TUMOR SEMINAR COLLECTION

SET I

Arthur Purdy Stout Club, June, 1948

Tumors of diverse organs

Set I (1)

Case 1. TUMOR OF NASAL CAVITY P&S 23405

White male, aged 35 years.
Source: Dr. Emilio M. Martinez of Habana, Cuba.

About two years before the patient began to suffer from nasal obstruction and catarrh. Four months later he expelled a mass from the nose "like a gelatine". An otolaryngologist was consulted who removed some polyps. These were diagnosed as a malignant tumor and the case referred to Dr. Martinez. When he examined him October 14, 1943, there was a polypoid hyperplasia of the inferior border of the middle turbinate and of the middle meatus of the left fossa. It bled easily when touched. X-ray showed normal ethmoid cells and slight opacity of both antrums. The tumor was treated with deep x-ray therapy and intranasal radium. After one year it seemed to have healed. The sections have been made from the tissue removed at operation.

Case 2. TUMOR OF NASAL CAVITY AND ANTRUM P&S 23043

A.T. Jr. White male schoolboy.
Source: Dr. A. O. Severance, Nix Hospital, San Antonio, Texas.

Sixteen months before admission the left eye began to water and shortly before admission it seemed pushed externally. There had been symptoms of sinus disease for 12 months. The past history included measles and pertussis. Examination on admission showed the left naris filled with polyps, a blurred disc and poor vision in the left eye, no lymph node enlargement and by x-ray a destruction of bones bordering on the left antrum with extension to the ethmoid. The left inner canthus bulged and there was lateral displacement of the left eye. At operation 11-25-44 the left antrum, ethmoid and naris were curetted and solid red granulation-like mucus-covered tumor tissue removed. 250 mgs of radium were inserted.

Case 3. TUMOR OF NASOPHARYNX S.P. 70627

Baby Boy R. Unit No. 578597. 14 days old.

Following birth there was evidence of nasopharyngeal obstruction and a tumor was discovered in the nasopharynx. When the baby was 14 days old this was removed (5-10-39) by pulling it down from behind the palate and passing a snare around the pedicle. There was little bleeding. It was pear-shaped 3 cm in length and 18 mm in greatest diameter with a pedicle only 1 mm thick. Multiple sections showed that it was solid and made up of nodular masses of firm pinkish-gray tissue lying in a loose stroma. The child was seen again 6-11-45 when the tonsils and adenoids were removed. Unfortunately this tissue was not examined but there was no suspicion of recurrence.

Teratoma

Case 4. TUMOR INVOLVING THE MIDDLE EAR S.P. 93573

J.S. Colored female aged 3 years. Unit No. 769361.

Two weeks before admission to Babies Hospital she suddenly developed a left facial palsy. This increased and was accompanied by a little bleeding from the ear. Examination showed a mass in the auditory canal. After biopsy showed a malignant tumor it was approached through the mastoid cells and the tumor which involved the auditus attic and middle ear with an extension in the petrous bone toward the Eustachian tube was partially excised. It recurred promptly and 4 weeks later radiotherapy was given - a total of 2000 r. to an 8 x 10 cm field. 200 K.V., 25 M.A., 50 cm. T.S.D. and 1 mm cu. filter. This failed to check the growth which formed a huge cauliflower mass externally. Four months after operation she died and autopsy showed extension to the internal ear, temporal bone, middle cranial fossa, left orbit, leptomeninges and pons with metastasis in the lung.

Schwann cells and Rhabdomyoblasts.

Case 5. TUMOR OF FLOOR OF MOUTH
METASTASES IN CERVICAL LYMPH GLANDS

S.P. 52749-61149

G.R. Male - Alsatian chef - 63 years old. Unit No. 358973.

Eighteen months before admission he noticed a small red spot to the left of the frenum in the floor of the mouth. He smoked pipes before this and cigars afterwards. It grew slowly and painlessly larger. On examination the patch measured 2.5 x 2 cm and was chiefly to the left but extended slightly past the midline. After biopsy the lesion was treated by interstitial radium, five short needles totalling 500 mg. hrs. Three months after treatment an area of redness appeared posterior to the original site and spread slowly backwards along the left alveolingual gutter. This was red and slightly thickened but without true induration or fixation. One year after radium treatment the whole area which now measured 2 x 1.3 cm was generously excised. As before there was no lymph node enlargement. Two and one-half years after excision a hard node appeared in the left upper neck deep to the sternomastoid. A complete radical left upper and lower neck dissection was done. Metastases were found in the large node and in one supraclavicular node. He was then given heavy roentgen treatment on both sides of the neck totalling 4900 r to the left and 1200 r to the right. Large fields and deep therapy technique were used. This resulted in a board-like thickening of the tissues of the left neck. There was never proof of recurrence. He died 3-24-41, 8 years and 8 months after the first radium treatment and 4 years and 9 months after neck dissection.

