Experiments with 200 kv. and 45 kv. radiation gave similar results for equal doses.—C. E. D.


The tumor employed, a transplantable sarcoma of the mouse, appeared more sensitive to the action of heat administered by diathermy than did the normal tissues. Although exact figures are not given, the authors state that a local temperature of 42-46°C maintained for 5 to 60 minutes produced some transient and permanent regressions. The administration of combined thermotherapy and roentgen radiation (400 to 2,000 r) was more effective, and resulted in a large number of cures.—M. J. E.

MISCELLANEOUS


In a general discussion, the practical as well as theoretical importance of knowledge concerning the remote causes of cancer is stressed. Thus exogenous carcinogenic agents may appear as factors in occupational neoplastic diseases. Precancerous conditions may serve as a guide in therapy. In such organs as the breast and uterus, where a particular susceptibility to endogenous agents may be familial and where a hormonal imbalance may be causative, there is a further stimulus to clinical observation and to experiment. The elucidation of the proximate cause; that is, the specific change which transforms a normal into a malignant cell, is another and a still unsolved problem.—A. A. L.


A general discussion, not suitable for abstracting.—H. G. W.

Clinical and Pathological Reports

ETIOLOGY


During a dental maneuver an area of the tongue received a severe injury which did not heal completely. One year later the zone was involved by a squamous cell cancer. As the tongue had been normal prior to the trauma, it is believed that some relationship existed between it and the subsequent neoplastic alteration. The portion of the organ involved was resected.—M. J. E.


A lecture which emphasizes atrophy as a precursor of cancer, and a report of experiments with butter yellow compound employed in the experiment and concurrently administered by diathermy than did the normal tissues. Although exact figures are not given, the authors state that a local temperature of 42-46°C maintained for 5 to 60 minutes produced some transient and permanent regressions. The administration of combined thermotherapy and roentgen radiation (400 to 2,000 r) was more effective, and resulted in a large number of cures.—M. J. E.


An instance of familial leukemia is reported in which 3 sisters have been affected, 2 with the chronic lymphatic type and 1 with chronic myeloid leukemia.—H. G. W.

MULTIPLE TUMORS


Of 1,044 necropsies on malignant cases, 21 (2%) showed multiple malignant lesions. In 2 patients there were 3 primary malignant lesions. In 12, at least one of the lesions was in the gastrointestinal tract. The amassed data from several large series from American institutions reveal that of 7,488 cases with malignant lesions there were 219 (2.8%) in which the lesions were multiple. This percentage is believed by the author to be higher than can be explained on the basis of chance alone.—H. G. W.

DIAGNOSIS—GENERAL

GRAHAM, A. [Cleveland Clinic, Cleveland, Ohio] CRITERIA OF MALIGNANCY. Radiology, 37:521-532. 1941.

The author presents a general discussion of the pathological features characteristic of malignancy and illustrates the difficulties of histological diagnosis with photomicrographs. Treatment and curability of tumors are discussed in relation to histological grade, location, and dissemination.—C. E. D.


The Brose-Jones Test for cancer (Report of the Ninth Australian and New Zealand Cancer Conference, Sidney, April 9th to 9th, 1938), which is based upon the ratio of cell-phosphorus to plasma-phosphorus in the blood, was applied to 1,081 specimens of blood and found to be
“not highly specific and therefore not of great diagnostic value.”—E. L. K.

**Therapy—General**


As may be assumed from the title of this publication, the author treats cancer dietetically. Patients are given either a simple diet rich in vitamins, or, when the lesions are more advanced, this regime is supplemented with additional amounts of vitamins, and injections of an undescibed embryo extract are given to increase resistance. The favorable results obtained in 9 cases are recorded as proof of the value of these methods.—M. J. E.


A discussion of the possible surgical procedures to employ in cases of cancer associated with intractable pain.—M. J. E.

**Radiation—Diagnosis and Therapy**


The dose distribution of radiation in the pelvis as delivered by various technics of intracavity radium application is considered in detail. It is concluded that these technics as used in the treatment of cancer of the cervix deliver some 4,000 r less than the cancerocidal dose to the lateral pelvic lymph nodes. A technic is described for overcoming this deficiency by the transvaginal implantation of radon seeds.—C. E. D.


Surgical treatment of carcinoma of the rectum is advised in inoperable cases but radiation offers palliation and occasional cure in inoperable cases and serves as an adjunct to surgery. This article is concerned chiefly with the technic of applying radion seeds, radium needles, and plaques to rectal lesions. The results as previously reported (Am. J. Roentgenol., 32:653-645. 1934) show 39% 3 to 10 year survivals.—C. E. D.


A clinical classification of adrenal tumors is proposed, including those of cortical and medullary origin with and without endocrine function.

