including periosteum. The tumor was thought to be adequately resected. Nodules about the ankle recurred and were resected when the child was 3 years of age (1958). The tumor had extended into the ankle joint. A further local recurrence was resected in 1959, when the entire anterior compartment of the leg was removed. The tumor could not be completely removed because of local extensions about bony structures.

DISCUSSION: This case represents a rather classic example of recurring plexiform neurofibroma in a child. It has the characteristic pattern of large nerve bundles. This lesion is a form of neurofibroma and takes the name of plexiform from its pattern. Infrequently this lesion may extend along the nerves or there may be independent new growths. At times it is necessary to amputate an extremity for a lesion of this type and it is possible this patient may have to have such an operation. The clinical course may be long.

Diagnosis.--Soft Tissue, Leg--Plexiform Neurofibroma, Recurrent.
Fig. 9. Recurrent plexiform neurofibroma showing giant nerve bundles in a distorted pattern. (x105. BGH I11.)
CASE 10

SCROTUM--RHABDOMYOSARCOMA

Contributor.--Dr. David Auld, Lackland Air Force Base Hospital, San Antonio

History.--A 12½-year-old white male became aware of slight tenderness in the right side of the scrotum three weeks before hospital admission and definite swelling one week before admission. At surgery a right orchiectomy was done. The testicle and epididymis were grossly normal but the right tunica vaginalis was enlarged to a mass 6 x 12 cm. There was no circumscribed mass. The cut surface was similar to a "fibroid."

DISCUSSION: This tumor is a rhabdomyosarcoma that is occurring in an unusual location. Possibly it could have arisen from the cremasteric muscle. It is well differentiated, for cross striations can be demonstrated. In Horn's group of 39 cases, he was able to demonstrate cross striations in 19 of the group. He had one case listed as from the tunica vaginalis of the alveolar type, and another from the scrotum in a 15-year-old patient which was of the embryonal type. Both of these patients died. We have divided our rhabdomyosarcomas into the same groups as Horn and Enterline and we believe that the alveolar type has been incorrectly diagnosed for some time. In this particular case surgery is the only possible form of treatment and the outlook must be poor. I cannot tell from the history exactly what the point of origin was.

Diagnosis.--Soft Tissue, Scrotum--Rhabdomyosarcoma

Fig. 10. Rhabdomyosarcoma with long cytoplasmic processes in which cross striations were observed. (x760. EGH Ill.)
CASE 11

BONE, FEMUR--OSTEOSARCOMA

Contributor.--Colonel Milward W. Bayliss, MC, Brooke General Hospital, Fort Sam Houston

History.--A 19-year-old white male developed a palpable mass above his right knee. He had bruised his leg above the knee on the bumper of a truck about 4 months before, and had pain in the knee for the past 3 months. A tumor involving the lower femur was demonstrated by x-ray. The lesion was biopsied.

DISCUSSION: This lesion is an obvious osteosarcoma. It shows malignant cartilage, a sarcomatous stroma, and numerous atypical figures. It is forming very immature bone in a haphazard pattern. This pattern varies from area to area. Vascular invasion is noted.

This malignant tumor should be designated as osteosarcoma. It is not rare for an osteosarcoma to have cartilage, but we see no reason for calling it a chondrosarcoma. Chondrosarcomas show only malignant cartilage and do not have a sarcomatous stroma. The extremely well-differentiated parosteal sarcoma has a much better prognosis than the usual osteosarcoma. The treatment of this tumor should be amputation. It is extremely difficult to determine whether there are any benefits from preoperative irradiation therapy. The over-all cure rate of osteosarcoma has always been considered to be extremely poor. It is now being shown that this is not true. The cure rate from the Mayo Clinic in the case review by Dahlin is about 20 per cent, and we have had a similar experience at our institution. If we consider only the long bones, then patients with osteosarcoma of the tibia have the most favorable prognosis.

Diagnosis.--Bone, Femur--Osteosarcoma.


Fig. 11. Osteosarcoma showing undifferentiated proliferative tumor with osteoid and partially calcified areas. (x475. BGH Ill.)
CASE 12

SOFT TISSUE, DORSUM, FOOT--SYNOVIAL SARCOMA

Contributor.--Dr. A. M. Richmond, Nix Hospital Clinical Laboratory, San Antonio

History.--At birth a female child presented a tumor the "size of an orange" on the dorsum of the left foot. The overlying skin was dusky red in color. When the child was five weeks old the tumor was removed in two pieces. It was circumscribed and encapsulated. Cut surfaces were mottled tan and gray in color and slightly mucoid. Near the surface within the tumor were numerous cystic spaces measuring up to 2 cm. in diameter and containing a yellow cloudy fluid. There were areas of hemorrhage throughout the tumor and brownish black pigment in an area near the surface. Neither the skin nor bones of the foot were involved. The tumor rapidly recurred. When the child was five months old the metatarsal area of the foot (both dorsum and sole) was swollen and firm. On x-ray examination the metatarsal spaces were seen to be widened. After irradiation (3600 r. over fifteen days) the tumor mass regressed until the foot was approximately normal in size.