Epid Ca in situ – No lymph. in epid. met Ca.

Case 6. TUMOR OF EPIDIDYMIS S.P. 89373

Dr. G. K. White male - aged 39 years. Unit No. 744612.

For 2 years there had been a painless slowly increasing nodule in the left lower epididymis. Three years ago he was treated at Saranac for pulmonary tuberculosis. No signs of activity in respiratory or urinary tracts at present. Examination was negative except for 8 mm nodule in epididymis. 5-3-1944: The left epididymis was excised with the tumor. On 4-2-48 he applied for life insurance. The nodule on gross examination was well circumscribed and the cut surface yellow and homogeneous.

Mesothelioma

Case 7. SLIDE MISSING.- TUMOR OF KIDNEY P&S 25095

H.S. - Female aged 11½ years.
Source - Dr. Charles Waltman.

Seven months before admission to the Easton Hospital, Easton, Pa., the mother noted a large tumor in the left flank. She went to Babies Hospital, N. Y. where a work-up revealed a tumor. It was explored through an anterior transverse incision, and considered inoperable because of attachment to vital organs. Biopsy was called: Sympathicoblastoma. Roentgen treatment was given postoperatively and the tumor disappeared. However, during treatment pulmonary metastases were observed, her condition became poor and she was referred home. The left upper quadrant wound was unhealed and discharging pus. Examination in Easton showed a huge mediastinal mass larger than the heart and seemingly attached to this organ. There were round metastatic nodules in both lungs, she was anemic, dyspneic, and had abdominal pain. Radiation to the intrathoracic lesions with blood transfusions and parenteral vitamins resulted in remarkable improvement, she became ambulatory and wanted to go back to school. However, 6 weeks after this radiation treatment the tumor reappeared in the left flank. Because of her good general condition and absence of evidence of other metastases, the left kidney and left adrenal were removed. There was only a minor adhesion to the descending colon and the operation was uneventful. A liter of blood was given and because of postoperative temperature 500,000 units of penicillin were given. She quickly recovered and became ambulatory, although there was a metastatic nodule visualized in the right lung and a mass developed in the right flank, possibly representing hepatic metastasis. X-ray treatment again caused shrinkage of this mass. The tumor largely replaced the kidney and the suprarenal was not involved.

Wilms tumor

Case 8. TUMOR OF KIDNEY P&S 22799

Mrs. S.K. - Female aged 70 years.
Source - Dr. B. F. Stout, San Antonio, Texas.