Adrenal tumors may sometimes be identified in ordinary roentgenograms if the tumor is opaque or if it displaces adjacent organs. Air insufflation of the perirenal fascial planes permits direct visualization of the adrenal contour in most cases. This procedure has been carried out by the author over 400 times without serious mishap and is fairly reliable in revealing the presence and locali-
ation of adrenal tumors. Air insufflation is contraindicated in large or highly vascular malignant tumors because of the danger of air embolism, hematoma, or dissemination of the tumor. Large tumors can usually be diagnosed by physical examination and pyelography. Reproductions of 22 roentgenograms are presented.—C. E. D.


A method of combined roentgenological and surgical treatment of carcinoma of the pelvic colon is described. Radiation is applied 4 to 6 weeks preoperatively to each of 4 pelvic portals on 4 successive days in doses of 720 r. Irradiation is said to result in improvement of the general condition of the patients, shrinkage of ulcers, occasional increased mobility of the lesion, and a probable decreased danger of postoperative peritonitis. Results on an unstated number of cases treated by this method showed 95% operability and 46% 5 year survivals. Patients treated by surgery alone showed 60% 5 year survivals but this group includes a number of early lesions. Preoperative irradiation appears to increase the operability of cancer of the pelvic colon.—C. E. D.


The treatment of choice in early cases of carcinoma of the cervix is undoubtedly surgical. At the Mayo Clinic 115 cases seen from 1925 to 1935 were considered unsuitable for surgery either because of the extent of the tumor or the presence of concurrent disease. These were treated by intrauterine radium applications with accessory external roentgen treatment in two-thirds of the cases. One hundred and nine cases were traced and showed a 5 year survival of 39%, even including cases in which treatment had to be abandoned or was instituted originally as palliation. The rate of cure with radium treatment varies directly with the extent of the growth and with the microscopic grade of the lesion.—C. E. D.


The authors describe a new technic applicable to the treatment of tumors of the trigone of the bladder, less than 3 cm. in diameter. The tumor is exposed by suprapubic cystotomy, biopsied, and fulgurated to the level of the bladder wall. A contact roentgen tube is then introduced through the cystotomy wound and brought into contact with the lesion. A dose of 7,668 r is usually given at 50 kv. and 1,278 r per minute. The treatment is generally repeated once or twice by reopening the bladder. By this technic the field of radiation can be localized accurately to the tumor and the shallow penetration (30% of the surface dose at 1 cm. depth) permits a large surface dose while sparing underlying structures. Eleven of 13 patients treated in this manner showed no evidence of tumor 3 to 19 months after treatment.—C. E. D.

The average age of patients with thyroid cancer is 48 years. The ratio of females to males is 5:1. Successful treatment with radiation has been reported over a period of 40 years.

At the Lahey Clinic, radiation treatment is given in all cases following as complete surgical removal of the tumor as is possible. Treatment varies with individual cases but in general a total of 2,000 r is given in 3 to 5 weeks. Treatment is continued if at any time the patient shows signs of recurrence after the initial treatment.


Short distance, low voltage roentgen rays may be delivered at high intensity but give a small depth dose. They are thus suited to the treatment of superficial neoplastic and inflammatory lesions. The authors discuss the physical factors involved in the production and absorption of these rays and cite the indications and contraindications for their clinical use. In general, treatment should be limited to superficial lesions of small or moderate size so situated that cartilage need not be included in the field. Dosage varies from 2,000 to 6,000 r delivered in one or several sittings depending upon the reaction of the area treated. The authors have treated 541 lesions including 228 malignant tumors by this method with satisfactory results. They consider it an efficient and economical means of delivering large quantities of radiation to small volumes of superficial tissue.—C. E. D.


Tracer doses of radioactive phosphorus were administered preoperatively to patients with carcinoma of the breast, osteogenic sarcoma, and lymphosarcoma. Determinations of the radioactivity of tumor tissue removed from 228 patients over a period of 21 treatment days. Difficulty with wound healing was encountered in only one patient even though treatment was generally begun as soon as possible after surgery. The 5-year survival rates on 231 cases so treated were as follows: fetal adenoma 71%, papillary cystadenoma 62%, papillary adenocarcinoma 80%, alveolar adenocarcinoma 27%, small cell carcinoma 22%, giant cell carcinoma 17%, fibrosarcoma (3 cases) 33%. These results indicate the prognostic importance of the histological diagnosis in thyroid tumors.—C. E. D.


Radiologists generally consider mixed tumors of salivary gland origin as radioresistant yet some surgeons still refer cases for treatment. The author has collected 400 examples of such tumors over a period of 25 years. Sixty-one were treated by radium or roentgen rays and a brief case history of each is given. Radiation treatment failed uniformly. It is considered unjustifiable to subject patients to the expense and discomfort of worthless treatments.—C. E. D.


