CALIFORNIA TUMOR TISSUE REGISTRY

FORTY-SEVENTH SEMI-ANNUAL SLIDE SEMINAR

ON

SKIN AND SUBCUTANEOUS TISSUE

MODERATOR:

RICHARD J. REED, M.D.
TULANE UNIVERSITY SCHOOL OF MEDICINE
NEW ORLEANS, LOUISIANA

CHAIRMAN:

WILLIAM HERRICK, M.D.
SAN DIEGO, CALIFORNIA

SUNDAY, MARCH 16, 1969
9:00 A.M. - 5:30 P.M.

REGISTRATION: 7:00 A.M.

AMBASSADOR HOTEL
LOS ANGELES, CALIFORNIA

Please bring your protocol, but do not bring slides or microscopes to the meetings.

The California Tumor Tissue Registry and its member pathologists gratefully acknowledge the support of the American Cancer Society, California Division, California Medical Association, and the Los Angeles County - University of Southern California Medical Center.

CALIFORNIA TUMOR TISSUE REGISTRY

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Mrs. Hatsie Nakamura
Mrs. Rose Maeda
Miss Karen Uyeda
Miss Evalyn Millman

Harry Pappas, M. D. (voluntary)

NAME: G. M. MARCH 16, 1969 - CASE NO. 1

AGE: 40 SEX: Female RACE: Caucasian ACCESSION NO. 14816

CONTRIBUTOR: Reuben Straus, M.D.
St. Joseph Hospital
Burbank, California
OUTSIDE NO. S-519-66

TISSUE FROM: Back

CLINICAL ABSTRACT:

History: The lesion was removed from the shoulder by a dermatologist under local anesthesia in his office.

GROSS PATHOLOGY:

The specimen consisted of an irregular tumor, on one surface was an elliptical piece of skin, measuring 15 x 7 mm. and attached to it was a bosselated tumor nodule measuring 2 cm. in large diameter. The tumor was grayish-white and on repeated sectioning the surfaces were of fine texture.

FOLLOW UP:

The patient has had no recurrence of the lesion.

MARCH 16, 1969

CASE NUMBER 2 IS A COMPOSITE. YOU

WILL HAVE EITHER ACCESSION NO. 17529

OR ACCESSION NO. 17707 IN YOUR BOX.

NAME: N. L. MARCH 16, 1969 - CASE NO. 2

AGE: 55 SEX: Female RACE: Caucasian ACCESSION NO. 17529

CONTRIBUTOR: W. Harriett Davis, M.D. OUTSIDE NO. 1642-68
Burbank, California

TISSUE FROM: Vulva

CLINICAL ABSTRACT:

History: This 55 year old female was admitted to the hospital with history of persistent vaginal and labial pruritis for approximately 1½ years, unresponsive to multiple forms of conservative treatment. The patient had no genito-urinary complaints. Normal menstrual history. Past history reveals abortion 35 years ago and a subtotal hysterectomy 32 years ago.

Physical examination revealed a white, parchment-like lesion involving the labia and bordering the clitoris. There was enlargement of the lymph glands in both inguinal areas.

SURGERY:

On June 11, 1968, a vulvectomy with excision of labia majora and minora, prepuce, clitoris and bilateral excision of lymph nodes from inguinal areas were performed.

GROSS PATHOLOGY:

The specimen consisted of an ovoid piece of skin and mucous membrane incorporating the labia minora and majora, measuring 9.0 x 6.0 x 1.0 cm. in greatest dimensions and lymph nodes without evidence of disease. The loss of normal mosaic pattern was seen over the epidermis of the anterior forchette of the clitoris. The area was poorly demarcated, measuring approximately 3.0 x 3.0 cm.

FOLLOW UP:

When the patient was last seen on December 10, 1968, she complained of nervousness and distress over the type of surgery performed. Examination revealed nonspecific vaginitis and slight irritation and scarring around introitus; few adhesions were treated with dilation. Clinically there was no evidence of recurrence.

NAME: E. H. MARCH 16, 1969 - CASE NO. 2

AGE: 84 SEX: Female RACE: Caucasian ACCESSION NO. 17707

CONTRIBUTOR: John K. Waken, M.D. OUTSIDE NO. CS 3034-68
Community Hospital of San Gabriel
San Gabriel, California

TISSUE FROM: Vulva

CLINICAL ABSTRACT:

History: The most recent admission to the hospital was October 24, 1968 when she was admitted for definitive treatment of a recurrent lesion on the vulva which apparently dated back to 1955. A right vulvar biopsy at that time disclosed leukoplakia and squamous cell carcinoma-in-situ, following which a partial simple right vulvectomy was performed. The pathology report was stated to show one small area of invasion.

The patient was lost to follow-up between 1957 and 1963 when pelvic examination revealed a raw area on the right side of the vagina, along with stress incontinence. The patient had apparently undergone an abdominal hysterectomy by another physician during this time. Multiple vulvar biopsies were repeated in January 1967 and February 1968 for this long-standing lesion.

Physical examination disclosed an approximately 3.0 cm. area of leukoplakic-like involvement of the right vulva near the vagina, associated with superficial ulceration.

SURGERY:

On October 25, 1968, the patient underwent a partial right vulvectomy and excision of a similar lesion on the mons pubis.

GROSS PATHOLOGY:

The specimen consisted of an L-shaped tissue fragment measuring 5 x 3.2 x 8 cm. in maximum dimension, stated to be the posterior vulva. The entire specimen was flattened, having a squamous epithelium lining of one surface. Most of the squamous epithelium lined tissue had markedly irregular moth-eaten appearance with numerous elevated grayish-white plaques, many of which appeared to be focally confluent.

Also submitted were two irregular fragments of tissue stated to be lesions from the mons pubis. The larger circular fragment

measured 3 x 2.5 x .5 cm., and the smaller fragment measured 2.4 x .5 x .5 cm. in maximum dimension. The epithelial surface had a tan-pink irregular appearance, although no yellowish plaques were noted.

FOLLOW UP:

Patient had a simple vulvectomy in October 1968 for similar lesion, and is doing well except for local breakdown in the wound post-operatively. She is in excellent health for her age.

NAME: J. L. MARCH 16, 1969 - CASE NO. 3

AGE: 48 SEX: Male RACE: Caucasian ACCESSION NO. 17694

CONTRIBUTOR: Paul Thompson, M.D.
St. Luke Hospital
Pasadena, California

OUTSIDE NO. 2429-68

TISSUE FROM: Right thigh

CLINICAL ABSTRACT:

History: The patient was admitted to the hospital on October 1, 1968 with a history of an enlarging tumor on the posterior right thigh for the past six months. There had been no bleeding or pain present. There was no history of trauma or foreign body.

Physical examination: On the posterior aspect of the distal right thigh was a 2½ cm. tumor of skin and subcutaneous tissue. It was raised about 1½ cm. above the surface and was not tender or ulcerated. Other than this tere was no other physical findings that were abnormal, including the chest x-ray.

GROSS PATHOLOGY:

The specimen was submitted in a fresh state and consisted of a skin ellipse removed from the right thigh. It measured 6.2 cm. in length and 2.8 cm. in width. In the center of this segment was a raised pale gray lesion, 1.7 x 2 cm. in diameter and extended above the surface about 1 cm. Sections made by cutting revealed a homogeneous pale tan tissue with the inferior aspect of the tumor to be well demarcated in the subcutaneous tissue. There was 6 mm. of subcutaneous tissue inferior to the lesion.

FOLLOW UP:

No follow-up received.

NAME: P. P. MARCH 16, 1969 - CASE NO. 4

AGE: 63 SEX: Male RACE: Unknown ACCESSION NO. 12783

CONTRIBUTOR: Milton L. Bassis, M.D. OUTSIDE NO. SF 61-2151
Permanente Medical Group
San Francisco, California

TISSUE FROM: Left posterior scalp

CLINICAL ABSTRACT:

Patient stated that he had a lesion in the left posterior scalp area since birth. The lesion appeared to be superficial, oval, irregular and slightly nodular involving the epidermis and dermis. Centrally the lesion was raised, fissured, slightly oozing and red. The patient stated that an injury by the barber some time ago aggravated the lesion.

SURGERY:

The lesion was totally excised.

GROSS PATHOLOGY:

The specimen consisted of an ellipse of skin, measuring 6.3 x 3 cm. with a wedge of subcutaneous fat, measuring 1.3 cm. in depth. Centrally located was an irregularly raised gray-brown pigmented lesion, measuring 3.5 x 2.8 cm. in its greatest dimension. One edge of the lesion in an area measuring 1.7 x 1.5 cm. in its greatest dimensions showed irregular elevation of the skin with a gray pigmentation of multiple folds.

FOLLOW UP:

Follow-up information not available.

NAME: W. W. MARCH 16, 1969 - CASE NO. 5

AGE: 73 SEX: Male RACE: Caucasian ACCESSION NO. 12193

CONTRIBUTOR: D. Tatter, M.D.
L.A.C.-U.S.C. Medical Center
Los Angeles, California
OUTSIDE NO. 69092

TISSUE FROM: Anterior abdominal wall

CLINICAL ABSTRACT:

History: Patient was hospitalized in February 1962 for a bleeding posterio-superior duodenal ulcer for which surgery was performed. He had a stormy post-operative course with diarrhea. In addition EKG revealed an anteroseptal myocardial infarction and it was felt that he had a staphylococal enterocolitis. A lesion was noted on the anterior abdominal wall which was biopsied and diagnosed as a mucin-producing sweat gland carcinoma. The patient pursued a downhill course and expired on March 20, 1962.

GROSS PATHOLOGY:

At autopsy there was an ulcerated tumor measuring approximately 3 cm. in diameter in the suprapubic area. This was somewhat dark in color and on cut section was very mucoid, although moderately firm. The mass extended into the subcutaneum but not beyond. The margins were sharp but not encapsulated.

NAME: B. D. MARCH 16, 1969 - CASE NO. 6

AGE: 64 SEX: Female RACE: Caucasian ACCESSION NO. 17427

CONTRIBUTOR: Raid Chappell, M.D. OUTSIDE NO. 68-153
Modesto, California

TISSUE FROM: Left forehead

CLINICAL ABSTRACT:

History: Over the past decade or two, the patient had countless basal cell carcinomas removed. A lesion was removed from the left forehead in January 1967. Fifteen months later there was a recurrence manifested by a smooth, discoid, swelling 2½ - 3 inches in diameter which gently elevated the overlying skin which was smooth, white and intact.

SURGERY:

The recurrence was surgically excised in March 1968. At that time the plastic surgeon outlined the tumor by palpation, noting the overlying skin to be intact and performed a circular excision, essentially including the lump. A series of burr holes were performed in the skull around the tumor. The tumor was freed up with a rim of bone, gradually teasing it away from the underlying dura which did not appear to be penetrated by tumor at any point. Presumably, in the interval between the original surgery and the excision of the recurrence, the tumor had eroded a hole in the frontal bone.

GROSS PATHOLOGY:

The specimen consisted of a round disc of tumor measuring 5.2 cm. in diameter and 1.0 - 1.2 cm. thick. It was surrounded on 3/5 of its circumference by a rim of cranial bone, 6 - 8 mm. wide. Where the tumor met the bone, the junction was sharp and the tumor did not appear to infiltrate the bone. On cross section, the tumor had a rubbery, fibrous consistency, was homogeneous and grayish-white in color.

FOLLOW UP:

The patient is still under observation by the attending physician and is alive and well without evidence of recurrent local disease, metastasis or clinical suggestion of a primary lesion elsewhere.

NAME: A. C. MARCH 16, 1969 - CASE NO. 7'

AGE: 59 SEX: Female RACE: Caucasian ACCESSION NO. 15722

CONTRIBUTOR: E. R. Jennings, M.D. OUTSIDE NO. JS-711-67
Memorial Hospital of Long Beach
Long Beach, California

TISSUE FROM: Left parietal area

CLINICAL ABSTRACT:

History: This 59 year old female had a nodule in the area of the left parietal scalp for a number of years. It always had been asymptomatic, however it had increased slowly in size. When it became a cosmetic problem, she sought its removal.

SURGERY:

A 2 x 3 cm. intact cyst was removed on April 17, 1967.

GROSS PATHOLOGY:

The specimen consisted of a nodular piece of tissue covered on one aspect by an ellipse of skin, mreasuring approximately 3.2 x 0.9 cm. in maximum extent. The skin was smooth, shiny and without apparent defect. The nodule extended approximately 2 cm. below the surface and approximately 1 cm. above it. It was firm, throughout and on cross section it was uniformly pale gray and spongy throughout. It appeared to be totally encapsulated by a thin rim of fibrous tissue. Its consistency was rubbery.

FOLLOW UP:

When last seen on August 3, 1967, the area of incision was well healed and there was no evidence of recurrence.

NAME: D. D. W. MARCH 16, 1969 - CASE NO. 8

AGE: 31 SEX: Male RACE: Caucasian ACCESSION NO. 17684

CONTRIBUTOR: H. A. Fanselau, M.D. OUTSIDE NO. 68-2429
Glendale Adventist Hospital
Glendale, California 91206

TISSUE FROM: Right leg

CLINICAL ABSTRACT:

History: Patient was involved in a motorcycle accident 9 years ago, following which a mass developed in the right leg. Because it was draining, it was removed 2 years ago. It grew and drained again 9 months before admission and has drained thick pus for the past six weeks.

SURGERY:

The patient had a 2.5 cm. raised lesion in the anterior-inferior portion of the medial aspect of the right thigh and there was a marked reaction of the fatty tissue beneath indicating fat necrosis which extended widely about the area. It was excised using an elliptical incision in such a way as to clearly delineate all sides by 1 cm. The dissection was carried down to the deep fascia on the muscles.

GROSS PATHOLOGY:

The specimen consisted of an ellipse of skin and subcutaneous tissue, measuring 6.5 x 4.5 x 3.0 cm. The skin ellipse itself measured 5 x 3 cm. Centrally there was a slightly elevated, soft, somewhat fluctuant, rounded area, 2 cm. in diameter. Cut surface showed homogeneous yellow soft tissue attached to the skin and extending to a depth of 1.5 cm. Below this rather discrete tissue was the usual fatty connective tissue. Quadrant cuts showed a similar circumscription of the soft yellow tissue; the latter did not extend to any of the surgical margins.

FOLLOW UP:

The patient has not returned to his physician.

NAME: J. V. MARCH 16, 1969 - CASE NO. 9

AGE: 73 SEX: Male RACE: Mexican ACCESSION NO. 17809

CONTRIBUTOR: Mildred Stilson, M.D.
Riverside General Hospital
Riverside, California
OUTSIDE NO. S-1907-68

TISSUE FROM: Skin, forearm

CLINICAL ABSTRACT:

History: For a number of years this patient had a tumor nodule on the forearm which occasionally became ulcerated.

Physical examination: There was a 3 cm. diameter round nodule lying just beneath the skin on the volar aspect of the forearm anterior to the ulna.

SURGERY:

The lesion was excised on November 18, 1968.

GROSS PATHOLOGY:

The specimen consisted of an encapsulated 3 x 2 x 2 cm. nodule lying just beneath an ellipse of skin measuring 4 x 2.5 cm. The cut surface of the tumor was partly gray and partly hemorrhagic. With a hand lens, multiple small cystic spaces were visible on the cut surface.

FOLLOW UP:

When the patient was last seen on February 3, 1969, the wound scar was clean and well healed. There was no evidence of swelling.

NAME: J. C. C. MARCH 16, 1969 - CASE NO. 10

AGE: 43 SEX: Male RACE: Caucasian ACCESSION NO. 17718

CONTRIBUTOR: Irving Reingold, M.D. OUTSIDE NO. S-2981-68
Veterans Administration Hospital
Long Beach, California

TISSUE FROM: Parieto-occipital area

CLINICAL ABSTRACT:

History: This 43 year-old Caucasian male had a three year history of an enlarging mass in the parieto-occipital area. This was painless and involved the deep dermis and subcutaneous tissue. The overlying epidermis was intact. The lesion was considered to be infiltrating the occipital bone.