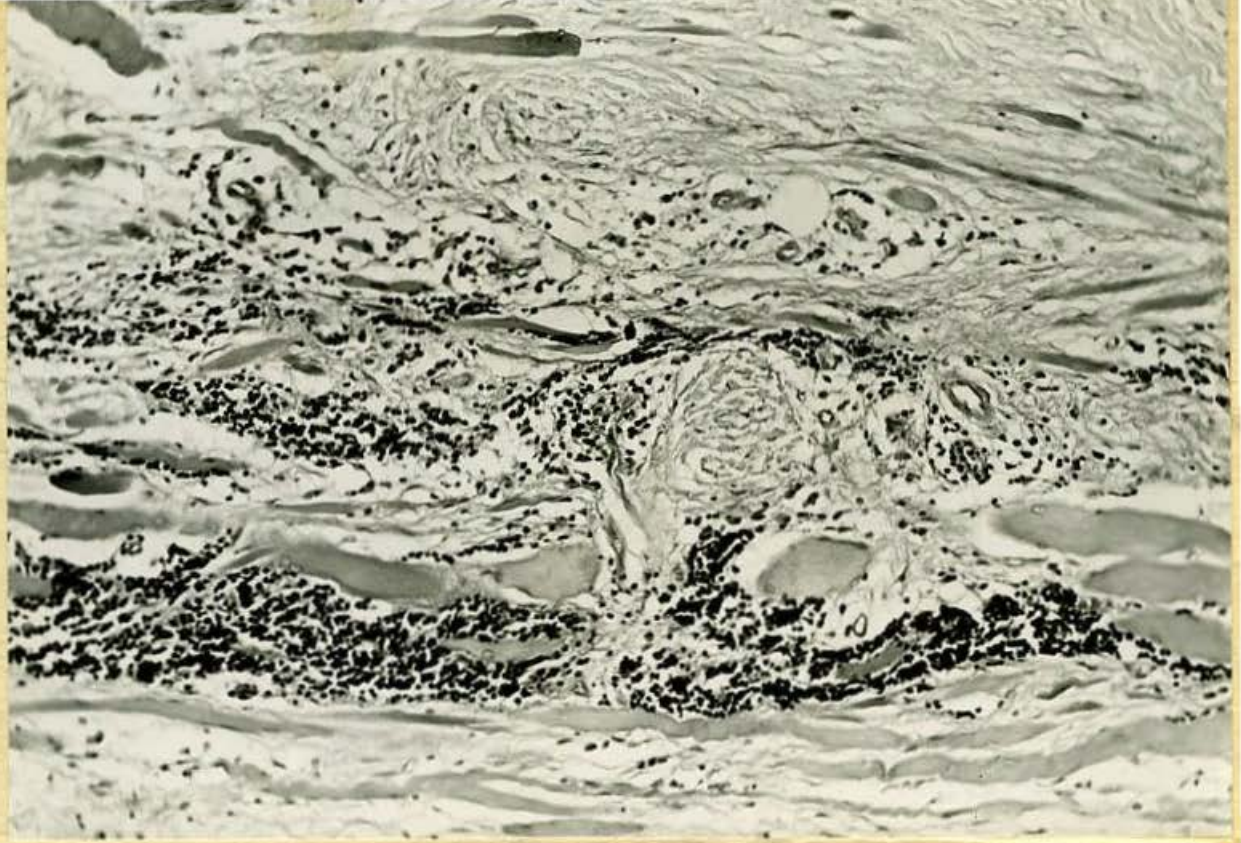
The tumor was 9 cm in diameter and almost golden yellow in color. It occupied two-thirds of the upper pole of the kidney.

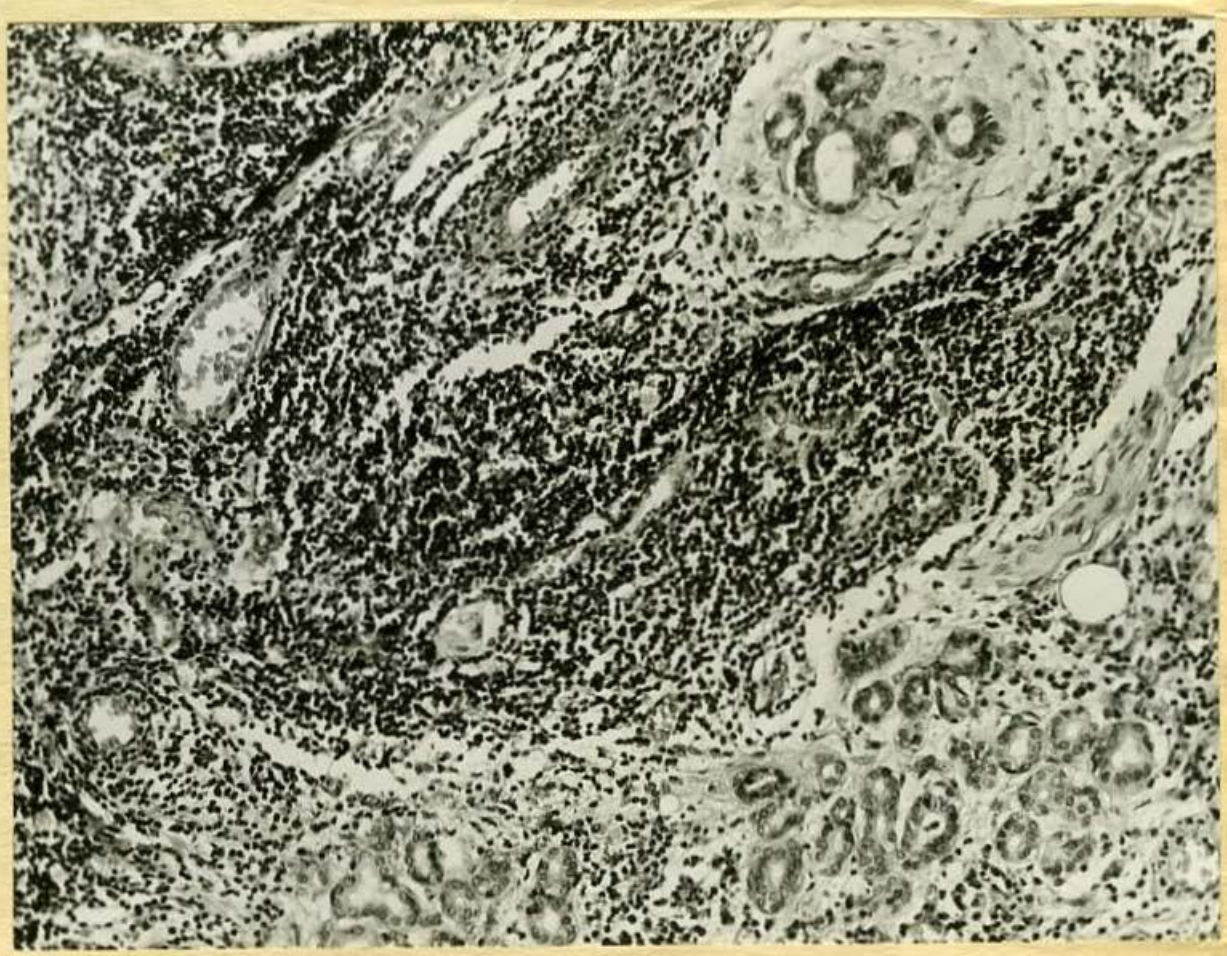
Case 9. LESIONS OF BOTH LEGS P&S 19338
S.P. 49994