The authors treated 76 brain tumors, 8 pituitary adenomas, and 16 spinal cord tumors with 200 kv. roentgen radiation in doses of 150 r to over 8,000 r. Most of the cases had been referred as being beyond further neurosurgical benefit. The results are reported in terms of survival, not cure, and are considered separately for medulloblastoma, glioblastoma multiforme, pontine tumors, astrocyoma, ependymoma, craniopharyngioma, pituitary adenoma, unclassified tumors, spongioblastoma polare, hemangioblastoma, hemangioma, meningioma, sarcoma, reticulum cell sarcoma, metastatic tumors, and spinal cord tumors. From the data given, results appear to have been the most promising in medulloblastoma, ependymoma, and spinal cord tumors. Clinical improvement or prolongation of life is claimed for those patients submitting to adequate therapy.—C. E. D.
findings in 3 other cases not diagnosed during life are discussed. The roentgenologist may suspect primary carcinoma of the liver when he can demonstrate cirrhosis of the liver (esophageal varices, large spleen with small liver) associated with an abnormal mass in the region of the organ. The demonstration of metastases fortifies the diagnosis.—C. E. D.


Roentgen rays generated at 200 kv. or more deliver a more homogeneous and effective depth dosage than softer rays and are preferred by the author for the treatment of superficial cancer. Six cases are presented illustrative of the satisfactory results obtained with high voltage therapy.—C. E. D.


Slow neutrons in traversing ordinary tissues produce little destructive ionization. However, lithium or boron atoms placed in the path of such a beam result in neutron capture and local release of ionizing energy. The localization of lithium or boron within a tumor would thus result in selective damage to the tumor on exposure to a beam of slow neutrons.

The authors show that certain lithium-containing dyes, injected intravenously, are selectively concentrated in the peripheral portions of experimental mouse tumors. Concentrations of metallic ions were obtained theoretically sufficient to give a 2:1 ratio of energy release in the tumor as compared to normal tissue. The difference in biological effect may be even greater than indicated by the 2:1 ratio, caused by greater density of ionization. Further work is in progress.—C. E. D.

SKIN AND SUBCUTANEOUS TISSUES


Report of 3 typical cases, 2 arising in the interfascial planes of the lower limbs and the third in the pleural cavity.—H. G. W.


Kaposi’s sarcoma of the skin, in the 23 cases described by the author, proved extremely radiosensitive. Radiation was applied to smaller lesions, roentgen radiation being reserved for the more extensive or infiltrative types. Although the disease regressed in all cases, 7 patients subsequently died of intercurrent affections.—M. J. E.


Report of 4 instances of this rare condition, found among 3,600 cases of epithelomas of the skin.—H. G. W.


An analysis of the results of treatment of cancer of the skin and mucous membrane is reported. Since the author is a confirmed believer in the superiority of electrotherapy—either actual cautery or excision—over radiotherapy, destruction of the tumors by the former technic was employed in 71% of the cases. Of 1,131 patients with cancer of the skin 98.7% were cured. Among 92 patients with cancer of the lower lip without palpable metastases, of the 89 who were cured, 46 had been treated by electrotherapeutic methods alone, while the others had received supplementary radiotherapy. The cosmetic results in the irradiated patients appeared inferior. All 31 patients with cancer of the upper lip treated by either method or a combination of both were classified as tumor-free. Electrocoagulation, generally supplemented by radium implantation or roentgen therapy, was employed in 29 cases of cancer of the tongue or oral mucosa without metastatic foci; 19 patients in this group were known to be cured. Six patients with metastases at the time of therapy died. Recurrences appeared likewise to be influenced favorably by electrodesiccation. In all groups the interval following the conclusion of therapy varied from less than 2 to more than 5 years.—M. J. E.

NERVOUS SYSTEM


A case report.—M. J. E.


The tumor was excised from the peritonsillar area.—M. J. E.


A boy of 7 was operated upon for a midline cerebellar medulloblastoma. X-rays 15 months later revealed 2 Cushing silver clips used in the operation, displaced in the spinal canal at the 5th lumbar level; and operation 3 months later disclosed the spinal canal at this level to be filled with tumor tissue.—H. G. W.


This is a case report of a stillborn premature fetus in which there was generalized neoplasia of the sympathetic ganglia, the adrenal glands, and the urinary bladder. Tumor foci were present in the liver. The sympathetic and spinal nerves were hypertrophied. The vagus nerve and the sympathetic ganglia contained cells in all stages of differentiation from sympathogonia to mature ganglion cells. In addition there were irregular bundles of fine fibers presumably derived from the sheath of Schwann. The adrenal glands were the site of a tumor which bridged across the midline connecting the 2 organs; the structure of the tumor tissue was similar to that described...
above. A neurofibroma extended from the umbilicus to the wall of the bladder and was confluent from there to the sigmoid colon and rectum, terminating in the hypogastric plexus. Multiple foci of sympathicoblasts were present within the liver; these were considered to have arisen from the chromaffin cells normally found there.