SURGERY:

The bone and fascia with occipito-parietal tumor was removed on August 22, 1968.

GROSS PATHOLOGY:

The specimen consisted of a tumor measuring 4 x 3 x 3 cm., which was solid, lobular, circumscribed, grayish-tan in color and hemorrhagic.

FOLLOW UP:

Subsequent work up revealed renal IVP, metastatic bone survey, upper and lower G.I. series, thyroid and liver scan all to within normal limits. Two other scalp lesions were removed on October 23, 1968. These were interpreted as epidermal inclusion cysts.

When the patient was last in clinic on February 3, 1969, he had no complaints and there was no evidence of further abnormalities.

NAME: L. C. MARCH 16, 1969 - CASE NO. 11

AGE: 64 SEX: Female RACE: Unknown ACCESSION NO. 17428

CONTRIBUTOR: M. L. Bassis, M.D.
Kaiser Foundation Hospital
San Francisco, California
OUTSIDE NO. SF 68-3136

TISSUE FROM: Chest wall

CLINICAL ABSTRACT:

History: This 64 year old female was burned over a large portion of her upper torso in 1923 for which a skin graft was done in the past. A chronic ulcer had been present for a number of years on the chest wall. About four months ago a mass developed in the base of the ulcer which measured about 4 cm. in diameter. There is no history of radiation to the chest wall.

SURGERY:

After biopsy a wide local resection of the lesion was performed.

GROSS PATHOLOGY:

The specimen consisted of an ellipse of skin, 8 x 4 cm., with a central irregularly outlined ulcer, 3.5 cm. in its greatest dimensions. In the base of the ulcer was a gray translucent firm rubbery mass which was irregularly outlined containing scattered calcific deposits in its substance, measuring 4 x 3.5 cm. in its greatest dimensions. The mass appeared to be surrounded on all aspects by uninvolved fat.

FOLLOW UP:

Follow-up information is not available.

NAME: H. M. R. MARCH 16, 1969 - CASE NO. 12

AGE: 59 SEX: Female RACE: Unknown ACCESSION NO. 17812

CONTRIBUTOR: Paul Thompson, M.D.
St. Luke's Hospital
Pasadena, California
OUTSIDE NO. 36-69

TISSUE FROM: Vulva

CLINICAL ABSTRACT:

History: The patient entered the hospital on January 5, 1969 with the complaint of pruritic dry skin area in the perirectal area. She had noted this since June 1967 when she was first treated for an area of pruritis about the vagina and rectum. This was treated with aristocort cream and later in the summer she developed a vaginal infection which was treated by a local physician. On September 3rd she was checked and it was found that there were some excoriations of the posterior commissure and part of the posterior vulva. All local medications were stopped and by September 19th, her dermatitis had decreased. However, by December 2, 1968, the "dermatitis" had increased and a biopsy was taken.

Past history reveals patient had a total hysterectomy and appendectomy in April 1965 for reasons unknown.

Physical examination revealed a raised erythematous excoriated lesion located in the perineum extending to the rectum and vulva above.

SURGERY:

On January 6, 1969, at surgery, it was stated that the lesion was located over the right perineum extending onto the thigh down to the rectum and to the posterior part of the right commissure a large serpiginous lesion. This was removed with an electrocautery down to the muscle with removal of the external hemorrhoidal area.

GROSS PATHOLOGY:

The specimen was submitted in a partically fixed state. It measured in its overall dimensions from the superior to the inferior margins 5.5 cm. in length. The lateral diameter was 3.6 cm. It averaged approximately 9 mm. in thickness. The superior surgical margin was marked with a catgut suture as was the right lateral aspect of the specimen. There was some roughening of the surface of the specimen which was submitted and it was a lighter color than the adjacent margins surrounding the specimen. The lesion appeared to approach the surgical margin closest at the 10:30 o'clock position, so a separate surgical margin was taken at that location and labelled. It was not clear of the lesion. All other margins were clear.

NAME: G. W. D. MARCH 16, 1969 - CASE NO. 13

AGE: 82 SEX: Male RACE: Indian ACCESSION NO. 17844

CONTRIBUTOR: Richard J. Reed, M.D. OUTSIDE NO. S68-3803
New Orleans, Louisiana

TISSUE FROM: Left posterior cervical chain

CLINICAL ABSTRACT:

History: This 82 year old male was admitted to the hospital with a history of a firm enlarging lesion in the left posterior cervical lymph node chain of 4 - 6 months duration. Biopsy was done at another hospital

SURGERY:

Left radical neck dissection was performed.

GROSS PATHOLOGY:

The specimen consisted of a circular section of skin which measures 4 cm. in diameter. On sectioning, a lobulated tumor was present in the subcutaneous tissue and infiltrateded the dermis and the adjacent fibrofat. The tumor extended to the superficial layer of the deep fascia, and, in one area, appeared to have broken through the fascia. The tumor was pale yellow and showed irregular margins. In one area, there was a sharply circumscribed firm nodule which measured 1.4 cm. in diameter. This nodule showed central areas of cystic degeneration and was partially surrounded by the previously described tumor. Also included were the products of a radical neck dissection including submaxillary gland.

FOLLOW UP:

There was no gross evidence of recurrence three months post-operatively, although the tumor appeared to involve deep margin.

NAME: F. C. R. MARCH 16, 1969 - CASE NO. 14

AGE: 68 SEX: Male RACE: Caucasian ACCESSION NO. 17719

CONTRIBUTOR: W. E. Carroll, M.D. OUTSIDE NO. S68-4387
Santa Barbara Cottage Hospital
Santa Barbara, California

TISSUE FROM: Skin, left thigh

CLINICAL ABSTRACT:

History: The patient was hospitalized in July 1968 for resection of an aortic aneurysm with grafting. He gave a history of cutaneous lymphomata over a long period of time. During this admission an excision of a lesion of the left thigh was performed.

GROSS PATHOLOGY:

The specimen consisted of a 68 x 35 mm. skin ellipse which had up to 10 mm. of subcutaneous fatty tissue. There was a centrally located 30 x 23 mm. diameter violaceous region which was slightly raised above the surrounding otherwise tan-pink normal appearing skin. On cut section this area measured up to 3 mm. in thickness and it had a pale tan-brown fleshy homogeneous appearance.

FOLLOW UP:

The patient did well following his abdominal aortic surgery. On January 1, 1969 he shot himself twice in the chest following an argument with his wife. At autopsy there was a 25 mm. diameter reddish area on the abdomen representing the only residual skin lesion. There was no gross evidence of lymphomatous involvement of the viscera. Cause of death was massive intrathoracic hemorrhage due to gunshot wounds of the lungs.

NAME: W. L. MARCH 16, 1969 - CASE NO. 15

AGE: 28 SEX: Male RACE: Negro ACCESSION NO. 17845

CONTRIBUTOR: Richard J. Reed, M.D. OUTSIDE NO. S68-2263
New Orleans, Louisiana

TISSUE FROM: Axilla

CLINICAL ABSTRACT:

History: The patient is a 28 year old Negro male who first noted a "mole" in the axilla about two years ago. The lesion had slowly enlarged and was tender.

The patient had a craniotomy and ligation of a berry aneurysm in 1966.

HOSPITAL COURSE:

The lesion was diagnosed as a keloid and was excised in clinic. Examination of the specimen showed the margins of excision to contain tumor, and the patient was admitted for a wider excision. The area was widely excised and skin grafted on the 22nd of March, 1968. There has been no evidence of recurrence.

GROSS DESCRIPTION OF THE EXCISED SPECIMEN (S68-2263):

Received in formalin was an elliptical mass of skin and subcutaneous tissue which measured 4.5 x 2 x 2 cm. in greatest dimensions. The central region of the skin surface showed an elevated soft polypoid lesion completely covered by epidermis. The polypoid lesion measured 1.5 cm. in greatest dimension. On section, this polypoid lesion showed a homogeneous soft somewhat translucent gray cut surface. Sections of the dermis revealed a fairly homogeneous gray-tan tissue.

NAME: A. S. MARCH 16, 1969 - CASE NO. 16

AGE: 81 SEX: Male RACE: Negro ACCESSION NO. 17846

CONTRIBUTOR: Richard J. Reed, M.D. OUTSIDE NO. S64-15100
New Orleans, Louisiana

TISSUE FROM: Scalp

CLINICAL ABSTRACT:

History: This 81 year old colored male was admitted with an ulcerated granulomatous lesion on the scalp. The tumor measured 11.5 x 7.5 cm. and developed over a three month period. He was seen in the dermatology clinic about six weeks after the onset of his disease and was thought to have a pyoderma.

Past history: The patient was struck on the head with a Coke bottle in 1915. He states the present lesion developed in the exact spot of the previous trauma.

HOSPITAL COURSE:

Multiple punch biopsies were taken of the periphery of the lesion in an attempt to outline its limits. All the biopsies contained tumor.

The lesion was excised, and the margins of excision were checked with frozen sections. Tumor was present at all margins of excision. The defect was covered with five drums of skin. The patient had some difficulty with skin graft but was eventually discharged from the hospital. In June of 1965 the patient was noted to have a mass in the posterior portion of the neck. He developed two other lesions, one being in the left cervical region and the other on the forehead. Biopsies of these areas were proved to be metastatic angiosarcoma.

He was treated with Actinomycin D, but the drug was discontinued because of a severe dermatitis. The patient died on the 10th of May, 1966. An autopsy was not performed.

GROSS PATHOLOGY:

The specimen consisted of skin of the scalp, hemispherically shaped, measuring 16.5 cm. in diameter. On the cutaneous surface was an indurated, ulcerated area, measuring 6.0 cm. in diameter. Just anterior to this were several indurated areas, averaging 1.3 cm. in diameter. The cut surface of the tumor was homogeneous and yellow or white. The tumor extended to the deep margin of excision.

NAME: R. T. MARCH 16, 1969 - CASE NO. 17

AGE: 80 SEX: Female RACE: Caucasian ACCESSION NO. 17847

CONTRIBUTOR: Richard J. Reed, M.D.
New Orleans, Louisiana
OUTSIDE NO. DP A1510

TISSUE FROM: Left temple

CLINICAL ABSTRACT:

History: This 80 year Caucasian had a history of multiple excisions of superficial carcinomas of the left temple from 1959 - 1968. In March 1967, the lesion was treated by x-radiation (250 KV). In May 1967 subcutaneous nodule was treated by surgical excision followed by zinc chloride fixative to the base of the wound, then re-excision with frozen sections (Chemosurgery - Mohs). In February 1968 it recurred again as a subcutaneous nodule and was treated by Mohs type Chemosurgery. Twenty-two chemosurgical excisions were required. The parotid gland, facial nerve, zygomatic arch, and lateral wall of the maxillary sinus were invaded by the tumor.

GROSS PATHOLOGY:

The specimen consisted of seven fragments of tissue, the largest measuring 5 x 2.5 x 1.5 cm. An ellipse of skin was attached to each of the two largest specimens. The cut surface was gray and showed fibrous whorls.

FOLLOW UP:

Follow-up information is not available.

NAME: S. M MARCH 16, 1969 - CASE NO. 18

AGE: 81 SEX: Female RACE: Caucasian ACCESSION NO. 17849

CONTRIBUTOR: Richard J. Reed, M.D.
New Orleans, Louisiana
OUTSIDE NO. S67-7832

TISSUE FROM: Forehead

CLINICAL ABSTRACT:

History: This 81 year old white female was admitted with a 6 x 6 cm. friable bleeding fungating lesion on the right forehead with ptosis of the right eyelid. The tumor had been diagnosed as atypical fibroxanthoma on biopsies.

Under local anesthesia, the tumor was removed down to bone and the defect was covered with a full thickness skin graft. She became hypotensive shortly after surgery and died eight days later with bronchopneumonia. No evidence of metastatic tumor was found at autopsy.

GROSS PATHOLOGY:

The specimen consisted of a roughly circular lightly pigmented skin. It measured 7.7 x 7.1 x 0.6 cm. Much of the center of the specimen was occupied by a reddened fungating slightly ulcerated tumor measuring 5.2 cm. in greatest diameter. The cut surface of the tumor was white and fish flesh in consistency.

NAME: P. C. MARCH 16, 1969 - CASE NO. 19

AGE: 58 SEX: Male RACE: Negro ACCESSION NO. 17864

CONTRIBUTOR: Richard J. Reed, M.D. OUTSIDE NO. S63-8001
New Orleans, Louisiana

TISSUE FROM: Nose

CLINICAL ABSTRACT:

History: The patient is a 58 year old colored male with burning epigastric pain for two years. The patient had been treated by antacids and diet and had been fairly well controlled. An upper G.I. series showed a deformity of the duodenal bulb.

Past history: The patient also had Dupuytren's contracture of the left hand and a positive S.T.S. to 16 dilutions.

Physical examination. showed a papillary lesion on the nose near the nasolabial fold. The lesion was removed in surgical clinic.

GROSS DESCRIPTION:

Received in formalin was a fragment of Negroid skin and subcutaneous tissue measuring .7 x .3 x .2 cm. On the epithelial surface, a polypoid structure measuring .8 x .5 x .5 cm. was present. The lesion extended to within 0.5 cm. of the nearest margin of excision. The entire specimen was submitted for microscopic study.

NAME: C. C. MARCH 16, 1969 - CASE NO. 20

AGE: 48 SEX: Male RACE: Unknown ACCESSION NO. 17843

CONTRIBUTOR: Raymond F. Peterson, M.D. OUTSIDE NO. 86-69
Martin Luther Hospital
Anaheim, California

TISSUE FROM: Right hand

CLINICAL ABSTRACT:

History: This forty-eight year old male developed a callous on his right hypothenar eminence at a location irritated by a lever at his work of 18 months duration. This became progressively worse and appeared to be infected and irritated. Two superficial biopsies elsewhere in 1968 were interpreted as hyperkeratosis. Another biopsy was done under general anesthesia from a deeper area, and a surgical decision was made.

Physical examination revealed pressure exerted at the site of the lesion produced fairly large amounts of pale toothpaste like material, which on sectioning was keratinaceous debris.

SURGERY:

Partial resection of the right hand including 4th and 5th fingers was performed.

GROSS PATHOLOGY:

The specimen consisted of a partially amputated right hand at the wrist leaving the 4th and 5th fingers. The skin of the hypothenar eminence had a crater ulcer measuring 2 cm. in greatest dimension with a deep necrotic base and with the circumferential skin surrounding the area raised, roughened, and extending to the longitudinal crease. When transected the growth appeared to penetrate into the underlying muscles, the tendons and the surgical margins appeared to be clear. The base of the infiltrating margin was discolored by a dye of a blue-green color. The lesion infiltrated inferiorly for 1 cm. and laterally to within 1.5 cm. of the lateral margin. The palmar skin was intact except for the ulceration but the skin and subcutaneous tissue over the proximal 2/3 of the fingers and distal end of the hand was missing.

FOLLOW UP:

The patient was discharged from the hospital on February 12, 1969 in satisfactory condition.

NAME: E. J.

MARCH 16, 1969 - CASE NO. 21
AND CASE NO. 22

AGE: 44 SEX: Female RACE: Caucasian ACCESSION NO. 15681

CONTRIBUTOR: Harry Elster, M.D.
Jesse H. Frank, M.D.
S. J. Ruden, M.D.
G. P. Burke, M.D.
Inglewood, California

OUTSIDE NO. HA 96642 (Case 21)
SS 52393 (Case 22)

TISSUE FROM: Suprapubic area

CLINICAL ABSTRACT:

History: Ten days prior to surgery, the patient noted a lump in the suprapubic area at the time of a questionable injury to this region. This was interpreted as a possible hernia. The patient had an enlarged thyroid for 20 years. There were no other lesions noted and the patient was in good general health. A chest film was interpreted as clear.