P.W. Colored male - aged 58 years. Unit No. 361173.
Source - Dr. Howard Meyer, Hackensack Hospital.

Nine years before, he came to the Hackensack Hospital with a history of hyperthyroidism for the preceding year and a half (nervousness, tremor of hands, and loss of 70 lbs. in weight). B.M.R. was plus-45%. Shortly thereafter he had a thyroid operation and was then much improved, regaining 40 lbs. About one month afterwards the right eye got sore and became prominent. He returned to the Hackensack Hospital where he stayed for several weeks and the eye subsided. Next the left eye swelled up and he entered the Presbyterian Hospital with bilateral exophthalmos extremely marked on the left. Basal metabolism rate was minus-15%. At the Institute of Ophthalmology a left outer canthotomy was performed and some boggy tissue infiltrating the levator and inferior rectus muscles removed. These showed degeneration and many large focal collections of lymphocytes. X-rays of orbit and skull were essentially negative. The patient then disappeared into the woods near Hackensack where he lived as a hermit. He was seen again in June 1941 at the Hackensack Hospital where he came because of multinodular papillary swellings on both feet and legs forming such huge masses that he was unable to wear shoes. One of the nodules was biopsied, and this section is presented. He also had ordinary edematous swellings of the dorsums of both hands and fingers. He has not been seen since this time.

Nodular papillomatous change in dermis
Malignant disease?





Case 9 - Tissue from the orbit. Above: eye muscle
Below: lacrymal gland

CASE I. P & S 23405

MICROSCOPIC: Sections show that the tumor is made up of closely meshed polymorphous cells interwoven with many fine collagen and reticulin fibres without any definite arrangement. Some of the cells are elongated. A striking feature of the tumor is the presence of scattered masses of what appear to be epithelial cells set at haphazard through this matrix. In many places these are cylindrical and are separated from the surrounding stroma by collagen, and in most instances, no connective tissue fibres are found between the individual cells. However, in many other places no such definite separation is noted. Instead, the more deeply stained cells of an epithelial aspect are found scattered in small groups and even as isolated units among the stromal cells, and in these areas a close inspection indicates that in the last analysis the only difference between the epithelial and stromal cells is that the former are more deeply stained. No mucin is found with the muci-carmine stain, nor do the cylindrical epithelial cells seem to form tubules or gland-like structures.