The "close interrelationship of ganglioneuromas, neuroblastomas and fibromoneuromas and the common identity of the stimulus required for their production" is illustrated in this case.—H. B.


An astrocytoma, completely blocking the nasal orifice of an infant of 13 months, had been present since birth. It was extirpated and had not recurred 10 1/2 months later.—M. J. E.


Forty neuroblastomas were found among 301 malignant tumors histologically verified at the Boston Children's Hospital during the 10 year period ending in 1939. A previous report (Farber, Neuroblastoma, abstract in Am. J. Dis. Child., 60:749-751. 1940) discusses the life history, treatment, and prognosis of these cases. Thirty-four of the patients were studied roentgenologically. Primary tumors were most frequently found in the posterior abdomen but not always in relation to the adrenal medulla. The posterior mediastinum was the next most frequent site. The remainder arose from the sympathetic chain anywhere from the neck to the pelvis. No basis was found for dividing these tumors into Pepper and Hutchinson types. Metastases were widespread, often bilaterally symmetrical, and were found principally in bone. Combined bone destruction and proliferation was present in the majority of lesions, sometimes simulating leukemic infiltration or osteogenic sarcoma. Of the 40 cases, 10 have survived 3 to 8 years and 5 of these received radiation therapy. Radiation therapy, beginning with small doses, is advised in all cases. The prognosis is not hopeless even in the presence of metastases.—C. E. D.

Eye


Two cases are described, in which ocular melanoma appeared secondary to melanotic deposits of many years' duration. The first patient had a malignant tumor of the choroid complicating diffuse melanosis of the sclera, the second a neoplasm of an iris which always had been darkly pigmented. Enucleation was performed in both cases.—M. J. E.


Ocular manifestations, usually the result of infiltration of the base of the skull, were observed in 20 of 64 patients with cancer of the nasopharynx. Palsy resulting from the involvement of the abducens nerve occurred most commonly, while involvement of the oculomotor, trochlear, and optic nerves was less frequent. Exophthalmus appeared rarely. Horner's syndrome developed occasionally in patients with metastases to the cervical lymph nodes.—M. J. E.

Ear


Following a local excision of a Brooke's tumor of the external auditory canal, it was necessary to perform a radical extirpation for a recurrence.—M. J. E.

Breast


Analysis of his own cases and those of other investigators leads the author to the conclusion that, while radiotherapy does little to improve the results of surgical treatment of early mammary cancer, combined methods of treatment or radiotherapy alone elicit a better response from the patients with more advanced tumors.—M. J. E.


A new clinical classification of carcinoma of the breast is proposed. It covers the same major features as other classifications but in greater detail.—C. E. D.


A report on the 10-year end-results of radical operation for cancer of the breast at the Massachusetts General Hospital during the 5-year period, 1927 to 1931 inclusive, the same cases having been previously reported on a 5 year basis. It would appear from this analysis that in cases of cancer of the breast in which the axillary nodes are not diseased, patients living without clinical evidence of cancer at the end of 5 years may be considered as permanent cures, but in patients with positive nodes at the time of the operation, 10% living at the end of 5 years will eventually die of late recurrence.—H. G. W.

Urinary System—Male and Female


Report of the 26th recorded case in an adult of this tumor, which is ordinarily seen only in childhood.—H. G. W.


A case is added to the 53 found in the literature.—H. G. W.
In the first patient, a woman with an adenocarcinoma, the tumor was excised, while in the second, a male with a squamous cell cancer, it was necessary to resort to amputation of the penis. Both patients received radiotherapy after operation.—M. J. E.


Report of 2 cases of this rare combination, both in adult males.—H. G. W.

Oral Cavity and Upper Respiratory Tract


The tumor was removed in 2 stages through a laryngoscope, and the patient was given intense roentgen therapy to each side of the neck. There was no recurrence after 18 months.—M. J. E.


Approximately 1 in 45 malignant laryngeal tumors is not a squamous cell cancer. This report is based on an analysis of 26 of the more unusual types of neoplasms, of which 12 were sarcomas, 8 hemangioendoteliomas, 5 adenocarcinomas, and 1 each a melanoma and a plasma cell myeloma. Although there may be special clinical features characteristic of each type, diagnosis generally awaits histologic examination of the tissues. Sarcoma is likely to be pedunculated and noninfiltrative. Surgery or radium is the effective method of treatment; and 8 of 11 patients with sarcoma were cured, 4 died of a recurrence, and 2 intercurrently without evidence of tumor. Hemangioendotelioma is likewise relatively benign. Hoarseness is the outstanding symptom, and the localized growth may be excised easily with the aid of the laryngoscope. Endoscopic removal was performed in 7 patients, of whom 5 were cured, 1 died of a recurrence, and one of an independent gastric cancer. A similar tumor was discovered postmortem in an infant of 2 months with a history of increasing dyspnea. Adenocarcinoma is more malignant and demands radical surgical measures. Of 5 patients with this tumor, 2 had inoperable growths when examined, 2 developed metastases after operation, and 1 appeared cured. Melanoma also is malignant, and extensive metastases were present in the patient with this tumor. In the case of melanoma the lesion was confined to the larynx, and the patient remained symptom-free 4½ years after laryngoscopic excision of a mass from the aryepiglottic fold. Photomicrographs are reproduced.—M. J. E.