SURGERY:

At surgery on April 8, 1967, a sharply circumscribed nodule was found which was apparently adjacent to the fascia of the suprapubic region and was easily shelled out.

GROSS PATHOLOGY:

(HA 96642- Case No. 21): The specimen consisted of a lobular mass measuring up to 4.3 cm. and focally covered by a soft membranous substance. It was moderately firm and on cut surface presented a pinkish gray fleshy character with scattered small foci of dark red coloration.

FOLLOW UP:

The tumor recurred 18 months after the first excision. At this time a local excision of the mass was performed.

GROSS PATHOLOGY:

(SS 52393 - Case No. 22): The tumor was a discrete 5 cm. semitranslucent, light gray gelatinous tissue, oval in shape, completely surrounded by a pseudocapsule. No satellite lesions were recognized.

FOLLOW UP:

Since the second excision, the patient had undergone a wide local excision of the area down to the fascia. At present there are no evidences of metastases or further recurrence.

NAME: J. B. MARCH 16, 1969 - CASE NO. 23

AGE: 33 SEX: Male RACE: Unknown ACCESSION NO. 17804

CONTRIBUTOR: Thomas E. Wynn, M.D. OUTSIDE NO. 68SM-5861
St. Mary's Hospital and Medical Center
San Francisco, California

TISSUE FROM: Right elbow

CLINICAL ABSTRACT:

History: The patient first noticed a small lump on the lateral aspect of the right elbow four years ago. The mass increased in size over the next two years but for the last two years it had been stationary in size. The mass was tender and was intermittently soft and quite hard. The area bruised easily.

Physical examination: The patient was obese and there were no striking physical findings except for the lesion on the right elbow. The subcutaneous tumor was freely movable, quite tender and did not transilluminate.

SURGERY:

The mass was removed on November 15, 1968 without difficulty along with a small segment of overlying skin.

GROSS PATHOLOGY:

The specimen consisted of an ovoid tissue, 4 x 3 x 2.5 cm. in size. Within this tissue was a circumscribed tumor, 2 cm. in diameter, which on section had a spongy hemorrhagic appearance. The tumor was separate from the overlying skin.

FOLLOW UP:

The patient was last seen on November 27, 1968 for the removal of the sutures from the excision site. He has not returned for follow-up. At the time of the suture removal there was nothing unusual about the surgical site.

NAME: W. J. MARCH 16, 1969 - CASE NO. 24

AGE: 52 SEX: Male RACE: Caucasian ACCESSION NO. 17863

CONTRIBUTOR: H. E. Otto, M.D. OUTSIDE NO. S-738-68
St. Joseph's Hospital
Hancoc Hancock, Michigan

TISSUE FROM: Neck

CLINICAL ABSTRACT:

History: The patient gave a history of a lesion at the base of the neck on the right side of two years duration. The lesion had been causing an apparent pressure on the nerves over the distribution of the ulnar.

SURGERY:

The lesion was located within the subcutaneous tissue approximately ½ inch beneath the skin. The surgeon stated that it was not attached to the fascia or muscle nor did he see any nerves in the area. The lesion was shelled out easily.

GROSS PATHOLOGY:

The specimen consisted of a 3.5 x 3 x 2 cm. nodular tumor, partially surrounded by fat and encased in a thin areolar capsule. On section, the tumor was homogeneous, firm, pale gray and had the consistency of a myoma.

COURSE:

The numbness that the patient was experiencing along the distribution of the ulnar nerve subsided within 24 hours after removal of the tumor.

FOLLOW UP:

As of February 1969, the patient was in good health. The wound had healed well and there was no recurrence.

NAME: R. H. MARCH 16, 1969 - CASE NO. 25

AGE: 66 SEX: Male RACE: Negro ACCESSION NO. 17866

CONTRIBUTOR: Richard J. Reed, M.D. OUTSIDE NO. S68-6889
New Orleans, Louisiana

Julian C. Henderson, M.D.
Jackson, Mississippi

TISSUE FROM: Base of penis

CLINICAL ABSTRACT:

History: This 66 year old Negro male was admitted to the hospital with a history of a nodule located at the junction of the penis with the scrotum, which had been present for a few months. However, there was a larger nodule at the base of the penis which had been present for one - two years. The larger nodule was said to measure approximately 6 cm. in diameter and had a draining ulcerated area in the center. The penis and scrotum were both edematous and bilateral inguinal adenopathy was present.

GROSS PATHOLOGY:

The specimen consisted of an ellipse of skin 2.5 x 1.5 x 1.5 cm. with a nodule measuring 1 x 1.2 x 0.8 cm. When sectioned the surfaces were homogeneous, almost semi-translucent with well demarcated margins.

FOLLOW UP:

Follow-up information is not available.

CLEAR CELL CARCINOMA OF THE SKIN

Differential Features

1. compact nests of clear cells (pas+, digested by diastase)
2. hyaline membranes
3. "cancer" stroma
4. resembles cells found in nodular hidradenoma (eccrine acrospiroma, clear cell hidradenoma, solid and cystic hidradenoma)
5. tricholemmoma
   a) predominantly on face
   b) polypoid and confused with basal cell carcinoma
   c) hyalinization of stroma with nests of trapped cells
   d) hyalin basement membranes
   e) basaloid features
   f) glycogen rich clear cells
   g) configuration mimics inverted follicular keratosis
   h) merge with polypoid tumors showing nuclear atypism
   i) small tumors blend with follicles
6. metastasizes to lymph nodes and by blood stream (bone)
7. not all malignant nodular hidradenomas show a prominent clear cell pattern

A D D E N D A

CALIFORNIA TUMOR TISSUE REGISTRY

FORTY-SEVENTH SEMI-ANNUAL SLIDE SEMINAR

on

SKIN AND SUBCUTANEOUS TISSUE

MODERATOR:

RICHARD J. REED, M. D.
TULANE UNIVERSITY SCHOOL OF MEDICINE
NEW ORLEANS, LOUISIANA

CHAIRMAN:

WILLIAM HERRICK, M. D.
SAN DIEGO, CALIFORNIA

WILSHIRE HYATT HOUSE
LOS ANGELES, CALIFORNIA

SUNDAY, MARCH 16, 1969
9:00 A.M. - 5:30 P.M.

SEMINAR ON **SKIN AND SUBCUTANEOUS TISSUE** March 16, 1969
Moderator: Richard J. Reed, M.D.

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4	12783	Nevus sebaceus of Jadassohn; syringocystadenoma papilliferum; syringoma; superficial basal cell carcinoma
5	12193	Well differentiated mucinous adenocarcinoma of the skin
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10	17718	Metastatic clear cell carcinoma (clear cell variant of renal cell carcinoma)
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12	17812	Carcinoma-in-situ (Bowen's disease)
13	17844	Malignant eccrine spiradenoma
14	17719	Benign lymphocytoma of the skin
15	17845	Dermatofibrosarcoma protuberans
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CASE	ACCESSION NO.	DIAGNOSIS
19	17864	Melanocytic angiofibroma
20	17843	Epidermoid carcinoma
21	15681	Angioblastic mesoblastoma
22	15681	Angioblastic mesoblastoma
23	17804	Glomus tumor
24	17863	Fibrolipoma
25	17866	Clear cell carcinoma (probably of sweat gland origin)

MARCH 16, 1969 - CASE NO. I

ACCESSION NO. 14816

DIAGNOSIS: PILOSEBACEOUS CARCINOMA

HISTORY:

The lesion was removed from the shoulder by a dermatologist under local anesthesia in his office.

DISCUSSION:

The sections show a circumscribed tumor which is composed of compact nests of basophilic cells in an active fibrous stroma. The nests of cells vary in size and shape, and the larger nests show numerous buds extending into the adjacent fibrous tissue. Several of the larger nests of cells surround cystic spaces filled with keratinized debris. There are prominent clusters of ghost cells within the keratinized debris. Some of the cells bordering the cystic spaces show marked vacuolization of their cytoplasm. In general, the keratin apparently is forming without an intermediate granular layer.. There is a tendency for some of the cells to form whorls within the larger cell aggregates, and a few of the cells have squamous characteristics especially around the cystic spaces. Trichohyalin granules are present surrounding some of the zones of keratinization.

I believe this tumor is of pilosebaceous gland origin rather than sweat gland origin. The character of the cells is reminiscent of that seen in so-called pilomatrixoma. In addition, the keratinizing process is similar to that seen in pilomatrixoma. The vacuolated cells aroung the cystic spaces are suggestive of sebaceous gland differentiation, and a fat stain would be helpful. Although the tumor is well circumscribed, the stromal response is that associated with an actively growing epithelial neoplasm, and I think this probably represents a low grade carcinoma. This tumor does not correspond to the lesion usually classified as sebaceous gland epithelioma nor does it correspond to the type usually classified as sebaceous gland carcinoma. The former is basically a basal cell carcinoma showing sebaceous gland differentiation, and the latter is basically a squamous cell carcinoma showing sebaceous gland differentiation. For the lack of a better term, I think this lesion might be classified as pilosebaceous carcinoma.

REFERENCES:

1. Zackheim, H. S.: The Sebaceous Epithelioma: A Clinical and Histologic Study. Arch. Dermat. 89:711, 1964.

2. Urban, F. H., and Winkelmann, R. K.: Sebaceous Malignancy. Arch. Dermat. 84:64, 1961.

3. Straatsma, B. R.: Meibomian gland tumors. Arch. Opthal, 56:71-93, 1956.

4. Forbis, R., Jr., and Helwig, E. B.: Pilomatrixoma (Calcifying Epithelioma). Arch. Derm. 83:606-618, 1961.

PILOSEBACEOUS EPITHELIOMA

Differential Features

1. basaloid tumor-cytologically resembles cells of bulb
2. PAS-positive basement membrane
3. cells aggregated in compact nests with buds projecting from central column
4. keratin filled cysts
5. trichohyalin
6. sebaceous differentiation (vacuolated cells)?

MARCH 16, 1969 - CASE NO. 2

ACCESSION NO. 17707 OR
ACCESSION NO. 17529
(COMPOSITE)

DIAGNOSIS: PAGET'S DISEASE OF THE SKIN (EXTRAMAMMARY)
LICHEN PLANUS-LIKE DERMATITIS

HISTORY: Accession No. 17707

The most recent admission to the hospital for this 84 year old female was on October 24, 1968 when she was admitted for definitive treatment of a recurrent lesion on the vulva which apparently dated back to 1955. A right vulvar biopsy at that time disclosed leukoplakia and squamous cell carcinoma-in-situ, following which a partial simple right vulvectomy was performed. The pathology was stated to show one small area of invasion.

HISTORY: Accession No. 17529

This 55 year old female was admitted to the hospital with a history of persistent vaginal and labial pruritis for approximately 1½ years, unresponsive to multiple forms of conservative treatment. The patient had no genito-urinary complaints. Normal menstrual history. Past history revealed abortion 35 years ago and a subtotal hysterectomy 32 years ago.

DISCUSSION:

The sections show multiple fragments of skin. The epidermis is acanthotic and shows hyperkeratosis, elongation of rete ridges and prominent clusters of pale vacuolated cells. In some areas, the pale cells surround gland-like spaces. These pale cells show hyperchromatic eccentric nuclei, and stain faintly basophilic. For the most part, they tend to concentrate in the lower part of the epidermis, but they are found at all levels. In addition, similar cells have extended along hair follicles into the dermis. An occasional sweat duct, presumably eccrine type, shows a similar infiltrate. Apocrine and eccrine sweat glands are present in the dermis. One eccrine duct shows glandular metaplasia. The papillary corium shows thickening, fibrosis, telangiectasia and a prominent infiltrate of chronic inflammatory cells. The infiltrate is rather diffuse, and in some areas hugs the epidermis. Near one margin, the epidermis shows hyperkeratosis, a prominent granular layer, acanthosis, irregular elongation of rete ridges and liquefaction degeneration at the dermo-epidermal junction. The infiltrate in this area is band-like and hugs the epidermis. The changes are similar to those seen in lichen planus. There is no definite evidence of invasive carcinoma on any of the sections examined.

Anogenital Paget's disease is a rare disease. In general, it is a disease of the elderly. The patient with Paget's disease is generally older and lives fewer years than the patient with Bowen's disease. In many examples of anogenital Paget's disease, it is not possible to demonstrate an associated carcinoma of apocrine gland. In Graham and Helwig's series, 13 of 38 patients had a glandular adnexal carcinoma subjacent to the Paget's disease. Seven of the 38 patients with follow-up data had a primary internal or extracutaneous cancer. These included carcinomas of the rectum, breast and urethra.

Histologically, Paget's disease may be confused with malignant melanoma and Bowen's disease. The demonstration of intracytoplasmic mucin differentiates Paget's disease from Bowen's disease and malignant melanoma. Occasionally, Paget's cells may contain intracytoplasmic melanin. Invasion of the wall of skin appendages by Paget's cells is an extension of the intraepithelial growth and does not alter the prognosis. Disruption of the basement membrane and invasion into the dermis by the Paget's cells is associated with a poor prognosis and a high incidence of regional metastases.

Inflammatory infiltrates in the papillary corium beneath lesions of Paget's disease are common. A similar inflammatory reaction is seen in other forms of in-situ carcinoma including Bowen's disease and superficial basal cell carcinoma. The significance of the lichen planus-like reaction in this lesion is not known.

<u>References:</u> Paget's

Helwig, E. B., and Graham, J. H.: Anogenital (extramammary) Paget's disease. A clinicopathologic study. Cancer 16:387, 1963.

Graham, J. H. , and Helwig, E. B.: Cutaneous precancerous conditions in man. Conference on Biology of Cutaneous Cancer. National Cancer Institute Monograph #10, pp. 330, 1963.

Weiner, H. A.: Paget's disease of the skin and its relation to carcinoma of the apocrine sweat glands. Am. J. Cancer 31:373, 1937.

Dockerty, M. B. and Pratt, J.H.: Extramammary Paget's Disease. Cancer 5:1161-1169, 1952.

Lund, H. Z.: "Tumors of the Skin" in Atlas of Tumor Pathology, Armed Forces Institute of Pathology, sec. 1, fasc. 2, Washington 25, D.C. 1957, p.265.

Fisher, E. R. and Beyer, F. B., Jr.: Differentiation of neoplastic lesions characterized by large vacuolated intraepidermal (Pagetoid) cells. Arch. Path. 67:140-145, 1959.

MARCH 16, 1969 - CASE NO. 2

ACCESSION NO. 17529 OR
ACCESSION NO. 17707

ANOGENITAL PAGET'S

Differential Features

1. intracytoplasmic mucin (PAS+, mucicarmine +)
2. gland formation
3. extension along skin appendages
4. round, pale tumor cells
5. location (history and clinical findings)
6. occasionally intracytoplasmic mucin is evident with H & E stains
7. absence of malignant dyskeratoses
8. predominantly lower portion of epidermis
9. confused with intraepithelial epithelioma
10. significance of metachromasia (cloacogenic)?
11. often spares basal layer of epidermis
12. melanin may be present in tumor cells but is sparse and granular

CASE NO. 2 IS A COMPOSITE. YOU WILL HAVE EITHER ACCESSION NO. 17529 OR ACCESSION NO.17707 IN YOUR BOX

MARCH 16, 1969 - CASE NO. 3

ACCESSION NO. 17694

DIAGNOSIS: HODGKIN'S SARCOMA

HISTORY:

This 48 year old Caucasian male was admitted to the hospital on October 1, 1968 with a history of an enlarging tumor on the posterior right thigh for the past six months. There had been no bleeding or pain present. There was no history of trauma or foreign body.