COMMENT: This tumor strongly resembles the so-called carcinosarcomas of the esophagus of which rare tumor type there has been one example at the Presbyterian Hospital. The only difference is that the mesodermal type of stroma exhibited by this tumor has a more adult differentiated appearance than in the esophageal tumor where the stroma appeared like a malignant actively growing rhabdomyosarcoma without differentiation. The esophageal tumor, in spite of the fact that it did not invade the muscularis and formed a smooth mass projecting into the lumen where the esophagus was resected, had metastasized to the mediastinal nodes, so that later there was mediastinal recurrence and death in spite of a second attempt to resect the recurrence. I have never seen a tumor of this sort before in the nasal cavity and so have no background of experience upon which to base a prognosis. At least one can say that it is not a rapidly progressing malignant growth.

DIAGNOSIS: Adenosarcoma (or carcinosarcoma) of nasal cavity.

CASE II. P & S 23043

MICROSCOPIC: Sections show a tumor composed of masses of closely packed small rounded cells with ill defined reticular cytoplasm, which have a distinct tendency to form large pseudorosettes. The tumor infiltrates freely beneath the ciliated epithelial mucosa and invades the underlying bone.

COMMENT: This is a highly specialized tumor first described and named in 1924:

Berger, L., Luc and Richard
L'Esthesioneuroepithéliome olfactif
Bull. de l'Assoc. franç. p. l'étude du cancer
13:410-421, 1924.

and later by:

Portmann, Bonnard and Moreau
Esthésio-neuroblastome des fosses nasales
Acta Otolaryng. 13:52, 1928.

(Case II - continued)

These authors believe that the tumors come from the cells of the olfactory placode. The important clinical feature is that in spite of their malignant histological appearance and infiltrative habit, they grow slowly, are radiosensitive, and can apparently be cured. We have records of two other cases. One in a forty-three year old woman who, in spite of recurrence and invasion of frontal sinus, has lived eleven years and is now free from disease. The other was in the nasal cavity of an adult male. This recurred four years after excision and the patient has gone to Memorial Hospital for radiotherapy. Dr. Fred Stewart writes me that he has seen three or four examples and has a distinct impression that it does not run the usual malignant course of nasal cancer.

DIAGNOSIS: Neuroepithelioma (Esthésioneuroepithéliome olfactif) of nasal cavity and maxillary sinus.

1817

CASE III. S. P. 70627

MICROSCOPIC: Sections show that the growth is covered by a stratified squamous mucous membrane. Beneath this is a highly complex tumor composed of a number of different types of tissue. The chief bulk is a conglomerate mass of spindle and oat-shaped cells which are tightly packed together and which are separated one from the other only occasionally by delicate strands of collagen. These undifferentiated cells in some areas seem to differentiate into tubes which are lined by cuboidal cells. About the periphery of the masses these gland-like tubes are more numerous and extend outward into the submucosal fibrous tissue, where in some instances they reach and actually penetrate the stratified squamous epithelium covering the tumor. In some places these tubules in turn are in direct continuity with balls of stratified squamous epithelium with keratinized centers so that they form true pearls. In most instances the tubular glands are empty, but occasionally they contain mucicarminophilic material. In two of the sections there are found in the submucosal layer small nodules of tissue resembling cartilage. All of the tissues forming this growth, including the squamous epithelium of the surface, show active mitotic activity.

COMMENT: Since this tumor is composed of a mixture of tissues some differentiated and some not, it would seem to me proper to classify it with the congenital teratomas although one might also entertain the possibility of thinking of it as a mixed tumor. Probably it originated from some disturbance in the formation of Rathke's pouch. It does not seem to have a large and varied enough assortment of adult differentiated tissues to warrant classifying it as an epignathus. In any event it appears to have been entirely benign; the follow-up is of sufficient length to assure this.

DIAGNOSIS: Teratoma of nasopharynx.

Reference: Willis, R.A.: Pathology of Tumours - Butterworth & Co. (Publishers), Ltd., London, England. The C. V. Mosby Co. St. Louis, Mo., U.S.A., 1948, Chap. 61, The Teratomata, pp. 940-984 (bibl.)

Paul Wall

Case 9 - Left: Patient's appearance when he entered Presbyterian Hospital before operation on the left eye.

Right: Appearance of patient's legs and hands nine years later.