In the case reported, a large tumor was removed surgically.—M. J. E.

Cancer Research


The tumor was excised, while in the second, a male with a squamous cell cancer, it was necessary to resort to amputation of the penis. Both patients received radiotherapy after operation.—M. J. E.


Three of the 5 lesions discussed were neoplastic. While histologically benign or questionably malignant, they possessed the clinical features of malignancy, either because of their location in vital areas, or because of the technical difficulties encountered in removal. In the latter category was a neurofibroma of the pharynx and a myxochondroma of the nasofrontal region. Of the former type was an adamantinoma of the jaw which recurred repeatedly after operation and eventually proved fatal as a result of intracranial extension. Photographs and photomicrographs are reproduced.—M. J. E.

Salivary Glands


Of 58 tumors arising primarily in the salivary glands, 43, or 74%, were mixed tumors, and 15, or 26%, were carcinoma. The age of onset averaged for patients with mixed tumors 31.5 years, and for those with the malignant tumors 52.3 years. Of the mixed tumors operated on in the John Sealy Hospital, only 8.5% recurred, which indicates the need for conservatism in operating on these tumors when they are so located as to cause facial paralysis by operative injury to the facial nerve.—H. G. W.

Intrathoracic Tumors—Lungs—Pleura


Bronchial adenomas form a distinct clinical group of tumors accounting for about 5% of all bronchial neoplasms detected by bronchoscopy. They are the commonest benign tumors of the bronchus. Twenty-two examples are described as occurring in a series of 453 proved cases of bronchial neoplasm. Symptoms and symptoms, physical findings, pathology, prognosis, and treatment are fully discussed, and the cases are compared with those described in the literature.

Evidence is produced to suggest that bronchial adenomas are probably identical in nature with salivary gland tumors. They all show certain histological characteristics, the chief being uniformity of structure and staining properties, a tendency to glandular formation—although only about a third of all bronchial adenomas have the highly differentiated glandular structure which has previously been regarded as typical of these tumors—and absence of unruly growth. Limited infiltration of the bronchial wall has been observed, but metastatic spread is unknown and extension of the tumors is never the cause of death.—A. H.
Eight cases of bronchiogenic carcinoma in association with pulmonary asbestosis have been reported in the literature. The authors describe two additional ones. Data from the ten cases reveal that the patients had had exposures to asbestos dust for from 7 to 25 years; they ranged from 35 to 71 years of age; 7 of them were males. Histologically 7 of the tumors were squamous cell, 2 were oat cell, and 1 was glandular in type.—H. B.


Findings at necropsy have revealed the lungs to be a far more common site of primary malignant growth than has been appreciated previously. Approximately 10% of all primary cancers originate in the lungs. Between 75 and 90% of all primary carcinomas of the lungs are bronchogenic, the remainder being of peripheral origin. The symptomatology and diagnosis of primary carcinoma of the lung is discussed. Under diagnosis are considered: physical signs, bronchoscopic examination, aspiration biopsy, and exploratory thoracotomy. Irradiation and surgical intervention are discussed under treatment. Eight case histories are given in detail.—J. L. M.


A study of 100 cases of carcinoma of the lung in which the nervous system has been examined postmortem revealed 37 with nervous system metastases. The metastases were multiple in 20, and usually less than 1 cm. in diameter. There were 8 metastases of more than 2 cm. In 4 instances deposits were found in the hypothalamus and in 2, the anterior lobe of the hypophysis was involved. The adrenals were involved in more than half the cases, whereas the thyroid was involved but twice. In certain cases the primary growth was so small that it could not be detected by clinical means. In this series the neurological features were predominant in 14.

A roentgenological examination of the chest should be made in all instances in which there is reason to suspect a cerebral or spinal cord neoplasm or in which there is unexplained stupor.—H. G. W.


The chronicologic symptomatology of carcinoma of the lung is definite and knowledge of it is valuable in an early diagnosis. The role of bronchoscopy in making the earliest possible diagnosis, and in supplying the thoracic surgeon with information relative to operability is discussed.