DISCUSSION:

The sections show a circumscribed nonencapsulated tumor infiltrating the dermis. Lymphoid aggregates are in the dermis adjacent to the main tumor. The main portion of the lesion is composed of large atypical cells with abundant pink cytoplasm. For the most part, the tumor cells contain a single nucleus which shows marked folding of the nuclear membrane and prominent red nucleoli. In addition, there are scattered tumor giant cells, some of which are of the mirror-image type. Lymphocytes are sprinkled throughout the main tumor and are also concentrated at its periphery. The lymphoid nodules throughout the remainder of the dermis also contain a variable number of large atypical cells similar to those seen in the main tumor. The background cells are atypical lymphocytes, many of which have monocytoid features. The larger cells have abundant pink cytoplasm, prominent nuclear membranes, and prominent red nucleoli. Some of the cells are multinucleated and make respectable Reed-Sternberg cells.

This is a pleomorphic reticulum cell sarcoma, but I am impressed by the lymphoid features in the smaller nodules, and I think this probably represents Hodgkin's disease. Since the main tumor nodule is obviously sarcoma, the lesion will be classified as Hodgkin's sarcoma.

REFERENCES:

1. Kim, R., Winkelmann, R. K., and Dockerty, M.: Reticulum Cell Sarcoma of the Skin. Cancer 16:646-655, 1963.

2. Reed, R. J., and Cummings, C. E.: Malignant Reticulosis and Related Conditions of the Skin. Cancer 19:1231-1247, 1966.

3. Lukes, R. J., Butler, J. J., and Hicks, E. B.: Natural History of Hodgkin's Disease as Related to Its Pathologic Picture. Cancer 19:317-344, 1966.

CUTANEOUS HODGKIN'S DISEASE

Differential Features

1. Reed-Sternberg cells
2. lymphoid stroma in smaller nodules
3. absence of epidermal involvement (not primary cutaneous reticulosis)
4. diffuse infiltrate of malignant cells

MARCH 16, 1969 - CASE NO. 4

ACCESSION NO. 12783

DIAGNOSES: NEVUS SEBACEUS OF JADASSOHN
SYRINGOCYSTADENOMA PAPILLIFERUM
SYRINGOMA
SUPERFICIAL BASAL CELL CARCINOMA

HISTORY:

This 63 year old male stated that he had a lesion in the left posterior scalp area since birth. The lesion appeared to be superficial, oval, irregular and slightly nodular involving the epidermis and dermis. Centrally the lesion was raised, fissured, slightly oozing and red. The patient stated that an injury by the barber some time ago aggravated the lesion.

DISCUSSION:

At one edge of the specimen, there is an adenomatous tumor which communicates with the surface through numerous ostia. Some of the spaces are dilated and filled with parakeratotic debris and acute inflammatory cells. The tumor is characterized by numerous papillary infoldings into irregular spaces. The papillae are lined by two distinct cell types. On the basement membrane side, there is a single row of small cuboidal cells. On the luminal side, the epithelium is pseudo-stratified and columnar. In a few areas, the epithelium has piled up on the surface of the papillae to produce aggregates of epithelial cells with numerous gland-like spaces. The stroma of the tumor is hyalinized, shows telangiectasia, marked chronic inflammation and numerous plasma cells. Apocrine sweat glands are present in the dermis beneath the tumor. At the margin of the tumor, there are dilated ducts lined by flattened squamous epithelium and compact solid nests of similar cells. The changes in the latter area are compatible with a small syringoma. The epidermis away from the main tumor mass shows irregular acanthosis, slight papillomatosis and abnormal aggregates of mature and immature pilosebaceous glands. There is an occasional nest of basophilic cells taking origin from the epidermis and pushing into the dermis. These aggregates of basophilic cells show marked peripheral palisading, and some of them show evidence of hair follicle differentiation. Apocrine sweat glands are present in the dermis beneath the areas of epithelial hyperplasia. This represents a type of epithelial nevus known as nevus sebaceus of Jadassohn. Some of the sections show nests of basal cell carcinoma.

Nevus sebaceus is present at birth or appears shortly thereafter and tends to increase in size until about the time of puberty when it tends to remain relatively stationary. This type of lesion is commonly associated with

syringocystadenoma papilliferum, as illustrated on this section. There is a high incidence of basal cell carcinoma arising in this type of lesion after puberty. Other tumors associated with nevus sebaceus of Jadassohn include tricholemmoma, syringomas, sebaceous epithelioma and probably others. The marked plasmacytosis in the fronds of the syringocystadenoma papilliferum is an aid in diagnosis. Syringocystadenoma papilliferum may be associated with solid components.

References: Nevus sebaceus and syringocystadenoma

Savatard, L.: Naevus sebaceus and sebaceous carcinoma. Brit. J. Derm. Syph. 53:215, 1941.

Helwig, E. B., and Hackney, V. C.: Syringadenoma papilliferum lesions with and without naevus sebaceus and basal cell carcinoma. AMA arch. Dermat. 71:361, 1955.

Grund, J. L., and Golan, D. W., Jr.: Syringocystadenoma papilliferum, nevus sebaceous and basal cell epithelioma (with features of epithelioma adenoides cysticum and syringoma): Their concurrent presence in a single tumor: Report of a case. Urol. & Cutan. Rev. 55:707, 1951.

Lennox, B.: The superficial hidradenomata. J. Path. & Bact. 67:553-562, 1954.

Lever, W. F.: Histopathology of the Skin. 4th ed. J. B. Lippincott & Co. Philadelphia, 1967.

Mehregan, A. H., and Pinkus, H.: Life history of organoid nevi. Arch. Derm. 91:574-588, 1965.

NEVUS SEBACEOUS OF JADASSOHN
WITH SYRINGOCYSTADENOMA PAPILLIFERUM

Differential Features

1. papillary with separate, well-supported fibrous fronds
2. plasmacytosis
3. apocrine glands
4. nevus sebaceous
   a) papillomatosis
   b) basal cell hyperplasia
   c) abnormal sebaceous glands
   d) immature hair follicles
   e) apocrine glands
   f) presence of other tumors (basal cell epithelioma, etc.)
   g) increase in size and complexity of sebaceous glands with age
   h) tumors appear after puberty

MARCH 16, 1969 - CASE NO. 5

ACCESSION NO. 12193

DIAGNOSIS: WELL DIFFERNTIATED MUCINOUS ADENOCARCINOMA OF THE SKIN.

HISTORY:

Patient was hospitalized in February 1962 for a bleeding posterio-superior duodenal ulcer for which surgery was performed. He had a stormy post-operative course with diarrhea. In addition EKG revealed an anteroseptal myocardial infarction and it was felt that he had a staphylococcal enterocolitis. A lesion was noted on the anterior abdominal wall which was biopsied and diagnosed as a mucin-producing sweat gland carcinoma. The patient pursued a downhill course and expired on March 20, 1962.

DISCUSSION:

The sections show a circumscribed nonencapsulated tumor which extends from the lower margin of the dermis into the subcutaneous fat. The tumor has a mucinous stroma and is composed of clusters of small cells which appear to float in a sea of mucin. Gland-like spaces are present in most of the cell clusters. The overlying dermis shows fibrosis and compression and chronic inflammation. A cleft separates the eperdermis from the dermis, but this is a common artefact seen at autopsy. There is, however, evidence of acantholysis in the upper portion of the epidermis with acantholytic cells floating in a cleft. The roof of the cleft is composed of parakeratotic cells, and I don't believe this represents an artefact. The changes are suggestive of those seen in pemphigus foliaceus. No mention was made of a vesicular disease in the autopsy protocol.

This represents a rare form of primary carcinoma of the skin. This type of carconoma has been classified as colloid or gelatinnus carcinoma. Histologically, this variant is classified as well-differentiated mucinous adenocarconoma. In the skin, this probably represents a variant of sweat gland carcinoma. The few tumors of this type that I have seen have been localized lesions with no evidence of regional or distant metastasis. The acantholysis in the epidermis may be related to treatment or possibly to an adhesive dressing.

REFERENCES: Mucinous carcinoma

1. Lennox, B., Pearse, A. G. E., and Richards, H. G. H.: Mucin-Secreting Tumours of the Skin: with special reference to the so-called mixed-salivary tumour of the skin and its relation to hidradenoma. J. Path. & Bact. 64:865-880,1952.

2. Gallager, H. S., Miller, V. G., and Grampa, G.: Primary muco-epidermoid carcinoma of the skin. Cancer 12:286-288,1959.

3. Lund, H. Z.: "Tumors of the Skin" in Atlas of Tumor Pathology, sec.1, fasc. 2. Armed Forces Institute of Pathology, Washington 25, D.C., 1957, P. 120-121.

4. Lennox, B., Pearse, A. G., and Summers, W. St. C.: The frequency and significance of mucin in sweat-gland tumours. Brit. J. Cancer 6: 363, 1952.

5. Berg, J. W., and McDivitt: Pathology of Sweat Gland Carcinoma, in Pathology Annual: Nineteen-Sixty-Eight, Appleton-Century-Crofts, 1968, pp.123-144.

WELL DIFFERENTIATED MUCINOUS ADENOCARCINOMA OF SWEAT GLAND ORIGIN

Differential Features

1. clusters of cells in pool of mucin
2. variable amount of nuclear atypism
3. location variable (chest wall, forehead)
4. circumscribed, expansile growth
5. metastatic carcinoma should be excluded
6. metastases have been reported (Berg and McDivitt)
7. similar tumors occur in breast and in large intestine
   a) in breast said to have somewhat better prognosis but pattern not always uniform
   b) in colon less evidence of an improved prognosis since pushes through bowel wall rather early - in anorectal area may present as fistula in ano

MARCH 16, 1969 - CASE NO. 6

ACCESSION NO. 17427

DIAGNOSIS: POORLY DIFFERENTIATED BASAL CELL CARCINOMA

HISTORY:

Over the past decade or two, this 64 year old female had countless basal cell carcinomas removed. A lesion was removed from the left forehead in January 1967. Fifteen months later there was a recurrence manifested by a smooth, discoid, swelling 2½ - 3 inches in diameter which gently elevated the overlying skin which was smooth, white and intact.

DISCUSSION:

The sections show loosely arranged nests and cords of atypical cells infiltrating a fibrous stroma. There are scattered small spicules of newly-formed bone at the periphery of the lesion, and this probably represents a portion of cranial bone that has been almost completely replaced by tumor. In addition, there is a fragment of attached soft tissue and fascia showing similar cells. In many areas, the boundary between tumor cells and stroma are poorly defined, however, many of the cell clusters are well outlined by hyalin membranes. The cells are spindle or oat-shaped and are loosely connected to their neighbors. There is a marked amount of edema between tumor cells, and, in some areas, large cystic spaces have formed. Some of these spaces contain inflammatory cells with a prominent component of plasma cells. There are also scattered clusters of extravasated erythrocytes in some of the spaces. A few of the tumor cells are multinucleated and show prominent nucleoli. For the most part, the tumor cells show finely stippled chromatin and irregular nuclear membranes. Mitoses are numerous.

I believe this represents a basal cell carcinoma that has invaded bone. It shows a moderate amount of anaplasia, but neglected basal cell carcinomas that have produced infiltration and destruction of bone and soft tissue are usually more anaplastic than those that are limited to the skin. Basal cell carcinomas may occasionally show this angiomatoid pattern. The presence of a well-developed hyalin membrane around many of the cell clusters is against the diagnosis of angiosarcoma. In a few areas, the cells are larger, show abundant pink cytoplasm and resemble squamous cells. I think this is additional evidence in favor of an epithelial origin for this tumor. I think it is interesting to compare the pattern in this tumor with that seen in some adamantinomas of the tibia. In the latter group of tumors, an angiomatoid pattern may also be seen. It would also be interesting to compare this pattern with that seen on the earlier biopsy from this patient.

References: Basal cell carcinoma

Crawford, H. J., and Joslin, C. A. F.: Metastasizing basal cell carcinoma. J. Path. & Bact. 87:437, 1964.

Changus, G. W., Speed, J. S., and Stewart, F. W.: Malignant angioblastoma of bone. A reappraisal of adamantinoma of long bone. Cancer 10:540-559, 1957.

Hicks, J. D.: Synovial sarcoma of the tibia. J. Path. & Bact. 67: 151-161, 1954.

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BASAL CELL CARCINOMA

Differential Features

1. compact nests of cells
2. moderate atypism (poorly differentiated)
3. angiomatoid pattern
4. keratinization of occasional cells
5. hyalin basement membrane
6. history (multiple basal cell carcinomas)
7. resembles adamantinoma of tibia

MARCH 16, 1969 - CASE NO. 7

ACCESSION NO. 15722

DIAGNOSIS: PROLIFERATING PILAR TUMOR.

HISTORY:

This 59 year old female had a nodule in the area of the left parietal scalp for a number of years. It always had been asymptomatic, however it had increased slowly in size. When it became a cosmetic problem, she sought its removal.

DISCUSSION:

The sections show a tumor within the dermis which is circumscribed, expansile in growth and surrounded by a condensation of dense fibrous tissue. The tumor is composed of basal and plump squamous cells, many of which surround cystic spaces filled with keratinized debris. The tumor is arranged in lobules which are separated by edematous hyalinized connective tissue. In some areas, keratinized debris is in contact with the stroma and is surrounded by foreign body giant cells. Near the interface between epithelium and stroma the cells are small with scanty cytoplasm, but, for the most part, the cells have abundant cytoplasm and show evidence of keratinization. Many of the cells have vacuolated cytoplasm. There are scattered whorls of squamous cells, many of which surround keratinized debris. There is a moderated to marked amount of nuclear atypism, and mitoses are present. Dyskeratotic cells are also present throughout the tumor. In some areas, the tumor is surrounded by a thick hyalin membrane resembling the vitreous layer of a hair follicle. Some of the keratinized debris is calcified.

This tumor corresponds to the lesions that have been classified as proliferating epidermoid cysts. Lesions of this type occur almost exclusively on the scalp and may grow to rather large size and infiltrate the deep soft tissues. Metastases are rare from this type of tumor. Two types of clear cells may be present. One type may contain fat and may represent sebaceous gland differentiation. The second and more common type contains abundant glycogen and can be compared to the vacuolated cells in the wall of a hair follicle. There is little evidence that this type of tumor arises in a pre-existing cyst. Almost certainly, if the tumor does arise in a cyst, it is of a type that occurs usually on the scalp and is now classified as pilar cyst. Pilar cysts were formerly classified as sebaceous cysts. Because there is good evidence of pilar differentiation, I believe this tumor is better classified as pilar tumor or proliferating pilar cyst than as proliferating epidermoid cyst. The keratinized debris was mentioned but deserves additional emphasis. The keratinization is occurring without a granular layer, and in many areas produces ghost cells similar to those seen in pilomatrixoma. This is additional evidence of pilar differentiation in this type of tumor. It should be noted that the hyaline membrane surrounding some of the lobules in proliferating pilar tumors may also be found bordering the epithelial lining of pilar cysts.

References: Pilar Tumor

Reed, R. J., and Lamar, L. M.: Invasive hair matrix tumors of the scalp. Arch. Derm. 94:310-316, 1966.

Wilson-Jones, E.: Proliferating epidermoid cysts. Arch. Derm. 94: 11, 1966.

