ABSTRACTS

EXPERIMENTAL STUDIES; ANIMAL TUMORS


In mice of strain D pellets containing cholesterol alone produced no tumors. Nor were tumors obtained at the site of implantation of cholesterol pellets containing 0.1 per cent of 1:2:5:6-dibenzanthracene or 1.0 per cent of 3:4-benzpyrene or 0.1 per cent of 20-methylcholanthrene. Among 10 mice, however, which had received pellets containing 0.001 per cent of this last hydrocarbon, hemangiomas developed in two and a hemangiomatous lesion in one. For the regular production of sarcomas in mice in tissues contiguous to the pellets concentrations somewhat higher than 1.0 per cent were usually required.


No indication of a significant difference in the response to 3:4-benzpyrene was observed as the result of variation of the vitamin A content of the diet.

Studies in Carcinogenesis. XI. Development of Skin Tumors in Mice Painted with 3:4-Benzpyrene and Creosote Oil Fractions, S. Cabot, N. Shear, and M. J. Shear. Am. J. Path. 16: 301–312, 1940.

It has been known for a long time that the higher boiling fractions and residuals from coal-tar which contain anthracene and related substances are strikingly irritating to the skin of workmen exposed to these fractions alone. Since the low-boiling products cause no appreciable irritation, experiments were undertaken to ascertain whether these latter could exert an inhibiting effect on the production of skin tumors in mice painted with 3:4-benzpyrene. Market mice were painted with benzene solutions containing various fractions of creosote oil together with 0.2 and 0.05 per cent, respectively, of 3:4-benzpyrene. Controls were painted with 0.2 and 0.05 per cent benzpyrene solutions without the addition of the creosote oil fractions. Four of the test solutions used showed a retarding effect on tumor production, but in three of these the retardation may have been due to damage to the skin. The phenolic fraction in the concentration of 6.6 per cent exhibited a retarding effect which was not due to obvious skin injury. Three of the test solutions exhibited a promoting effect. The basic fraction in a concentration of 1 per cent exhibited an accelerating effect at both benzpyrene levels.


The author studied the effect of certain hydrocarbons on fibroblasts from the connective tissue of mouse embryos cultivated in vitro. More than 1700 cultures were observed for outgrowth, chromosome changes, and mitotic counts. 20-Methylcholanthrene choleic acid in a concentration of 0.001 mg. per c.c. (equivalent to 0.00015 mg. of methylcholanthrene per c.c.) and 1:2:5:6-dibenzanthracene choleic acid in a concentration of 0.01 mg. per c.c. (equivalent to 0.0015 mg. of dibenzanthracene per c.c.) caused a significant increase in cell proliferation (determined by mitotic counts and measurements of outgrowth) as compared with untreated controls. The use of these carcinogenic compounds in a tenfold or greater concentration caused a retardation of cell growth.
Desoxycholic acid (0.01 mg. per c.c.), the non-carcinogenic choleic acids of phenanthrene (0.01 and 0.1 mg. per c.c.) and of acenaphthene (0.001, 0.01 and 0.1 mg. per c.c.) were found to produce a decrease in cell proliferation.

A precocious separation of the chromosomes in the prophase and metaphase was observed only in cultures treated with choleic acids of methylcholanthrene and dibenzanthracene. A much greater degree of contraction and scattering of the chromosomes was noticed in cultures containing acenaphthene choleic acid.

Drawings and photomicrographs are included and there is a bibliography.


The authors review the literature dealing with the effect of light on tumor production by tar and benzpyrene and record observations of their own from which they reach the following conclusions:

1. Light is not essential for the production of tumors of the skin in mice by benzpyrene and cholangthrene.

2. The effect of darkness upon the skin of mice painted by benzpyrene is to reduce dermatitis to a minimum. There is no inhibition of tumor production or of increased hair growth.

3. The effect of strong sunlight upon the skin of mice coincidently painted by benzpyrene is to increase dermatitis and to reduce tumor production.

4. The inhibiting effect of strong sunlight upon the production of tumors of the skin in mice by benzpyrene may be associated with the photodynamic (light-sensitizing) property of the hydrocarbon.