Two cases are presented in which the infection in the lung secondary to obstruction of a bronchus by the carcinoma had led to a clinical diagnosis of abscess and tuberculous until bronchoscopy revealed the presence of a growth in the bronchus, and biopsy done through the bronchoscope had established the diagnosis of carcinoma of the lung.—J. L. M.


An analysis of 56 histologically proved cases, 37 of which were confirmed by necropsy, with a correct antemortem diagnosis in 80%. Men were 88% of the patients. Surgical intervention was unsuccessful in every instance, and radiation therapy was of no benefit. No significant correlation was noted between the histological features and the clinical course.—H. G. W.


A patient was free from symptoms for 18 months following pneumonectomy for cancer of the bronchus.—M. J. E.

HEART


A polypoid growth of the left auricle of the heart is described. The tumor almost completely filled the auricle, and was attached by a thin stalk to the region of the scar of the foramen ovale. The author points out that it is many years since the association of endothelial and myxoid elements in cardiac tumors was first recognized, although later work has tended to lay stress on the latter component. He regards it as probable that some of these tumors at any rate are essentially endotheliomatous, the "myxomatous" process being a secondary change of non-neoplastic nature. That the myxomatous tissue is not very convincingly neoplastic in appearance is shown by the frequency with which various authors have suggested the alternative diagnosis of organized thrombus.—A. H.

LIVER


The last of a series of 4 papers on the geographical distribution of primary cancer of the liver, and on the pathology, clinical features, and etiology of this disease as seen in the Bantu of South Africa (Cancer Research, 1:176-177, 915. 1941), with a valuable bibliography of 123 references. The possible etiological factors considered are:

1. Cirrhosis.—In young Bantu mine laborers in Johannesburg this was found in 10% of East Coast natives, and in 2.5% of South African natives; in the former, primary cancer of the liver is 6 times more frequent than in the latter. Cirrhosis was present in every one of 25 cases of primary liver cancer examined by the author, and in 18 out of 29 cases examined at another hospital. Cirrhosis is less frequent in Europe and America than in
some countries (East Africa, Java) where cancer of the liver is common. Cirrhosis was present in 405 of 555 cases of primary liver carcinoma recorded in the literature.

2. **Parasitic infestation.**—Helminthiasis is frequent among the natives in question. The literature relating to an association between schistosomiasis and liver cancer is reviewed. The ova of *Schistosoma haematobium* were found at autopsy in the bladder in 24 out of 54 cases of primary liver cancer studied by the author; no ova were found in 25 cancerous livers. Distomiasis has not been observed in the Bantu, and no cases of liver cancer in association with hydatid cysts have been recorded in South Africa. Schistosomiasis is very prevalent in Egypt, where primary liver cancer is rare. In Brazil, Davis examined 29,993 human livers, and found in 1,594 of them lesions caused by *S. mansoni* (cirrhosis and pigmentation), but there were no cases of primary cancer. Helminthiasis cannot account for the prevalence of liver cancer in Java and Sumatra (Bonne).

3. **Syphilis.**—The Wassermann test was positive in only 8 out of 36 cases.

4. **Hemochromatosis.**—The liver in every case of liver cancer examined by the author gave a strong hemosiderin reaction, especially in the cirrhotic areas. In South Africa hemochromatosis occurs more frequently than in Europe, and often in Bantu than in whites; in 3 out of 33 cancerous livers, liver cancer was present also. Hemochromatosis is always accompanied by cirrhosis.

5. **Alcohol.**—...all African native races are accustomed to the consumption of alcoholic beverages from early childhood." Fermented preparations of millet (Kaffir Beer) and maize (Marewu) are used. "Kaffir Beer and Marewu are taken all the year round by Bantu men, toed to the consumption of alcoholic beverages from early childhood." Fermented preparations of millet (Kaffir Beer) and maize (Marewu) are used. "Kaffir Beer and Marewu are taken all the year round by Bantu men, women, and children who regard them both as a food and a drink." This early exposure to the effects of alcohol is of interest in relation to the early age at which liver cancer appears. "In the Bantu 82.6 per cent of all cases were forty years of age and under, the highest figure (44.4 per cent) being recorded in the decennium twenty-one to thirty years."

6. The Bantu show a "keloid diathesis" in that considerable connective tissue hyperplasia follows slight superficial wounds; possibly the liver is in some similar way specially reactive to injurious factors (on the proportion of binucleated cells in the Bantu liver see Gillman, South African J. M. Sc., 5:46. 1940).

The data available indicate that the prevalence of liver cancer in the Bantu depends upon a combination of racial and environmental factors.—E. L. K.

**Bone and Bone Marrow**


Report of a case in a woman of 47 who was strikingly benefited, at least temporarily, by surgical intervention.—H. G. W.