DISCUSSION: This tumor is highly cellular. It shows relatively few mitotic figures. The individual cells have rather large nuclei, fine nucleoli, and relatively abundant cytoplasm. In some areas there are few giant cells and this lesion suggests synovial origin. There are also papillary processes that suggest synovial villi. The Schiff and mucicarmine stains are negative.

Diagnosis of this lesion is extremely difficult. The cellularity and its prompt recurrence suggest that it is malignant. Careful search also reveals atypical mitotic figures. The response to x-ray therapy is consistent with the diagnosis of synovial sarcoma. I feel that all the changes that I have seen are sufficient to make the diagnosis of sarcoma. The prognosis for synovial sarcoma in children appears to be better than in adults. In Crocker's study there were 9 patients out of 43 with a symptom-free interval of more than 5 years.

Diagnosis.--Soft Tissue, Foot--Synovial Sarcoma

Fig. 12. A fibrosarcomatous area in this synovial sarcoma. (x475. BGH II.)
CASE 13

SOFT TISSUE, ARM--FIBROXANTHOMA (MALIGNANT)

Contributor.--Dr. George C. Mani, Santa Rosa Hospital, San Antonio

History.--A 79-year-old white male first had tumors removed from his right arm in 1952 and since then had three additional operations for similar growths. Recently the tumors became so large that he was unable to slip his arm into a suit coat. There was no history of tumor in any other part of the body. Operation showed numerous varying-sized tumors in the soft tissues of the arm which grossly had incorporated the large nerves of the arm. Tissues were involved down to the deep muscles but bone was not involved. Nine fragments of tumor were removed, the largest being 9 cm. in maximum dimension.

DISCUSSION: This is an unusual lesion that is very cellular and associated with fibroblastic proliferation. There are extremely bizarre nuclei and I suspect this lesion contains considerable fat. In some zones it looks perfectly benign but in others there are atypical mitotic figures and a somewhat mucoid background to the stroma. This lesion has had an extremely long history and I am sure that some might wish to call it an atypical fibrosarcoma. We have seen this lesion destroy most of the face and we have seen it in the abdomen recur and show clinical evidence of malignant change. Because of the size of the lesion and its pattern, therefore, we believe it should be designated as malignant.

Diagnosis.--Soft Tissue, Arm--Fibroxanthoma (Malignant)
Fig. 13. Malignant fibroxanthoma showing uniform cells with abundant cytoplasm that contains sudanophilic material. (x310. W.U. Ill. 60-5948)
CASE 14

BREAST--CARCINOMA WITH EXCESSIVE MUCIN PRODUCTION

Contributor.--Dr. Lauren V. Ackerman

History.--A 38-year-old Negro woman noted a slowly enlarging mass in the right medial breast. On examination the mass was hard, nontender, multilobulated, 4 x 3 x 3 cm., and not fixed to the skin or fascia. There was no nipple discharge and no palpable axillary nodes. The clinical impression was that this was probably a fibroadenoma, with carcinoma to be ruled out. The tumor submitted for frozen section was a well-circumscribed, bosselated, pinkish gray mass of 3 x 2.5 x 2.2 cm. Radical mastectomy was performed and 23 lymph nodes were dissected, in which no gross tumor was found.

DISCUSSION: This is a very easy case to diagnose for it is a carcinoma with excessive mucin secretion which forms a sharply circumscribed mass. The tumor is forming an excess of epithelial mucin, but the individual tumor cells are extremely uniform. Incidentally, in one section there is an area of intraductal papillomatosis.

We know that if carcinomas of the breast are stained routinely for mucin, a high percentage will show small zones of mucin. This cancer is a distinctive type of tumor, however, both grossly and microscopically. Clinically it usually appears in women over 60 years of age, has an apparently slow growth rate, and forms a well delimited mass. If a surgeon considers this as a possible diagnosis and presses a small mass of tumor between two fingers, a feeling of crepitation may occur. When the tumor is resected a capsule will be visible and the tumor itself will be gelatinous and may be a purplish-red color. As the following table indicates, there were only 14 of these cases out of 740 radical mastectomies in our series. Only one patient died and this was an extremely atypical case which could have been recognized clinically and pathologically as being different.

This type of cancer in its classic form does not have multiple foci of origin and does not have metastases to axillary lymph nodes. If a surgeon locally excises a tumor of this nature and gives it to the pathologist, the pathologist therefore can state in almost 100 per cent of the instances that the patient will be cured by local excision. The question might be asked, is any further treatment necessary? If the surgeon does an incisional biopsy, however, the probability of recurrence of the lesion due to implantation would arise. Under such circumstances the
pathologist might well suggest simple mastectomy, particularly if the patient was in the older age group.

740 Radical Mastectomies

Cancer with Excessive Mucin Production
(Mucoid or Colloid)

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<td>Under 50 Years of Age</td>
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<td>10 Years</td>
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* 57-year-old white female, 6 months history, tumor larger than 10 cm. diameter, extensive edema of skin, diffusely infiltrating "inflammatory type" tumor with numerous, positive axillary lymph nodes. Local recurrence after 3 months, dead of cancer after 2 years.

**Diagnosis:** Breast—Carcinoma with Excessive Mucin Production.
Fig. 14. Well-differentiated carcinoma of breast with excessive mucin production. (x30. BGH Ill.)