CASE IV. S. P. 93573

MICROSCOPIC: The section shows a tumor composed chiefly of spindle shaped cells arranged vaguely in bundles with delicate reticulin fibers coursing between many of them. In a few areas of looser texture the cells are stellate. The tumor cells intermingle intimately with bundles of nerve fibers and with a ganglion. It is a matter for speculation whether one interprets the intermingling of tumor cells with the nerves as derivation from or invasion of them. In one area the tumor cells have strongly acidophilic intracellular substance, elongated strap forms can be found. The acidophilic substance is fibrillated and these fibers can be interpreted as myofibrils with assurance since occasionally it is possible to detect cross striations.

COMMENT: The tumor therefore is a rhabdomyosarcoma but the interesting question is whether it is a malignant Schwannoma in which the Schwann cells differentiate into rhabdomyoblasts or simply a rhabdomyosarcoma which has invaded nerves and ganglia. Masson has described the formation of rhabdomyoblasts in Schwannian tumors but I confess that in this case I cannot see any way in which one can decide which is the correct interpretation. This is a very rare site for a rhabdomyosarcoma to develop; it is the only one I have ever seen in this situation. Like other infantile rhabdomyosarcomas, this killed by infiltrative growth without metastasis.

DIAGNOSIS: Rhabdomyosarcoma of middle ear.

Reference: Masson, P.: Von Recklinghausen's Neurofibromatosis Sensory Neuromas and Motor Neuromas. E. Libman Anniversary Volumes 2:293, 1932.

CASE V. S.P. 52749 - 61149

MICROSCOPIC & COMMENT: The microscopic changes in this case are quite obvious. In the oral cavity there is a replacement of the normal mucosa by cancer cells with the occasional formation of multinucleate clumping forms characteristic of Bowen's disease. Nowhere has the intraoral tumor penetrated beneath the basement membrane although multiple serial sections were examined covering practically all of the resected portion. The lymph nodes show metastatic poorly differentiated squamous cell epithelioma characterized by the frequent formation of multinucleate giant forms. One can hardly doubt that the metastatic involvement of the nodes comes from the primary focus in the oral cavity. Nor can one question that somewhere, possibly in the radiated tumor which was only biopsied, there must have been penetration of the basement membrane, otherwise it is difficult to understand how tumor cells got into lymphatic vessels. The case is illuminating since it shows that metastasis can occur from a so-called cancer in situ before penetration can be demonstrated. The progress of the case shows that the course of Bowenoid intramucosal epithelioma is generally slow.

DIAGNOSIS: Squamous cell epithelioma (Bowenoid intramucosal type) with metastases in cervical lymph glands.

Reference: Stout, A.P.: Malignant Manifestations of Bowen's Disease, N.Y. State J. Med. 39:801-809, 1939 (Case 2).

CASE VI. S.P. 89373

MICROSCOPIC AND COMMENT: The microscopic picture shows the characteristic tubular formation lined with swollen vacuolated cells with a fibrous stroma which Masson, Riopelle, and Simard first and Evans later and independently described as benign mesothelioma. Later writers including Ash are unwilling to accept these tumors as mesotheliomas and by the use of such terms as "adenomatoid" throw them back into the unclassified group. The more I study them the more I am convinced that Masson and Evans are correct. These tumors formerly were called lymphangiomas; I myself was guilty of this misinterpretation in 1917. It is interesting to find Willis in his new book on pathology of tumors falling into the same mistake. Figure 347 on page 711 is called lymphangioma of epididymis - I feel quite certain it is really a benign mesothelioma. Apparently he is not familiar with the recent literature on the subject. The loose thinking about these tumors is nowhere better illustrated than in the paper by Morehead. In Figure 11 he shows an excellent demonstration of a mesothelial lined tubule and the legend reads: "Vacuolation of the peripherally placed epithelial cells resulting in the formation of angiomatoid structures and isolated lymphocytes". He concludes that the angiomatoid tissue is derived from mesenchymal cells which make imperfect attempts at the formation of lymph vessels and lymphocytes. The choice of terms here is very unfortunate, inferring that the structures formed from the mesothelium are angiomatous which will certainly deceive readers into supposing that he means they are angiomas which most certainly they are not. Chandler Foot tells me that he has encountered a malignant mesothelioma of the epididymis at New York Hospital.

DIAGNOSIS: Mesothelioma (benign) of epididymis.

References:

Masson, P., Riopelle, J. L., and Simard, L.C.: Le Mésothéliome Bénin de la Sphère Génitale, Rev. Canad. de Biol. 1:720-751, 1942.

Evans, N.: Mesothelioma of the Epididymis and Tunica Vaginalis, J. Urol. 50:249-254, 1943.