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PROLIFERATING PILAR TUMOR
(Subepidermal Acanthoma)

Differential Features

1. lobulated, circumscribed epithelial tumor
2. keratinization without granular layer
3. hyaline membrane (vitreous)
4. variable amount of atypism
5. foreign body response in areas of degeneration
6. hyalinization of regions within tumor
7. blossom-like pattern of stroma with "reversal" of basal layer
8. lack of active infiltration at margins
9. may communicate at surface with epidermis
10. some lesions apparently arise from pilar cysts
11. presence of PAS+ material, digested with diastase
12. variable amount of intracytoplasmic fat
13. differentiation along lines of outer hair sheath
14. pilomatrixoma (differential diagnosis)
    a) predominantly a basaloid tumor
    b) generally small
    c) tendency for spontaneous necrosis with rapid conversion of epithelium to keratinized debris
    d) differentiation of epithelial cells resembles bulb and inner sheath rather than outer sheath

MARCH 16, 1969 - CASE NO. 8

ACCESSION NO. 17684

DIAGNOSIS: SCLEROSING HEMANGIOMA

HISTORY:

This 31 year old Caucasian male was involved in a motorcycle accident 9 years ago, following which a mass developed in the right leg. Because it was draining, it was removed 2 years ago. It grew and drained again 9 months before admission and has drained thick pus for the past six weeks.

DISCUSSION:

The epidermis shows a localized area of hyperkeratosis, a prominent granular layer, acanthosis, and irregular elongation of rete ridges. The basal layer is prominent. Within the dermis, there is a circumscribed nonencapsulated tumor that is separated from the epidermis b a thin band of condensed fibrous tissue containing a perivascular infiltrate of chronic inflammatory cells. The tumor is composed of a plexus of thick-walled vessels which are embedded in a loose fibrous matrix containing plump spindle-shaped cells and numerous clusters of foamy histiocytes. There is a regional variation in the pattern within the tumor with some areas showing prominent clusters of xanthoma cells and other areas showing numerous plump fibroblasts in a loose fibrous matrix. There are scattered multinucleated giant cells, many of which are of Touton type. The tumor has extended through the subcutaneous fat to the superficial layer of the deep fascia. There are scattered thick-walled muscular vessels within the main portion of the lesion. Near one margin of the tumor, there is a portion of a follicle showing immature pilosebaceous glands and immature hair follicles. Many of the xanthoma cells and giant cells contain pigment granules, however, for the most part the pigment is birefringent and probably represents formalin pigment.

This lesion falls in a group which I usually classify as dermatofibroma (fibrous xanthoma). There are two broad categories included under the generic term dermatofibroma. One is this type in which there are prominent vessels, numerous histiocytes, and numerous xanthoma cells. This type is also classified as sclerosing hemangioma or histiocytoma. The second type of tumor is more common, shows a rather inconspicuous vascular component and is predominantly fibroblastic. Perhaps the term dermatofibroma should be limited to the latter category, and lesions showing the prominent vascular and histiocytic component should be classified as sclerosing hemangiomas. Although lesions of either type are generally small, occasionally they may be more than 4 cm. in diameter. Large dermatofibromas may be confused with dermatofibrosarcoma protuberans. Mitoses may be numerous in dermatofibromas (sclerosing hemangiomas) and are not a reliable index of biologic behavior. In general, tumors of this type which arise in the skin are biologically benign. Fibrous xanthomas in the deep soft tissues may occasionally behave as malignant neoplasms.

Hemorrhagic necrosis is a common complication in sclerosing hemangiomas, and occasionally the tumor may be aneurysmal. There is also a tendency for the larger tumors to show central areas of degeneration and fibrosis with hyalinization. In such instances, the pattern may be indistinguishable from that seen in lesions of xanthoma tuberosum. Fibrous xanthomas of the skin may invovle the subcutaneous fat, and this is not an indication of malignancy.

References: Sclerosing hemangioma

Kauffman, S. L. and Stout, A. P.: Histiocytic tumors (fibrous xanthomas and histiocytoma) in children. Cancer 14:469-482, 1961

Hairston, M. A., Jr., and Reed, R. J.: Aneurysmal sclerosing hemangioma of the skin. Arch. Derm. 93:439-442, 1966.

Gentele, H.: Malignant fibroblastic tumors of the skin. Dermatovener. 31 (suppl. 27): 58-91, 1951.

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Lund, H. Z.: "Tumors of the Skin" in Armed Forces Institute of Pathology Atlas of Tumor Pathology, sec. 1, pt. 2, 1957.

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SCLEROSING HEMANGIOMA
(Fibrous Xanthoma)

Differential Features

1. fibroblastic tumor
2. infiltrates dermis at margin
3. may extend into subcutaneous fat
4. variable mitotic rate
5. presence of vacuolated cells (xanthoma cells)
6. stroma hemorrhages and aneurysmal change may occur
7. central fibrosis occasionally prominent (resembles tuberous xanthoma)
8. rich plexus of thick walled capillaries
9. epidermal changes more prominent over fibroblastic variant
10. intracytoplasmic lipids
11. occasionally greater than 4 cms in diameter
12. often history of trauma

MARCH 16, 1969 - CASE NO. 9

ACCESSION NO. 17809

DIAGNOSIS: ECCRINE SPIRADENOMA

HISTORY:

For a number of years this 73 year old patient had a tumor nodule on the forearm which occasionally became ulcerated.

DISCUSSION:

The sections show a circumscribed tumor in the subcutaneous tissue and pressing upon the overlying dermis. The lesion is surrounded by a dense hyalinized band of fibrous tissue. Within the band of fibrous tissue, the tumor is composed of thick, irregular, interconnected cords of basophilic cells. There are two distinct cell types within the cords. One is a small basophilic cell with a dark nucleus and scanty cytoplasm, and for the most part this cell type is arranged at the interface between the tumor and its stroma. The second cell type is larger, has more abundant pink cytoplasm and an oval pale nucleus which is larger than that of the previously described basophilic cell. This second cell is arranged in solid clusters and often surrounds small gland-like spaces, some of which contain an acidophilic coagulum. The stroma is hyalinized and contains numerous dilated vascular spaces. Many of the spaces are thrombosed and some of these show early organization. In addition, there are areas of hemorrhagic necrosis. In a few of the areas of hyalinization, the tumor cells have undergone squamous metaplasia, and some of the squamous cells show prominent cytoplasmic vacuoles which compress the nucleus. The nests of squamous cells surround central aggregates of keratinized debris. The cords of tumor cells show a fair amount of intercellular edema, and in some areas, there is an infiltrate of small lymphocytoid cells.

This is the typical histology of an eccrine spiradenoma. Hemorrhage and necrosis are frequent complications of this type of sweat gland tumor. These lesions are often painful. The gland-like spaces are sometimes misinterpreted as vascular spaces, and the lesions are misdiagnosed as glomus tumors. I have seen two tumors which I interpreted as eccrine spiradenocarcinomas (a malignant counterpart of eccrine spiradenoma).

Eccrine spiradenomas are usually distinctive. Some of the lobules in eccrine cylindroma may superficially resemble an eccrine spiradenoma. Generally, cords and tubules are not a feature of the large lobules in a cylindroma and for the most part the tumor cells are compactly arranged in a haphazard fashion with little or no stroma. Hyaline cylinders are more numerous and are better developed in a cylindroma than in eccrine spiradenoma. In occasional lesions the differentiation is difficult or impossible.

References: Eccrine Spiradenoma

Crain, R. C., and Helwig, E. G.: Dermal cylindroma (dermal eccrine cylindroma) Am. J. Clin. Path. 35:504, 1961.

Kersting, D. W. and Helwig, E. B.: Eccrine spiradenoma. Arch. Derm. 73: 199-227, 1956.

Pinkus, H., Rogin, J. R. and Goldman, P.: Eccrine poroma: Tumors exhibiting features of the epidermal sweat duct unit. Arch. Derm. 74:511-521, 1956.

Stegmaier, O. C. and Kersting, D. W.: Eccrine spiradenoma. Arch. Derm. 75:851, 1957.

Munger, B. L., Berghorn, B. M., and Helwig, E. B.: A light and electron-microscopic study of a case of multiple eccrine spiradenoma. J. Invest. Dermat. 38:289-297, 1962.

Winkelmann, R. K., and McCleod, W. A.: The dermal duct tumor. Arch. Derm. 94:50-55, 1966.

ECCRINE SPIRADENOMA

Differential Features

1. lobulated
2. 2 cell types (basaloid and squamoid)
3. interconnected cords and ducts separated by hyaline and vascular stroma within lobules
4. may be cellular with inconspicuous stroma
5. may have abundant stroma with edema, hemorrhage, angiectasia, thrombosis and necrosis
6. may involve epidermis and communicate with surface (exude fluid)
7. hyalin cylinders may be present focally, often at periphery but not a prominent feature
8. hyalin membrane at periphery of lobule not prominent as in cylindroma but often outlined by dense hyalin pseudocapsule
9. glandular transformation)=
10. squamous differentiation) cytologic variants
11. myoepitheliomatous pattern)
12. cylindroma may contain similar lobules
    a) cords and tubules not a prominent feature
    b) hyaline cylinders more numerous
    c) less abundant stroma with fewer vessels
    d) tortuous cords present in dermis adjacent to large lobules
    e) tortuous cords in adjacent dermis are outlined by dense hyaline membrane

MARCH 16, 1969 - CASE NO. 10

ACCESSION NO. 17718

DIAGNOSIS: METASTATIC CLEAR CELL CARCINOMA (CLEAR CELL VARIANT OF RENAL CELL CARCINOMA)

HISTORY:

This 43 year old Caucasian male had a three year history of an enlarging mass in the parieto-occipital area. This was painless and involved the deep dermis and subcutaneous tissue. The overlying epidermis was intact. The lesion was considered to be infiltrating the occipital bone.

DISCUSSION:

The sections show a clear cell carcinoma infiltrating soft tissue and bone. The tumor is composed of plump clear cells with vacuolated cytoplasm. Some of the cells surround central gland-like spaces, and many of these spaces contain extravasated red blood cells. The cords of tumor cells are separated by a rich vascular plexus. There are scattered areas of necrosis with hemorrhage and active fibroplasia. Hemosiderin deposits are present in the fibrous tissue surrounding the main portion of the lesion. There are a few scattered small spicules of bone within the lesion.

This almost certainly represents metastasis from a clear cell variant of renal cell carcinoma. Renal cell carcinomas may present a variety of fashions, but metastasis to bone, often solitary, is one of the most common patterns. They may also present as a metastasis to the thyroid or as solitary metastasis to the skin or mucous membrane. The metastases to soft tissue may be mistaken for paraganglioma or even pyogenic granuloma. I do not know of a primary carcinoma of the skin that produces this type of clear cell pattern. Clear cell carcinomas of this type may apparently take origin in the thyroid, but most of the lesions showing this histology in the thyroid represent metastases from the kidney.

References: Renal cell carcinoma (clear cell carcinoma)

Connor, D. H., Taylor, H. B., and Helwig, E. B.: Cutaneous metastasis of renal cell carcinoma. Arch. Path. 76:339-346, 1963.

Keasb:y, L. E., and Hadley, G. G.: Clear cell hidradenoma. Report of 3 cases with widespread metastases. Cancer 7:934, 1954.

Elliott, R. H. E., Jr., and Franz, V. K.: Metastatic carcinoma masquerading as primary thyroid cancer. Ann. Surg. 151:551-561, 1960.

Chesky, V. E., Hellwig, C. A., and Barbosa, E.: Clear cell tumors of the thyroid. Surgery 42:282-289, 1957.

METASTATIC RENAL CELL CARCINOMA

Differential Features

1. rich vascular plexus
2. colloid filled follicles (with hemorrhages)
3. minimal amount of fibrous stroma
4. hemosiderin deposits
5. intracytoplasmic glycogen and lipids
6. frequently involves bone
7. other evidence of metastasis (and pattern often varies in different sites from papillary to sarcomatoid)
8. other clear cell tumors
   a) clear cell carcinoma of skin shows larger nests, more abundant "cancer" stroma, hyaline membranes, and often has history of multiple local recurrences
   b) clear cell carcinoma of thyroid, parathyroid, salivary glands, stomach, lung, endometrium (mesometanephric), and oropharyngeal squamous cell carcinoma
   c) paragangliomas
   d) clear cell sarcoma of Enzinger (synovial sarcoma)
   e) rarely malignant melanoma

MARCH 16, 1969 - CASE NO. 11

ACCESSION NO. 17428

DIAGNOSIS: ATYPICAL FIBROXANTHOMA (POORLY DIFFERENTIATED SPINDLE CELL TYPE)

HISTORY:

This 64 year old female was burned over a large portion of her upper torso in 1923 for which a skin graft was done in the past. A chronic ulcer had been present for a number of years on the chest wall. About four months ago a mass developed in the base of the ulcer which measured about 4 cm. in diameter. There is no history of radiation to the chest wall.

DISCUSSION:

The epidermis shows acanthosis and slight effacement of rete ridges. Near one margin, the epidermis is partially ulcerated. The dermis contains a fibroblastic spindle cell neoplasm which is circumscribed but actively infiltrating the adjacent dermis. The tumor extends from the epidermis into the subcutaneous fat. In the central portion of the tumor, the cells are plump, spindle-shaped and compactly arranged in interlacing fascicles to produce a herringbone pattern. The cells show marked nuclear atypism, and there are scattered tumor giant cells. The cells are associated with thin bundles of hyalinized fibrous tissue and a diffuse sprinkling of acute and chronic inflammatory cells with numerous histiocytes. At the deep margin, the tumor is surrounded by a dense infiltrate of lymphocytes with a sprinkling of atypical spindle cells similar to those seen in the major portion of the tumor. Mitoses are numerous, and many are atypical. Where the tumor is infiltrating the adjacent dermis, the cells, in general, are smaller and many have the characteristics of histiocytes. Atypical cells are present but are not as prominent and are loosely separated by the inflammatory cells. The dermis adjacent to the tumor shows atrophy of skin appendages, hyalinization and proliferation of blood vessels. Plasma cells are present in the tumor and are prominent in perivascular spaces.

This tumor is difficult to classify. There are at least two possibilities. One is the so-called atypical fibroxanthoma. This diagnosis has much to recommend it. The tumor is arising in damaged dermis, and this is almost invariably the case in atypical fibroxanthoma. The tumor is fibroblastic, and many of the cells are histiocytic in character. The tumor presses upon the epidermis, and in the atypical fibroxanthomas I have studied this is always a feature. The usual atypical fibroxanthomas show a more pleomorphic infiltrate with prominent multinucleated tumor giant cells. This tumor is predominantly a spindle cell neoplasm and lacks the prominent multinucleated giant cells seen in the more characteristic form of atypical fibroxanthoma.

Although the evidence is not conclusive, I believe this type of tumor arising in damaged skin is more aggressive than the usual atypical fibroxanthoma. The other possibility to be considered in the differential diagnosis is spindle cell carcinoma. The apparent blending of tumor cells with the basal layer of the epidermis at the margin of the ulcer produces a pattern similar to that described for spindle cell carcinoma. There is, however, no convincing evidence of an epithelial origin for this tumor on sections examined.

In summary, the histogenesis of this type of lesion is uncertain. Tumors showing this histology have been described as spindle cell carcinoma and as fibrosarcomas.

References: Atypical fibrous xanthoma

Cruickshank, A. H., McConnell, M., and Miller, D. G.: Malignancy in scars, chronic ulcers, and sinuses. J. Clin. Path. 16:573, 1963.

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Martin, H. C., and Stewart, F. W.: Spindle-cell epidermoid carcinoma. Am. J. Cancer, 24:273-298, 1935.

Brooks, S. M.: Carcinoma which simulates sarcoma. Arch. Path. 36:144-157, 1943.

Greene, G. W., Jr., and Bernier, J. L.: Spindle-cell squamous carcinoma of the lip. Oral Surg., Oral Med., Oral. Path., 12:1008-1016, 1959.

Bourne, R. G.: Paradoxical fibrosarcoma of skin (pseudosarcoma). A review of 13 cases. Med. J. Australia 1:504-510, 1963.