Since invasion of the larynx by plasma cell myeloma is unusual, it was assumed that a patient with evidence of a laryngeal tumor had a primary cancer. The correct diagnosis was revealed by a histologic examination of the excised mass, and was further substantiated by the presence of neoplastic cells in the sternal marrow and roentgen evidence of involvement of the skull.—M. J. E.


Arteriography is of importance and practical value in the differential diagnosis of borderline lesions of bone. It will reveal and clearly determine the malignant or benign character of the lesion.—H. G. W.

**Sharpe, W. S., and McDonald, J. R.** [Mayo Clinic, Rochester, Minn.] **REACTION OF BONE TO METASTASIS FROM CARCINOMA OF THE BREAST AND THE PROSTATE. Arch. Path., 33:312-325. 1942.**

Of 219 metastases from breast cancer, 97.3% were osteoclastic, whereas of 66 metastases of cancer of the prostate 97% were osteoplastic, but it was always possible to demonstrate both processes in the same lesion. In the osteoclastic metastases from carcinoma, almost invariably large amounts of fibrous tissue were observed which could be demonstrated to be undergoing transformation into osteoid tissue. Fibrous tissue was seen in smaller quantities in the ossous lesions secondary to cancer of the breast. Cancer of the breast of higher grades of malignancy showed more tendency to metastasize to bone than that of lower grade, but a similar difference could not be detected in prostatic cancer.—H. G. W.

**Wise, I. M.** [Mobile, Ala.] **OSTEITIS FIBROSA CYSTICA. South. Surgeon, 10:819-824. 1941.**

A case report of regression of osteitis fibrosa cystica following extirpation of an adenoma of the parathyroid gland.—M. J. E.

**Blood Vessels**


There have been described 2 groups of vascular neoplasms of the central nervous system: the hemangio- blastomas of the brain substance, which occur most com-
commonly in the cerebellum, and the angioblastic meningiomas, which are hemangiomas of the meninges. The authors show that these are fundamentally the same tumor; namely, a hemangioma in which sclerosis has occurred in much the same way that Wolbach (1913) observed in cutaneous hemangiomas giving rise to "giant celled xanthomas" and "histiocytomas." In those of the central nervous system the stromal elements that are increased in amount consist both of collagenous connective tissue and neuroglia; the latter arise after there has been invasion of the brain substance by the tumor. The vessels are occluded, and hemosiderin and lipid material accumulate within phagocytic cells of endothelial origin producing yellow and brown zones within and around the vascular tumor. These sclerosing hemangiomas can be recognized during surgical procedures by these gross characteristics; removal of some of the adjacent apparently normal brain tissue is then indicated because of the invasive tendency of this type of tumor. —H. B.


An account of a vascular tumor of congenital origin occurring near the macula in a man of 19. Fundus drawings show the appearances before and after x-ray treatment, and the histology of the retina and its vessels is shown in photomicrographs of sections obtained after excision of the eye following intraocular hemorrhage and secondary glaucoma. —A. H.


Report of a case of benign capillary hemangioma of the cuboid and external cuneiform bones and soft tissue in the sole of the foot, in a girl aged 19. —H. G. W.

Leukemia, Lymphosarcoma, Hodgkin's Disease


Methods for the quantitative determination of thiamin and the pyrimidine accelerator of yeast fermentation have been adapted for application to the white cells and erythrocytes of normal individuals. The technics used depend upon the principle that within certain limits both thiamin and the pyrimidine accelerator cause a measurable increase in the rate of alcoholic fermentation by yeast, of a suitable sugar salt-buffer mixture. The thiamin concentration of the leukocytes and platelets is about 10 times that of the erythrocytes, a distribution which probably reflects the respiratory activity of the white blood cells. The total thiamin of the white cells ranged from 49 to 183 gm. per 100 ml. and averaged 99.8 gm. per 100 ml. The total thiamin of the erythrocytes ranged from 37 to 93 gm. per 100 ml. and averaged 54 gm. per 100 ml. The concentrations of the pyrimidine accelerator in the white cells ranged from 11 to 59 gm. per 100 ml. and averaged 32.5 gm. per 100 ml. The pyrimidine accelerator in these instances accounted for from 68 to 64% of the total white cell thiamin measured. In the erythrocytes the pyrimidine accelerator concentrations ranged from 1.3 to 5.0 gm. and averaged 3.0 gm. per 100 ml. The pyrimidine accelerator accounted for from 14 to 30% of the total red cell thiamin.

The white blood cell levels of thiamin reflect the thiamin deficiency and saturation of the body. White cells of different individuals do not differ in their capacity to absorb thiamin, but can absorb only a limited, maximum amount of the vitamin.

In the course of its metabolic activity, thiamin probably is broken down to the pyrimidine accelerator, for the intravenous administration of thiamin is followed consistently by significantly increased concentrations of the pyrimidine accelerator in the white cells and in the urine. —J. L. M.