Golden, A., and Ash, J. E.: Adenomatoid Tumors of the Genital Tract, Am. J. Path. 21:63-79, 1945.

Morehead, R. P.: Angiomatoid Formations in the Genital Organs with and without Tumor Formation. Arch. Path. 42:56-63, 1946.

CASE VII. SLIDE MISSING - P & S 25095

MICROSCOPIC AND DISCUSSION: This tumor has areas that are sarcomatous with the formation of rhabdomyoblasts and other areas in which epithelial structures, some of them in the guise of rosettes, are formed. When the tumor was biopsied at the Babies Hospital it was this type of tissue that was found and interpreted as sympathicoblastoma. When the kidney was removed at Easton it was obvious that it was an adenosarcoma of the kidney and not an adrenal medullary growth or from the retroperitoneal tissues. The case illustrates in a striking fashion the fact that a Wilms tumor can have neurogenous elements in it as was emphasized by Masson. Whether or not

(Case VII continued)

we can accept his hypothesis that some of these tumors are altogether formations of neuroblasts from the neural crest and that the rhabdomyoblasts and embryonal Wolffian structures are formed by metaplasia from them is still an open question. The majority of pathologists have not accepted this hypothesis.

DIAGNOSIS: Adenosarcoma (with sympathicoblastic elements) of kidney.

Reference: Masson, P. The Rôle of the Neural Crests in the Embryonal Adenosarcomas of the Kidney. Am. J. Cancer 23:1-32, 1938.

CASE VIII. P & S 22799

MICROSCOPIC: Sections show a tumor made up of solid strands of rather small rounded cells with a somewhat scanty but markedly granular acidophilic cytoplasm. These strands always remain solid and do not form any tubules. They are outlined by definite basement membranes of collagen. The strands with their sheaths are separated one from the other by sometimes very loose textured edematous stroma so that they stand far apart and sometimes the stroma is very scanty so that they are placed close together. There are many blood vessels in the stroma. The tumor is well preserved in most of the sections. In most places, it is enclosed within a capsule. In the section showing its relationship with the kidney, there is no definite capsule but the neoplasm is quite sharply circumscribed and shows very little tendency to invade the kidney substance. In places the arrangement of the cell cords is reminiscent of the suprarenal cortex but the tumor cells nowhere have the characteristic appearance of suprarenal cortical cells.

COMMENT: This is an unusual form of kidney adenoma and its morphology arouses a good deal of interest and speculation. I have consulted a good many papers and books in an attempt to find a satisfactory description of this variety of kidney tumor. The only place so far that I have succeeded in finding a comparable description is in Masson's book.

Masson, P.: Diagnostics de Laboratoire II Tumeurs, A. Maloine et Fils, Paris, 1923, p. 542, Adénomes endocriniens acidophiles.

That description corresponds fairly well with this tumor except that he describes the cells as being large instead of small. He says that the acidophile endocrinian adenoma resembles at the same time hepatic adenomas, certain thyroid adenomas, and suprarenal cortex adenomas. But, he says, the kidney tumor differs from each one of these and cannot be considered either a hepatic, thyroid, or suprarenal heterotopia. He believes that it comes from kidney cells.

DIAGNOSIS: Adenoma (endocrine acidophile type) of kidney.

CASE IX. P & S 19338

MICROSCOPIC: Most of the sections are defective in that the characteristic myxomatous tissue which lies immediately beneath the epidermis is missing. It is necessary to fill in the artefactual empty space with a loose textured tissue made up of widely spaced stellate cells and an intercellular substance composed of a few delicate reticulin fibers and a great deal of mucicarminophilic substance, characteristic of myxedema.

COMMENT: The whole case seems capable of explanation as follows: The original hyperthyroidism was of a severe grade and accompanied by malignant exophthalmos affecting chiefly the right eye. We must assume that he had a partial thyroidectomy and following this a reappearance of the exophthalmos affecting especially the left eye. The tissue removed from the left orbit is illustrated and shows that the swelling was due to edema, lymphocytic infiltration of the ocular muscles and lacrymal gland and degeneration of the eye muscles. The extraordinary condition of the legs and feet is an example of extreme localized myxedema which is sometimes observed after treatment of hyperthyroidism although usually only as small localized thickenings of the skin of the legs. We have never before seen it in such an exaggerated form.

DIAGNOSIS: Myxedema of legs and feet, bilateral.