ATYPICAL FIBROUS XANTHOMA
(Poorly Differentiated Spindle Cell Variant)

Differential Features

1. arising in scar
2. presses upon epidermis
3. fibroblastic spindle cell pattern
4. at margins shows epithelioid tumor cells admixed with inflammatory cells
5. ulcerated
6. circumscribed at deep margin
7. no evidence of epithelial component
8. spindle cell carcinoma (differential diagnosis)
   a) squamous cell carcinoma may coexist with similar sarcomatoid lesions
   b) carcinoma often shows adenoid features
9. spindle cell "sarcomas" in radiodermatitis seem to be more aggressive than those in other types of scars
10. main portion indistinguishable from moderately differentiated fibrosarcoma

MARCH 16, 1969 - CASE NO. 12

ACCESSION NO. 17812

DIAGNOSIS: CARCINOMA-IN-SITU (BOWEN'S DISEASE)

HISTORY:

This 59 year old female entered the hospital on January 5, 1969 with the complaint of pruritic dry skin area in the perirectal area. She had noted this since June 1967 when she was first treated for an area of pruritis about the vagina and rectum. This was treated with aristocort cream and later in the summer she developed a vaginal infection which was treated by a local physician. On September 3, 1968 she was checked and it was found that there were some excoriations of the posterior commissure and part of the posterior vulva. All local medications were stopped and by September 19th, her dermatitis had decreased. However by December 2, 1968, the "dermatitis" had increased and a biopsy was taken. Past history reveals the patient had a total hysterectomy and appendectomy in April 1965 for reasons unknown.

DISCUSSION:

The epidermis shows parakeratosis, marked acanthosis, elongation of rete ridges and markedly atypical epithelial hyperplasia involving all layers. Mitoses are numerous, and there are dyskeratotic cells throughout all layers of the epidermis. The atypical cells are small squamous cells with scanty cytoplasm and plump hyperchromatic nuclei. The nuclei show a finely stippled chromatin pattern. The atypical cells extend into the dermis along hair follicles and sweat ducts. Apocrine and eccrine sweat glands are present in the dermis. The papillary corium is thickened, fibrotic and shows a sprinkling of chronic inflammatory cells. In many areas, the basal layer of the epidermis is flattened, shows a sharp delimitation from the overlying atypical epithelium and does not show any appreciable amount of atypism.

The diagnosis of Bowen's disease depends upon clinical as well as histological findings. Histologically, Bowen's disease is characterized by faulty keratinization usually with a layer of parakeratosis and atypical epithelial hyperplasia involving all layers of the epidermis. The atypical cells generally are smaller than normal epidermal cells or at least show a disturbed nuclear-cytoplasmic ratio and frequently show cytoplasmic basophilia. For that reason, the epidermal changes are often basaloid in character. Mitoses are numerous and often atypical. Dyskeratotic cells are usually present but may not be prominent. Tumor giant cells are also frequently present. Using these criteria, the most common form of carcinoma-in-situ of the skin occurs on a background of actinic damage. They apparently represent a progression of the changes we ordinarily recognized as senile kera-

tosis. The presence of severe basophilic degeneration of collagen in the dermis is good histologic evidence that the lesion is probably on an actinic basis and does not represent the usual form of Bowen's disease. Bowen's disease is more likely to occur on nonexposed surfaces and an association with basophilic degeneration of collagen is usually not a prominent feature.

In a high percentage of cases, Bowen's disease is associated with one or more primary internal cancers or a primary cancer of the skin with metastasis. In one series, the sites of the internal cancers in order of frequency were respiratory systems, gastro-intestinal tract, genito-urinary organs, reticulo-endothelial system, skin, breast, and endocrine system. One-fourth of Graham and Helwig's group of 155 patients had primary internal or extracutaneous cancers that were detected on an average of five and one-half years after the onset of Bowen's disease.

There are histologic similarities between Bowen's disease and arsenical keratoses. Cancer proneness is also noted in the group with arsenical keratoses. Graham and Helwig also report that arsenic is present in increased amounts in a significantly greater proportion of patients with Bowen's disease.

In some cases, the atypical cells in carcinoma-in-situ grow as compact nests surrounded by normal epidermal cells. Lesions showing this pattern are also often characterized by pale cells and may resemble Paget's disease. This pattern represents the premalignant form of so-called intraepithelial epithelioma.

Bowen's disease of the vulva often presents as a solitary lesion but has a tendency to be multifocal and frequently recurs. In some instances, the lesions are papillary and may be misinterpreted as condyloma accuminatum. There is an association between carcinoma of the cervix and Bowen's disease of the vulva.

<u>References:</u> Bowen's disease

Graham, J. H., and Helwig, E. B.: Bowen's disease and its relationship to systemic cancer. Arch. Dermat. 80:133-159, 1959.

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BOWEN'S DISEASE OF VULVA

Differential Features

1. basaloid with tendency for cytoplasmic basophilia
2. carcinoma in situ in sites showing actinic damage is often acidophilic
3. malignant dyskeratosis
4. numerous mitoses
5. tumor giant cells
6. involves all or most of thickness of epidermis (including basal layer)
7. frequent parakeratotic cap
8. chronic inflammation in dermis
9. may be localized and papillary or extensive and multifocal
10. extends into dermis along pilosebaceous glands
11. maintains basaloid pattern when invades
12. intraepithelial epithelioma appears to be different biologically (Graham and Helwig)
13. arises on unexposed areas (most carcinoma in situ of skin arises on background of actinic damage)
14. pas+ granules, digested by diastase
15. tends to recur
16. associated with carcinoma (invasive or in situ) of cervix

Cancer 23:641-657, 1969

Johnson/Helwig

MARCH 16, 1969 - CASE NO. 13

ACCESSION NO. 17844

DIAGNOSIS: MALIGNANT ECCRINE AND SPIRADENOMA

HISTORY:

This 82 year old male was admitted to the hospital with a history of a firm enlarging lesion in the left posterior cervical lymph node chain of 4 - 6 months duration. Biopsy was done at another hospital.

DISCUSSION:

The sections show a nonencapsulated infiltrating tumor. The tumor is infiltrating the dermis and the subcutaneous tissue. Near one margin of the specimen, there is a broad zone of hyalinization surrounding lobules of tumor, many of which show degenerative changes and hyalinization. There are also cystic spaces within this zone outlined by the band of hyalinized connective tissue. The tumor is composed of small basophilic cells arranged in interconnected cords. There are two cell types present, one being a small basophilic cell with scanty cytoplasm, and the other being a somewhat larger cell with pink cytoplasm. For the most part, the latter cells are centrally located and tend to surround gland-like spaces. In addition, there are numerous hyalin cylinders within the tumor. In some areas, the tumor cells form compact lobules without any distinct tubular or cord-like formations. In other areas, especially where the tumor has infiltrated the dermis, there is a marked glandular pattern and a cord or tubular arrangement of cells is prominent. This tumor shows active infiltration of the dermis and the subcutaneous tissue, and on some of the sections I have examined, there is unquestionable invasion of perineural spaces.

I think this is an adenocarcinoma of sweat gland origin, but I have some difficulty relating it to a benign sweat gland tumor. The pattern in this tumor suggests two possibilities as benign precursor. One is the eccrine spiradenoma and the other is eccrine cylindroma. The prominence of the hyalin cylinders as well as the lack of any tubular pattern in many of the lobules is in favor of the diagnosis of eccrine cylindroma. The location and the presence of tubular patterns in some of the lobules is in favor of eccrine spiradenoma. I think the portion of tumor which is surrounded by the thick hyalinized wall represents the benign precursor. Obviously, the tumor included in this area has undergone the same transformation as that outside the zone of hyalinization so we are still at a loss as to the exact classification. For purposes of classification, the lesion will be compared to the eccrine spiradenoma.

MALIGNANT ECCRINE SPRADENOMA

Differential Features

1. central nodule surrounded by thick hyalin membrane
2. basaloid with 2 cell types
3. interconnected cords in some lobules with well developed stroma
4. numerous hyalin cylinders
5. infiltrative growth with extension along nerves
6. malignant degeneration reported for cylindromas but shows undifferentiated basaloid pattern

MARCH 16, 1969 - CASE NO. 14

ACCESSION NO. 17719

DIAGNOSIS: BENIGN LYMPHOCYTOMA OF THE SKIN

HISTORY:

This 68 year old white male was hospitalized in July 1968 for resection of an aortic aneurysm with grafting. He gave a history of cutaneous lymphomata over a long period of time. During this admission an excision of a lesion of the left thigh was performed.

DISCUSSION:

The epidermis shows hyperkeratosis, acanthosis alternating with areas of atrophy, irregular elongation of rete ridges and scattered areas of liquefaction degeneration at the dermo-epidermal junction. Within the dermis, there is a dense infiltrate which is diffuse and extends along vessels through the dermis into the subcutaenous tissue. The infiltrate occupies the entire thickness of the dermis, and in the central portion of the lesion is composed of lymphocytes, histiocytes, reticulum cells and plasma cells. In a few areas, the infiltrate takes on granulomatous characteristics and is associated with multinucleated giant cells. Although the infiltrate tends to spare the epidermis, a well developed grenz zone is not present. For the most part, follicles are spared by the infiltrate, but, in one part, there is a loose infiltrate of lymphocytes, histiocytes and reticulum cells in the wall of a follicle. In a few areas, the reticulum cells are more compactly arranged and resemble poorly formed reaction centers. In some of the latter areas, there is marked phagocytosis of nuclear debris. Vessels in the lesion are outlined by concentric lamellae of hyalinized collagen. Mitoses are present in the infiltrate. Many of the reticulum cells show clumping of nuclear chromatin and take on the characteristics of plasma cells. Russell bodies are present.

This lesion has most of the features of so-called benign lymphocytoma of the skin. Benign lymphocytoma is generally regarded as a benign process and has been compared to the reaction in the skin to insect bites. In some examples of benign lymphocytoma reaction centers are well developed. This is not always the case, however, and the infiltrate may be diffuse as seen in the present case. The examples with a diffuse infiltrate are worrisome and more difficult to diagnose. Generally, benign lymphocytoma of the skin spares the epidermis and the skin appendages. There are two features in the case that are worrisome. One of these is that a well developed grenz zone is not present, and in one area, the infiltrate has migrated into the wall of a follicle. The other is the predominance of reticulum cells in the infiltrate in many areas. I would classify this lesion as benign lymphocytoma.

References: Benign lymphocytoma

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BENIGN CUTANEOUS LYMPHAPLASIA
(Benign Lymphocytoma Cutis)

Differential Features

1. localized to skin and subcutis
2. may infiltrate walls of veins
3. pleomorphic infiltrate (histiocytes, reticulum cells, lymphocytes, eosinophiles, and plasma cells)
4. reaction centers (phagocytosis of nuclear debris) (well developed in only small percentage of cases)
5. tends to spare epidermis and walls of skin appendages
6. may recur (often adjacent to scar)
7. may be multiple
8. usually a female and on the face
9. diffuse nodular character distinguishes it from lymphocytic infiltrates
10. clusters of epithelioid cells and giant cells often present and sometimes prominent
11. may be confused with follicular lymphoma
12. vessels may show laminated hyalin cuffs

MARCH 16, 1969 - CASE NO. 15

ACCESSION NO. 17845

DIAGNOSIS: DERMATOFIBROSARCOMA PROTUBERANS

HISTORY:

This 28 year of Negro first noted a "mole" in the axilla about two years ago. The lesion had slowly enlarged and was tender.

DISCUSSION:

Within the dermis, there is an infiltrating fibroblastic tumor that extends into and occupies a good portion of the subcutaneous tissue. In some areas, the tumor projects as polypoid lesions above the surface. For the most part, the papillary corium is spared by the tumor. In a few areas, the tumor extends to the basal layer of the epidermis. The tumor is composed of elongated slender spindle cells and bundles of fibrous tissue which are arranged in interlacing fasicles. The fasicles bend at sharp angles, and, at points of intersection, produce a starburst pattern. Thin-walled vessels are present throughout the tumor but are not as prominent as those seen in fibroxanthomas. There is variation in cellularity with some areas being richly cellular and others being rather densely fibrotic. The densely fibrous portions are more prominent in the superficial polypoid projections, and the cellular areas are more conspicuous in the deeper portions. In a few areas, there are scattered tumor giant cells. In some areas, the tumor is characterized by a fairly homogeneous background of fine collagen fibers without a distinct tendency for the formation of a starburst pattern. Nuclei within the tumor cells are elongated and show a wavy contour or are slightly folded.

I think this represents a fairly good example of dermatofibrosarcoma protuberans. Within this group of tumors, there is some minor variation in the degree of cellularity and the amount of fibrous matrix. Many dermatofibrosarcomas are richly cellular and appear basophilic when an H & E section is held up to the light. Others such as characterized by this case are less cellular and show a prominent fibrous stroma. In contrast with the first type, the fibrous lesions are more obviously acidophilic. I don't know if this variation in pattern has any prognostic significance. The few small, and presumably early, dermatofibrosarcomas that I have seen tend to be of the fibrous type. Myxomatous areas may occasionally be prominent in dermatofibrosarcoma protuberans especially in recurrent lesions.

The histogenesis of dermatofibrosarcoma protuberans is not known. It is generally accepted that dermatofibrosarcoma protuberans is a variant of fibroxanthoma, but I don't believe the evidence is convincing. I know of no evidence to support the concept that an ordinary fibroxanthoma can be converted

into a tumor showing the pattern we recognize as dermatofibrosarcoma protuberans. Thick-walled vessels are usually more prominent in fibroxanthomas, and, in addition, the latter tumors often contain cells with stainable intracytoplasmic fat. The fibrous areas in this tumor are remarkably similar to the extraneural fibrous tissue which surrounds hypertrophied nerves in plexiform neurofibromas. I think a Schwann cell origin for dermatofibrosarcoma protuberans cannot be completely excluded.

For the most part, dermatofibrosarcoma protuberans are locally infiltrating lesions with a marked tendency for recurrence if inadequately excised (excision must include the deep fascia). Rarely a recurrent lesion will appear more atypical and may show a herringbone-type of pattern rather than the starburst pattern. There are a few reported examples of metastasis from dermatofibrosarcoma protuberans.

References: Dermatofibrosarcoma protuberans

Gentele, H.: Malignant, fibroblastic tumors of the skin. Acta Dermatovener. 31 (Suppl 27): 91-132, 1951.

Taylor, H. B., and Helwig, E. B.: Dermatofibrosarcoma protuberans. A Study of 115 cases. Cancer 15:717-725, 1962.

Burkhardt, B. R., Soule, E. H., Winkelmann, R. K., and Ivins, J. C.: Dermatofibrosarcoma protuberans. Am. J. Surg. 111:638, 1966.

DERMATOFIBROSARCOMA PROTUBERANS

Differential Features

1. spindle cell fibroblastic tumor
2. star burst or whirligig (storiform) pattern
3. fascicles composed of thin, parallel, loosely spaced collagen fibers
4. cells thin, elongated, with little variation in nuclei
5. mitoses variable
6. variations
   a) fibrous
   b) myxomatous
   c) melanocytic (storiform neurofibroma)?
   d) myxosarcoma?
   e) fibrosarcoma
   f) neuroid
7. infiltrates dermis and subcutis
8. generally limited by superficial layer of deep fascia
9. confused with neurofibroma on punch biopsies
10. rarely metastasizes but metastases resemble primary tumor

MARCH 16, 1969 - CASE NO. 16

ACCESSION NO. 17846

DIAGNOSIS: LYMPHANGIOSARCOMA OF THE SCALP

HISTORY:

This 81 year old colored male was admitted with an ulcerated granulomatous lesion on the scalp. The tumor measured 11.5 x 7.5 cm. and developed over a three month period. He was seen in the dermatology clinic about six weeks after the onset of his disease and was thought to have a pyoderma.