5. Dark-colored benzpyrene manufactured without any precautions to prevent photo-oxidation appears to be slightly more carcinogenic to the skin of mice than pale benzpyrene purified in the dark.

References are appended.


Mottram and Doniach (Lancet 1: 1156, 1938, and Brit. J. Exper. Path. 20: 227, 1939. Absts. in Am. J. Cancer 35: 280, 1939; 38: 280, 1940) have shown that many carcinogenic hydrocarbons have a photodynamic effect upon Paramecia and upon the skin of mice. Under similar experimental conditions these hydrocarbons did not cause photodynamic hemolysis of erythrocytes.

By using a different method of preparing the colloidal solutions of the hydrocarbons and employing a longer exposure, Wolman has succeeded in obtaining photodynamic hemolysis with 3:4-benzpyrene, 1:2:5:6-dibenzanthracene, and methylcholangthrene. Of four non-carcinogenic hydrocarbons, 1:4-diphenylanthracene, 9:10-diphenylanthracene, 1:4:9:10-tetraphenylanthracene, and chrysene, which have been tried, not one showed any photodynamic activity.

A. F. Watson


Atypical epithelial growth of the endometrium was induced in the castrated guinea-pig by as little as 4.5 μg. of estradiol when the latter was administered in the form of certain esters (monocaprylate and 17-benzoate-3-n-butylate) in doses of 0.1 μg. over a period of three and a half months. These changes became more apparent with a total of 37 to 42 μg. of the different esters given in doses of 1 μg. over a period of three months. It is suggested that the tumor-producing action of estradiol on the uterine epithelium may depend on a stable folliculinemia, which evidently is easily maintained by injecting estradiol in an esterified form.

Photomicrographs show the changes following various doses. References are included.

Injections of gonadotropic hormones increased the takes of transplanted mammary fibroadenoma in castrated female rats and in castrated and normal males but decreased the takes in normal females. The majority of the implanted tumors in normal male and female rats injected with gonadotropic hormones remained fibroadenomata (83 per cent), while in castrates most of the tumors became fibromata (66 per cent). Growth hormones did not influence the number of tumor takes, the rate of tumor growth or the morphology of transplanted fibroadenomata in male or female castrates, but when female sex hormone was given in addition, the tumor incidence was more than doubled.

Estrogenic hormones alone, in small doses, were also without effect on transplanted tumor growth and morphology in male and female castrates but large doses hastened the production of liposarcomata in castrate males. Combined injection of estrogenic and gonadotropic hormones increased the growth incidence in female castrates from 16 per cent to 60 per cent; in male castrates from 54 per cent to 100 per cent.


Injections of testosterone propionate caused a reduction in the number of takes of transplanted mammary fibroadenomata in normal and castrated rats of both sexes. The alteration of transplanted fibroadenomata to fibromata and sarcomata increased to 38.5 and 45.7 per cent respectively in the injected rats as compared with 26 per cent and 14 per cent in the controls. The injected hormone in females inhibited the growth of the glandular component in the transplanted fibroadenomata except during pregnancy.

Photographs of treated and untreated animals are included and references are appended.


Bischoff and Long kept mice inoculated with sarcoma 180 under conditions by which the body temperature was reduced below 20°C for seven-hour periods on five successive days or for a continuous twenty-four-hour period. No permanent effect upon the growth process was noted. A temporary growth retardation, of the same order as that produced by caloric restriction, was indicated.


The growth rate of a transplantable rat sarcoma was not influenced by exposure of the neoplasm, in vitro prior to implantation or in vivo fifteen to twenty days after transplantation, to 2 to 30 per cent of the lethal dose (1300 r hard rays, 3500 r soft rays) of roentgen radiation.


The authors found that the regression of transplanted fragments of spontaneous tumors in mice is accompanied by an acute inflammatory reaction in which blood granulocytes predominate. The suggestion is offered that the destruction of the tumor cells is due, in part, to the liberation of proteolytic enzymes by the disintegration of the granulocytes.

Photomicrographs of transplants at various stages and of corresponding tissue cultures are reproduced. References are appended.