The total thiamin levels in the leukocytes and platelets of 33 patients with leukemia ranged from 85 to 600 gm. per 100 ml. of cells. The average value was 277 gm. per 100 ml. or about 3 times the normal average. Of the 33 patients 27, or 82%, had white cell total thiamin levels above the highest normal. The levels of the pyrimidine accelerator ranged from 4 to 36 gm. and averaged 21 gm. per 100 ml. Whereas the pyrimidine accelerator constituted from 16.8 to 64.0% of the total thiamin of normal white cells, in the leukemic white cells that substance represents only from 2.0 to 16.5% of the total thiamin.

The total thiamin levels in the erythrocytes of leukemic patients varied from 6 to 60 gm. and averaged 22 gm. per 100 ml., or about twice the normal average level. Of the patients examined, 35% had levels above the highest normal range. In the erythrocytes, however, the concentrations of pyrimidine accelerator form a normal percentage of the total thiamin (8 to 51%).

No correlation was found to exist between the concentration of blood cell total thiamin and the form, severity, or degree of associated leukemia, nor between the concentration and the sex or age of the patient. Patients with leukemia excrete normal amounts of both thiamin and pyrimidine accelerator in the urine.

The probable explanation for the high concentrations of white cell total thiamin is thought to be an impaired utilization of the thiamin, and not an increased ingestion or faulty excretion of the vitamin, nor the apparent youth of the cells involved. Elevated blood cell concentrations of total thiamin have been found in patients with diseases other than leukemia, namely with Hodgkin's disease and cancer of the gastrointestinal tract, but not in patients with portal hepatic cirrhosis. —J. L. M.


A study of 218 cases of lymphosarcoma with microscopic confirmation of the diagnosis, of which 156 received...
Adrenal
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Adrenal cortical tumors may occur with or without hormonal syndromes. The hormonal syndromes may be caused by an excess of androgens, estrogens, or other hormones as yet unidentified. The syndromes are determined by the type and amount of hormone produced and by the sex and age of the patient. The status of the adrenals may be adequately shown by air insufflation x-ray films, and removal of adrenal tumors by the transperitoneal route is best. Acute adrenal deficiency occurs only, or mostly, in those cases showing Cushing's syndrome. The therapy of this acute deficiency is similar to that used in the crisis of Addison's disease. Histologically the tumors that produce the hormonal syndromes may be either nonhormonal or hormonal. The syndromes are correlated fairly well with clinical behavior. The following is an abbreviated form of the classification proposed:

Group I. Low or potential malignancy.
1. Adenoma with blood vessel invasion.
2. Giant cell carcinoma.

Group II. Moderate malignancy.
1. Papillary adenocarcinoma.
2. Alveolar adenocarcinoma.
3. Hürthle cell adenocarcinoma.

Group III. High malignancy.
1. Small cell carcinoma (carcinoma simplex).
2. Giant cell carcinoma.
3. Epidermoid carcinoma.
4. Fibrosarcoma.
5. Lymphoma.

Thyroid


Most cancers of the thyroid originate in adenomas which remain benign for some time and subsequently become malignant. Only a small percentage of adenomas become malignant but surgical removal carries a negligible risk and is strongly urged in all cases. There are no satisfactory clinical signs of malignant degeneration in an adenoma. Among the suggestive signs are: change in consistency, loss of sharp outline, fixation, and voice changes. Cancer arising in lateral aberrant thyroid tissue constitutes a special problem. Tumors in this position may easily be misdiagnosed as metastases and an operable tumor given up as hopeless.

Most cancers of the thyroid are now treated by combined surgical and radiation therapy. The tributary veins and a portion of the internal jugular should be removed with the entire involved lobe of the thyroid. Since lymph node metastasis takes place early and wide block dissection is impossible in the neck, postoperative irradiation is indicated.


The morphological features of thyroid tumors may be correlated fairly well with clinical behavior. The following is an abbreviated form of the classification proposed:

Benign:
1. Adenoma.
2. Papillary cystadenoma.

Malignant:
Group I. Low or potential malignancy.
1. Adenoma with blood vessel invasion.
2. Papillary cyst adenoma with blood vessel invasion.

Group II. Moderate malignancy.
1. Papillary adenocarcinoma.
2. Alveolar adenocarcinoma.
3. Hürthle cell adenocarcinoma.

Group III. High malignancy.
1. Small cell carcinoma (carcinoma simplex).
2. Giant cell carcinoma.
3. Epidermoid carcinoma.
4. Fibrosarcoma.
5. Lymphoma.

Cancer Control and Public Health


The necessity for lay education in achieving a more universal appreciation of the urgency for early treatment of cancer is discussed.

One patient was cured of the symptoms of hyperinsulinism by resection of an islet cell adenoma of the pancreas, which contained hyperplastic islet tissue.—M. J. E.
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