DISCUSSION:

The sections show a malignant neoplasm infiltrating the dermis and subcutaneous tissue. The tumor has extended to the superficial layer of the deep fascia. The epidermis overlying the tumor is partially ulcerated. The tumor is composed of plump spindle and epithelioid cells which are arranged in clusters and cords. Irregular slit-like spaces lined by tumor cells are present throughout the solid portion and tend to surround thick-walled vessels. Many of the cells show cytoplasmic vacuoles. There are scattered areas of necrosis and mitoses are numerous. Vessels show a proliferative endarteritis. Clusters of lymphocytoid cells are present throughout the tumor. The tendency for the tumor cells to line irregular vascular spaces is well demonstrated at the margin of the main portion of the tumor in the dermis and in areas of infiltration in the deep fascia.

This represents the usual pattern of lymphangiosarcoma as seen in the scalp and forehead. Tumors of this nature generally arise in elderly individuals and often present as multiple areas of infiltration in the scalp. Some of these tumors contain a marked amount of blood and present clinically as bluish-red nodules. They often show a prominent lymphoid component and, rarely, the lymphoid component may overshadow the vascular differentiation. Although I favor the term lymphangiosarcoma, some of the tumors show a prominent component of blood-filled vascular spaces. A similar problem exists for the so-called lymphangiosarcomas arising in post mastectomy lymphedema. Perhaps as a compromise, the tumors should be simply classified as angiosarcomas. In general, the clinical course is one of relentless growth with the tumor spreading over the scalp to involve the forehead, face, and eventually the upper part of the chest. These tumors tend to metastasize to lymph nodes and the lung. The prognosis is extremely poor.

References: Lymphangiosarcoma

Bardwil, J. M., Butler, J. J., and Russin, D. J.: Angiosarcomas of the head and neck region. Am. J. Surg., 116:548-553, 1968.

Reed, R. J., Palomeque, F. E., Hairston, M. A., III, and Krementz, E. T.: Lymphangiosarcomas of the scalp. Arch. Derm. 94:396-402, 1966.

Stewart, F. W., and Treves, N.: Lymphangiosarcoma in postmastectomy lymphedema. Cancer 1:64-81, 1948.

Salm, R.: The nature of the so-called post mastectomy lymphangiosarcoma. J. Path. Bact. 85:445-456, 1963.

Wilson-Jones,E.: Malignant angioendothelioma of the skin. Brit. J. Derm. 76:21-39, 1964.

Kettle, E. H.: Tumours arising from the endothelium. Proc. Roy. Soc. Med. 11:20-34, 1918.

Kettle, E. H., and Ross, J. M.: A contribution to the study of the endotheliomata. Lancet 1:1012-1016, 1921.

LYMPHANGIOSARCOMA OF SCALP

Differential Features

1. elderly patients
2. involves scalp, face, and chest
3. usually obviously malignant but may appear mature in regions or be obscured by lymphoid hyperplasia
4. characteristic vascular pattern best seen at margins
5. infiltrate beyond areas of clinical involvement
6. associated rarely with peripheral lymphocytosis
7. may contain a variable amount of blood
8. large nodules show sarcomatous pattern
9. infiltrates deep fascia
10. metastasizes to lungs (blood) and regional nodes

MARCH 16, 1969 - CASE NO. 17

ACCESSION NO. 17847

DIAGNOSIS: MALIGNANT NEUROMA (malignant epithelioid schwannoma)

HISTORY:

This 80 year old caucasian female had a history of multiple excisions of superficial carcinomas of the left temple, from 1959 to 1968. In March 1967 the lesion was treated by x-radiation (250 KV). In May 1967 subcutaneous nodule was treated by surgical excision followed by zinc chloride fixative to the base of the wound, then re-excision with frozen sections (Chemosurgery - Mohs). In February 1968 it recurred again as a subcutaneous nodule and was treated by Mohs type chemosurgery. Twenty-two chemosurgical excisions were required. The parotid gland, facial nerve, zygomatic arch, and lateral wall of the maxillary sinus were invaded by the tumor.

DISCUSSION:

The epidermis shows hyperkeratosis, acanthosis alternating with areas of atrophy and slight papillomatosis. In some areas, the epidermis shows irregular elongation of rete ridges, hyperpigmentation, and increased melanocytic activity. In addition, in one area the epidermis shows a sharply localized zone of parakeratosis, acanthosis, and atypical epithelial hyperplasia. The dermis shows a uniform band of basophilic degeneration of collagen and scattered areas of fibrosis and chronic inflammation. Within the subcutis, there is a circumscribed nonencapsulated tumor. The tumor is composed of fasicles of fibroblastic spindle cells separated by a loose myxomatous matrix. In some of the fasicles, the tumor cells have abundant cytoplasm and take on epithelioid characteristics. In a few of these compact nests, there are irregular clefts separating the tumor cells. The fasicles when seen in cross section are surrounded by concentric lamellae of collagen. The plump epithelioid cells show irregular hyperchromatic nuclei and mitoses. Although it is not obvious on this section, on some of the section, the tumor fused with and appeared to take origin from peripheral nerves.

This is a remarkable tumor, and I think a rather rare one. The original biopsies were reviewed and showed at best only superficial epidermoid carcinomas. I have never been able to demonstrate continuity between the spindle cell neoplasm and the epidermis on multiple sections examined. I think this is a tumor of Schwann cell origin but it certainly does not correspond to the usual type of malignant Schwannoma one sees in neurofibromatosis. The pattern of growth can be best compared to that seen in traumatic neuromas. For purposes of coding, the lesion will be classified as a malignant neuroma. A spindle cell carcinoma cannot be excluded.

References: Malignant Schwannoma

Greene, G. W., Jr., and Bernier, J. L.: Spingle-cell squamous carcinoma of the lips. Oral Surg., Oral Med., Oral Path. 12:1008-1016, 1959.

De Cholnoky, T.: Round-cell, spindle-cell, and neurogenic sarcomas of the lip. Am. J. Cancer 22:548-554, 1934.

Martin, H. E., and Stewart, F. W.: Spindle-cell epidermoid carcinoma. Am. J. Cancer 24:273-298, 1935.

Stout, A. P.: Malignant tumors of the peripheral nerves. Am. J. Cancer 25:1-36, 1935.

Stewart, F. W., and Copeland, M. M.: Neurogenic sarcoma. Am. J. Cancer 15:1235-1320, 1931.

D'Agostino, A. N., Soule, E. H., and Miller, R. H.: Primary malignant neoplasms of nerves (malignant neurilemomas) in patients without manifestations of multiple neurofibromatosis (von Recklinghausen's disease). Cancer 16:1003-1014, 1963.

"MALIGNANT NEUROMA"
(Spindle Cell Carcinoma ?)

Differential Features

1. spindle and epithelioid cells, the latter resembling cells seen in some melanomas
2. neurotrophism--either assumes Schwann cell characteristics, is of Schwann cell origin, or has peculiar symbiosis with Schwann cells
3. spares epidermis
4. infiltrative pattern of growth
5. evidence of maturation resembling traumatic neuroma
6. occurring in damaged skin (questionable history of irradiation in past)
7. similar tumors arise in radiodermatitis and metastasize as sarcomas
8. reticulum pattern resembles that described for neural tumors
9. probably some of lesions reported as spindle cell carcinoma are of this type
10. some lesions reported as malignant Schwannoma show similar pattern but follow-up poor
11. this tumor has recurred and invaded orbit and cranial cavity

MARCH 16, 1969 - CASE NO. 18

ACCESSION NO. 17849

DIAGNOSIS: ATYPICAL FIBROXANTHOMA

HISTORY:

This 81 year old white female was admitted with a 6 x 6 cm. friable bleeding fungating lesion on the right forehead with ptosis of the right eyelid. The tumor had been diagnosed as atypical fibroxanthoma on biopsies. Under local anesthesia, the tumor was removed down to bone and the defect was covered with a full thickness skin graft. She became hypotensive shortly after surgery and died eight days later with bronchopneumonia. No evidence of metastatic tumor was found at autopsy.

DISCUSSION:

The sections show a polypoid tumor of the skin which involves the entire thickness of the dermis and extends into skeletal muscle at the deep margin. The tumor is circumscribed but nonencapsulated. The surface of the lesion is ulcerated, but at the margin of the tumor, the epidermis shows acanthosis, irregular elongation of rete ridges and scattered areas of atypical epithelial hyperplasia involving predominantly the basal layer. The tumor is composed of plump spindle and stellate cells arranged in compact nests and interconnected cords. In some areas, the tumor cells blend with the stroma and appear to be fibroblastic. In other areas, the cells are arranged in cords and tubules and are separated by hyalinized stroma. There are scattered collections of brightly acidophilic granular globules in some regions. A prominent infiltrate of chronic inflammatory cells surrounds vessels within the tumor and also is present at the deep margin. There are scattered multinucleated giant cells. At the surface of the lesion where the ulcer borders the epithelium, there appears to be a transition from epithelial cells into tumor cells.

This is an unusual lesion, and I think there is good evidence that part of the tumor is of epithelial origin. On some of the sections there are scattered nests of preserved squamous cells within the tumor. I think the tubular structures also represent an alteration in epithelial cells. Much of the tumor shows a pattern that might be classified as atypical fibroxanthoma. I chose this tumor because it may offer some insight into the histogenesis of atypical fibroxanthomas. The changes as represented in this tumor suggest that some atypical fibroxanthomas may be of epithelial origin, and this brings us back to the old concepts of spindle cell carcinoma. Spindle cell carcinomas of the skin have somewhat fallen out of favor, and at best the concept was often difficult to defend. I'm sure that many will object to this tumor being compared to an atypical fibroxanthoma and I would have to admit that it is unusual to find convincing evidence of an epithelial origin in most of the lesions classified as atypical fibroxanthoma. I have difficulty separating atypical fibroxanthomas and spindle cell carcinomas. Perhaps the term atypical fibroxanthoma should be reserved for pleomorphic polypoid tumors of the skin that are circumscribed and show regional variation in pattern with evidence of maturation.

In addition, I think there should be some evidence of dermal damage either in the form of actinic irradiation, x-irradiation, or thermal damage. One additional feature which I usually require is that the tumor press upon the epidermis. If these criteria are observed, most of the atypical fibroxanthomas will behave in a relatively benign fashion. Those tumors that are predominantly spindle cell, fail to show regional variation in pattern, spread in an infiltrating rather than an expansile fashion, and lack any significant number of large tumor giant cells, probably correspond to lesions which in the past have been classified as spindle cell carcinoma. In practice, it is often difficult to draw a line between the two groups.

References: Atypical fibroxanthoma

Reed, R. J.: Atypical fibroxanthomas and spindle cell carcinomas of the skin. Bulletin, Tulane Univ. Med. Fac., 26:75-89, 1967.

ATYPICAL FIBROUS XANTHOMA
(Spindle Cell Carcinoma?)

Differential Features

1. polypoid expansile fibroblastic tumor arising in damaged skin
2. presses upon epidermis
3. circumscribed deep and lateral margins
4. uniform plump fibroblastic spindle cells
5. few tumor giant cells
6. cords and tubules in hyalin stroma
7. scattered nests of epidermoid carcinoma blending with sarcomatoid portions

MARCH 16, 1969 - CASE NO. 19

ACCESSION NO. 17864

DIAGNOSIS: MELANOCYTIC ANGIOFIBROMA

HISTORY:

The patient is a 58 year old colored male with burning epigastric pain for two years. The patient had been treated by antacids and diet and had been fairly well controlled. An upper gastrointestinal series showed a deformity of the duodenal bulb. The patient also had Dupuytren's contracture of the left hand and a positive S.T.S. to 16 dilutions.

DISCUSSION:

The slides were prepared from lesions from two different patients. The histological changes are practically identical in these two lesions; however, there is a clinical difference. One of the lesions presents as a single, well-developed polypoid lesion and is from a patient with full blown epiloia. The second lesion has a coarse papillary configuration and is a solitary incidental lesion discovered during the workup of a patient for a peptic ulcer. Both lesions are polypoid and are composed of fibrous tissue covered by squamous epithelium. The covering epithelium shows slight hyperkeratosis, a prominent granular layer, acanthosis, liquefaction degeneration at the dermo-epithelial junction, and increased melanocytic activity in the basal layer. There are large pale rounded cells within the stratum malpighii. The subepithelial fibrous tissue contains numerous telangiectatic vessels, and many of these vessels are surrounded by concentric lamella of collagen. In some areas the lesion is densely fibrous and in other areas appears edematous. Plump spindle and stellate cells are present in the fibrous tissue and, near the surface, many of the cells contain melanin granules. In addition, there are scattered multinucleated giant cells and some of these also contain melanin granules. Hair follicles are outlined by dense fibrous sheaths and, in cross section, present on one of the two lesions.

Lesions showing this histologic pattern are not uncommon as incidental findings and are practically limited to the butterfly area of the face. Usually they present as small plaques rather than well-developed polypoid lesions such as characterized by the examples in the Seminar. The histologic changes are so striking and characteristic that the biopsy site can be predicted from an examination of the slide. The changes in the solitary variants are indistinguishable from those seen in the so-called adenoma sebaceum of the tuberous sclerosis complex. Thus, the solitary lesion is a histologic simulant of a known genodermatosis. Isolated lesions which are histologic simulants of known genodermatoses may also be found for Darier's disease, bullous ichthyosiform erythroderma.

The description of the changes in adenoma sebaceum have been confusing and contradictory. Follicular neogenesis is often present but does not seem to be the primary alteration. I believe the term adenoma sebaceus is inaccurate

and prefer the term angiofibroma. Because melanocytic activity appears to be prominent in the production of these lesions, I think the term melanocytic angiofibroma is even more descriptive. Changes in the skin in the tuberous sclerosis complex are somewhat variable, and in lesions such as the shagreen patch, the changes appear to involve the reticular rather than the papillary corium.

References: Angiofibroma

Nickel, W. R. and Reed, W. B.: Tuberous sclerosis. Arch. Derm. 85:209-226, 1962.

Reed, R. J., Hairston, M. A., and Palomeque, F. E.: The histologic identity of adenoma sebaceum and solitary melanocytic angiofibroma. Dermat. Int. 5(1):3-11, 1966.

Graham, J. H., Sanders, J. B., Johnson, W. C., and Helwig, E. B.: Fibrous papules of the nose. J. Invest. Dermat. 45:194, 1965.

Zackheim, H. S. and Pinkus, H.: Perifollicular fibroma. Arch. Derm. 82:913, 1960.

SOLITARY MELANOCYTIC ANGIOFIBROMA
(Fibrous Papule of Nose)

Differential Features

1. polypoid or plaque-like fibrous nodule
2. butterfly area of face
3. hyperkeratosis
4. prominent granular layer
5. scattered, round, vacuolated epidermal cells
6. melanocytic hyperplasia with "dropping off" of melanocytes
7. liquefaction degeneration
8. dermal fibrosis
   a) concentric perivascular and perifollicular fibrosis
   b) parallel and perpendicular coarse bundles of collagen
   c) reticulated matrix
9. plump spindle and stellate cells and multinucleated giant cells (intracytoplasmic melanin)
10. hypertrophy of follicles and follicular neogenesis
11. lesion indistinguishable from that of adenoma sebaceum (facial manifestations of epiloia or tuberous sclerosis complex)

MARCH 16, 1969 - CASE NO.20

ACCESSION NO. 17843

DIAGNOSIS: EPIDERMOID CARCINOMA

HISTORY:

This 48 year old male developed a callous on his right hypothenar eminence at a location irritated by a lever at his work of 18 months duration. This became progressively worse and appeared to be infected and irritated. Two superficial biopsies elsewhere in 1968 were interpreted as hyperkeratosis. Another biopsy was done under general anesthesia from a deeper area and a surgical decision was made.

DISCUSSION:

The sections show a rather generous portion of palmar skin and subcutaneous tissue. Near one margin, there is a cup-shaped depression extending through the dermis and into the subcutaneous tissue. The depression is lined by atypical keratinizing squamous cells and nests of similar cells are taking origin from the lining epithelium and infiltrating the dermis and subcutaneous tissue. The tumor has infiltrated skeletal muscle, and the fibers show marked atrophy. The fibers are of uniform size, small and pale. Some of the peripheral nerves show degenerative changes with scattered atypical nuclei, but for the most part, the nerves on the sections examined are intact.

This is a moderately differentiated epidermoid carcinoma, and its location as well as the fact that there is no actinic damage, are bad prognostic features. In addition, the depth of invasion suggests that this lesion is likely to metastasize. The usual type of epidermoid carcinoma of the skin arises on the background of actinic damage and, in general, has a good prognosis. Metastases from epidermoid carcinomas induced by actinic damage are relatively rare. By way of contrast, those tumors that arise de novo in previously undamaged skin and those carcinomas that arise in radiodermatitis tend to be more aggressive and are more likely to produce metastases.

References: Epidermoid carcinoma

Lund, H. Z.: How often does squamous cell carcinoma of the skin metastasize? Arch. Derm. 92:635-637, 1965.

Glass, R. L., Spratt, J. S., Jr., and Perez-Mesa, C.; Epidermoid carcinomas of lower extremities. Arch. Surg. 89-955-960, 1964.

Katz, A. D., Urbach, F., and Lilienfeld, A. M.: The frequency and risk of metastases in squamous-cell carcinoma of the skin. Cancer 10:1162, 1957.

Peden, A. S.: Molluscum sebaceum (kerato-acanthoma). Its etiology and relationship to early squamous carcinoma, whether self-healing or not. South African M. J. 36:1091-1094, 1962.

Baer, R., and Kopf, A.: "Keratoacanthoma" in Year Book of Dermatology, 1962-1963, Chicago, Year Book Medical Publishers, Inc., pp. 7-14.

Lennox, B.: Pigment patterns in epithelial tumours of the skin. J. Path. & Bact. 61-587, 1949.

Reed, R. J.: Keratoacanthoma: Entity or syndrome? Bulletin Tulane Univ. Med. Fac. 26:117-130, 1967.

EPIDERMOID CARCINOMA

Differential Features

1. cup shaped
2. hyperplastic benign and malignant epithelium
3. moderate nuclear atypism
4. extension below level of sweat gland
5. little evidence of spontaneous involution
6. site is devoid of hair follicles
7. lack of actinic damage
8. keratoacanthoma (differential diagnosis)
   a) usually associated with actinic damage
   b) usually extends no deeper than sweat glands
   c) associated with pilosebaceous glands
   d) evolves rapidly over period of weeks
   e) involutes over period of months
9. distinction between keratoacanthoma and epidermoid carcinoma is arbitrary and is best made on basis of histologic changes
10. giant keratoacanthoma is usually a misnomer for verrucous carcinoma
11. so-called multiple (familial)keratoacanthoma is also a misnomer and is best classified as self-healing carcinoma

MARCH 16, 1969 - CASE NO. 21

ACCESSION NO. 15681

DIAGNOSIS: ANGIOBLASTIC MESOBLASTOMA

HISTORY:

Ten days prior to surgery, the patient noted a lump in the suprapubic area at the time of a questionable injury to this region. This was interpreted as a possible hernia. The patient had an enlarged thyroid for 20 years. There were no other lesions noted and the patient was in good general health. A chest film was interpreted as clear.

DISCUSSION:

The sections show fragments of a circumscribed but nonencapsulated tumor. The tumor is richly vascular and is composed of compact oords and nests of atypical small basophilic cells in a myxomatous stroma. The cells tend to concentrate around vessel walls and many of the cells show cytoplasmic vacuoles. There are also irregular spaces lined by similar tumor cells, and one gets the impression that the spaces have formed by coalescence of the cytoplasmic vacuoles. In some areas, the tumor is infiltrated with a small lymphocytoid cell. The cellularity of the tumor is variable and is most pronounced around vessels. In some areas, the tumor is poorly cellular and shows a rich myxomatous matrix. Mitoses are numerous. In some of the cystic spaces, vessels project as papillae and are covered by a mantle of tumor cells.

This is an unusual neoplasm and is difficult to classify. I considered the possibility of a malignant mixed tumor; however, the solid portions are really not convincing for epithelium. The cytoplasmic vacuoles are similar to those seen in angioblastic malignancies; however, for the most part the cells appear to be perithelial. This doesn't look like any of the tumors I usually classify as hemangiopericytoma. I believe this is a rather primitive malignant neoplasm and that the tumor cells might be described as mesoblasts. I think mesoblastoma might be a descriptive term but it really doesn't tell us much. There is one tumor that comes to mind that shows similarities and that is the so-called embryonal carcinoma of the ovary (endodermal sinus tumor of Teilum). The cytoplasmic vacuoles in many of the tumor cells produce a pattern that mimics that seen in angiogenesis. The tumor cells show evidence of angiogenesis and mesenchymal differentiation (myxosarcoma). Because of this combined pattern, the tumor will be classified as angioblastic mesoblastoma. On this section the pattern is that of a high-grade malignant neoplasm.

MARCH 16, 1969 - CASE NO. 22

ACCESSION NO. 15681

DIAGNOSIS: ANGIOBLASTIC MESOBLASTOMA

HISTORY:

Same history as Case No. 21
Follow-up: The tumor recurred 18 months after the first excision. At this time a local excision of the mass was performed.

DISCUSSION:

The sections show a circumscribed nonencapsulated tumor with a pattern similar to that seen in Case No. 21. In general, this tumor which represents a recurrence of the lesion in Case NO. 21 is less cellular and more uniformly myxomatous. The cells in the areas of myxomatous change are stellate and some have cytoplasmic vacuoles. The myxomatous portion lacks the plexiform pattern seen in myxoid areas of liposarcoma. In addition, however, there are cellular areas especially around the periphery of the tumor that are altogether similar to those seen on the earlier lesion. These cellular areas are concentrated around clusters of small vessels, and many of the tumor cells contain cytoplasmic vacuoles. Mitoses are numerous. In some areas, large pools of mucin have accumulated and separated the tumor into irregular strands. The tendency for the tumor cells to cluster around vessels is prominent. I am not any closer to classifying this lesion than I was the original tumor in Case No. 21. To be consistent, the lesion will be classified as angioblastic mesoblastoma. There is evidence of maturation of the tumor on this slide.

References: Angioblastic mesoblastoma

McCarthy, W. D., and Pack, G. T.: Malignant blood vessel tumors: Report of 56 cases of angiosarcoma and Kaposi's sarcoma. Surg., Gynec., Obstet., 91:465, 1950.

McClure, C. F. N.: The endothelial problem. Anat. Rec. 22:219, 1921.

Stout, A. P. : Haemangio-endothelioma: A tumor of blood vessels featuring malignant endothelial cells. Ann. Surg., 118:445, 1943.

ANGIOBLASTIC MESOBLASTOMA

Differential Features

1. undifferentiated cells
2. cytoplasmic vacuoles
3. relationship to vessels (?maturation)
4. myxomatous matrix (maturation)
5. lack of plexiform vascular pattern
6. little evidence of lipoblasts
7. if myxomatous portions are lipoid in nature, then could compare this tumor to angiolipoma
8. some endothelial cells are atypical

MARCH 16, 1969 - CASE NO. 23

ACCESSION NO. 17804

DIAGNOSIS: GLOMUS TUMOR

HISTORY:

This 33 year old male first noticed a small lump on the lateral aspect of the right elbow four years ago. The mass increased in size over the next two years but for the last two years it had been stationary in size. The mass was tender and was intermittently soft and quite hard. The area bruised easily.

DISCUSSION:

The epidermis and dermis are not remarkable, but the dermis is partially compressed by a subcutaneous tumor. The tumor is circumscribed and is partially enclosed by a condensation of dense fibrous tissue. The tumor contains numerous blood-filled cavernous vascular spaces. The vascular spaces are partially surrounded by compact clusters of pale epithelioid cells with scanty cytoplasm. For the most part, the cells have small round regular nuclei. Some of the vascular spaces are thrombosed and show early organization. Hemosiderin deposits are present. In some areas, the epithelioid cells are loosely arranged in a hyalin matrix.

This represents a glomus tumor or glomangioma. There are at least two types of glomus tumor. One is characterized by compact clusters of cells in a hyalin or mucinous matrix with rather inconspicuous vessels. A second pattern which corresponds to the lesion seen on this slide is characterized by large blood-filled cavernous spaces separating the clusters of glomus cells. The two patterns are not mutually exclusive and may be seen combined in a single lesion. The subungual glomus tumor usually presents with rather inconspicuous blood vessels. It may be misdiagnosed as a skin appendage tumor, particularly a sweat gland tumor. The relative proportion of glomus cells to vascular spaces is variable, and, in some lesions, the glomus cells may be relatively inconspicuous. They also may be associated with vascular spaces with well-developed muscular walls so that some of the lesions merge with vascular leiomyomas. Glomus tumors have a rich inervation, and this correlates with the common clinical complaint that the tumors are painful. Other tumors, however, may be painful, and this includes eccrine spiradenomas, vascular leiomyomas, and leiomyomatosis cutis. Glomus tumors may be found in the deep soft tissue especially in the vicinity of joints. In some instances, glomus tumors may be large, multiple and tend to follow the distribution of vessels. Some of the multiple lesions present in the skin as bulbous, blue projections that are easily compressible. Lesions of this type fall under the clinical category of blue rubber bleb nevus.

References: Glomus

Kohout, E., and Stout, A. P.: The glomus tumor in children. Cancer 14:555-566, 1961.

Masson, P.: Les Glomus Neuro-Vasculaires. Actualités Scientifiques et Industrielles (453). Histophysiologie. Hermann et Cie, Paris, 1937.

Stout, A. P.: Tumors of the neuromyoarterial glomus. Am. J. Cancer 24: 255, 1935.

Fretzin, D. F., and Potter, B.: Blue rubber bleb nevus. Arch. Int. Med. 116:924, 1965.

Laymon, C. W., and Peterson, W. C., Jr.: Glomangioma (glomus tumor). Arch. Derm. 92:509, 1965.

Toker, Cyril: Glomangioma - an ultrastructural study. Cancer 23:487-492, Feb. 1969.

GLOMANGIOMA

Differential Features

1. compact nests of epithelioid cells
2. circumscribed (rarely infiltrates)
3. prominent vascular component
4. may show solid components
5. may show few vessels and myxomatous matrix
6. may be chemoreceptors (CO_2)
7. glomus may be symptomatic and not be too remarkable histologically
8. reticulum need not enclose every cell - there is regional variation in the amount of reticulum
9. occasional glomus-like tumor shows infiltration or is angioinvasive

MARCH 16, 1969 - CASE NO. 24

ACCESSION NO. 17863

DIAGNOSIS: FIBROLIPOMA

HISTORY:

This 52 year old Caucasian male gave a history of a lesion at the base of the neck on the right side of two years duration. The lesion had been causing an apparent pressure on the nerves over the distribution of the ulnar.

DISCUSSION:

The sections show a circumscribed nonencapsulated fibrous tumor. The fibrous tissue composing the lesion shows two distinct patterns. One is characterized by coarse bundles of compactly arranged parallel fibers, and these vary considerably in width. Many of these compactly arranged bundles appear to be cut in longitudinal section. The second pattern is characterized by thinner bundles of collagen which are arranged in a random fashion. The tumor cells are plump, spindle or stellate in outline, and contain elongated irregular nuclei. Some of the cells appear to be multinucleated. The cells are connected by thin cytoplasmic processes. Lobules of mature fat are trapped within the tumor. There are scattered collections of chronic inflammatory cells in the perivascular spaces. An elastic stain shows scattered bundles of elastic fibers within the fibrous matrix of the tumor, however, they do not show degenerative changes.

This is an unusual tumor, and I have some difficulty in classifying it. I don't believe it has any relationship to so-called elastofibroma. Although elastic fibers are present, they do not show degenerative changes. I believe this tumor is of the same order as the usual soft tissue lipoma. There is a minimal amount of cellular atypism; however, I believe this tumor is best classified as fibrolipoma. We recently had a similar case which showed somewhat more prominent nuclear atypism. The tumor in the latter case was from the axilla of a 30 year old colored male. It showed an identical fiber pattern and also showed islands of mature fat. In addition, there were scattered tumor giant cells, but these cells did not contain stainable cytoplasmic fat. Tumors of this type merge with so-called well differentiated lipogenic liposarcoma. I'm not sure that there is a clear dividing line between fibrolipomas and some well differentiated liposarcomas.

References: Fibrolipoma

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FIBROLIPOMA

Differential Features

1. fibroblastic tumor surrounding lobules of fat
2. occurs in subcutis and is circumscribed
3. stellate and spindle shaped tumor cells (few or no cytoplasmic vacuoles)
4. coarse bundles of compact collagen not a feature of lipogenic liposarcomas
5. Gardner's syndrome?
6. fibrous counterpart of common subcutaneous lipoma
7. merges histologically with well differentiated lipogenic liposarcoma

MARCH 16, 1969 - CASE NO. 25

ACCESSION NO. 17866

DIAGNOSIS: CLEAR CELL CARCINOMA (PROBABLY OF SWEAT GLAND ORIGIN)

HISTORY:

This 66 year old Negro male was admitted to the hospital with a history of a nodule located at the junction of the penis with the scrotum, which had been present for a few months. However, there was a larger nodule at the base of the penis which had been present for one - two years. The larger nodule was said to measure approximately 6 cm. in diameter and had a draining ulcerated area in the center. The penis and scrotum were both edematous and bilateral inguinal adenopathy was present.

DISCUSSION:

Within the dermis, there is an infiltrating tumor composed of cords and nests of plump clear cells. The cells have abundant vacuolated cytoplasm and distinct cell membranes. Nuclei are pale, finely stippled and have irregular membranes. Many of the cell nests are partially or completely outlined by hyalinized basement membranes. The intervening stroma is loosely fibrous and contains plump fibroblastic spindle cells. In some areas, the tumor has contacted the epidermis and protrudes as cones of cells through the epidermis to the surface. Mitoses are present.

This tumor shows the pattern that is generally classified as clear cell carcinoma of the skin. The clear cell pattern is uniform, and the individual cells resemble plant cells. I believe it would be an error to simply consider this pattern as the result of degenerative change in a squamous cell carcinoma. The tumor has distinctive features, and the presence of a hyalin basement membrane is additional evidence in favor of this being something other than an ordinary epidermoid carcinoma. It is generally assumed that this type of carcinoma arises from or is related to the so-called clear cell hidradenoma (clear cell myoepithelioma). The clear cells in hidradenomas are similar to those in this tumor. In addition, hyalinization of the stroma is common in the clear cell variant of sweat gland adenoma. Clear cell carcinomas of this type tend to be locally recurrent and may metastasize to regional nodes or by the blood stream (bone). The possibility that the clear cell pattern is evidence of hair follicle differentiation cannot be entirely dismissed. There is a benign skin appendage tumor of hair follicle origin which may contain similar clear cells. This tumor corresponds to the lesion classified by Heddington and French as tricholemmoma. They are usually small superficial polypoid lesions which are more or less limited to the face and

are outlined by hyalinized basement membranes. Tricholemmomas may undergo degenerative changes in which epithelial cells are trapped in a hyalinized stroma. If we admit the possibility of a benign clear cell tumor of hair follicle origin, then I think we should also admit the possibility that some of the clear cell carcinomas of the skin may be of hair follicle origin.

References: Clear cell

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