A saline suspension of a small highly cornified papilloma of the eyelid from a man of seventy-six years was injected into the eyes of 3 monkeys. In each instance a tumor
arose at the inoculation site. Attempts to transmit one of the tumors to other monkeys were unsuccessful. Serial sections of the remaining two tumors showed a common derivation from the conjunctival epithelium though the structural details differed. The authors believe that their results are highly suggestive of the presence of an infectious agent, possibly a virus, in human papilloma. Photomicrographs and references are included.


In experiments on dogs the author evoked ossification in one instance by producing a fracture of the tibia and in the other by transplanting pieces of bladder mucosa into the rectus muscle. In both instances cartilage was formed in association with bone and a picture strikingly resembling a growing epiphyseal plate was produced. From these observations it is concluded that where ever cartilage and bone, however formed, are growing together, a mutual polarity may result, which if true would adequately explain the epiphysis-like architecture of cartilaginous exostoses. Photomicrographs are included.

**Coenzyme Concentration of Tissues, F. Bernheim and A. V. Felsovanyi.** Science 91: 76, 1940.

The authors have used Kohn’s method (Biochem. J. 32: 2075, 1938) to measure the coenzymes I and II in Walker carcinoma 256 as compared with normal liver, kidney, spleen, and muscle of the white rat. At birth the coenzyme values are low in the normal tissues, rising rapidly and reaching the adult range in about a week. Coenzyme values of the tumor are about one-sixth those of normal adult rat tissues and about the same as in embryonic rat liver.


Bierich and Lang (Biochem. Ztschr. 284: 443, 1936) have shown that the tryptophane content of the albumin II fraction of the serum is lower in cancer patients than in those who are not suffering from malignant disease. The decrease was ascribed by Lang to capture of tryptophane by the neoplasm (Ztschr. f. Krebsforsch. 48: 29, 1938. Abst. in Am. J. Cancer 38: 287, 1940).

If this view holds universally, says Rosenbohm, rats with transplanted tumors, which in proportion to blood volume average at least ten to thirty times the size of neoplasms in man, should have a correspondingly low serum tryptophane figure. To his surprise, however, he found a rise in the case of all three propagable tumors examined—the Jensen sarcoma, the Flexner-Jobling carcinoma, and a Walker carcinoma. This increase is explained by the assumption that products of protein degeneration which are rich in tryptophane are released by necrosis in the tumor. Wm. H. Woglom


The author was able to demonstrate lipoid antigen-antibody reactions similar to the Hirsfeld-Halber reaction in certain mouse tumors. The tumors examined appear to fall into three groups. In the first group, comprising sarcoma 37, tar carcinoma 2146, and the Mal sarcoma, antigen is present in large amount in the tumor and antibody appears in the sera of tumor-bearing animals. In the second group, comprising adeno-carcinoma 91, Crocker sarcoma 180, and the Harding-Passey melanoma, no antigen can be demonstrated in alcoholic extracts of the tumor but nevertheless antibody sometimes appears in the serum. A third group is represented by mammary carcinoma 63 and the spontaneous breast tumors, in which no antigen can be found in the tumor and no antibody appears in the serum.
The phenomena observed are discussed in relation to the similar observations which have been made in human cancer.

A bibliography is appended.


Beck and Krantz report a study of the effect of repeated applications of ultrasonic vibrations on Walker rat sarcoma 319. The vibrations were found to penetrate the epidermis and connective tissue and pass for a limited distance into the solid tumor tissue which probably absorbs the vibrations with the production of heat. The effect of repeated two-minute irradiation periods on the tumor suggests a slightly stimulated glycolysis. Some growth inhibition is also suggested. References are furnished.


The Wistar Institute maintains two colonies of albino rats, the Experimental Colony strain and the Wistar Stock Colony, from which animals are supplied to other laboratories. Of 468 animals selected for examination, 273 were tumor-bearers. Of the Experimental Colony strain 244 and of the Wistar Stock Colony 29 had tumors. These have been studied microscopically and classified according to their source of origin and type. Most of the animals were approximately two years old.

Growth were found in the skin, vagina, uterus, ovaries, testes, kidneys, digestive tract, mediastinum, thymus, lymphoid tissues in general, adrenals, bones, and mammary glands. Mammary tumors were most abundant. The only tumors of the digestive tract were an adamantinoma, a fibroma of the serosa of the small intestine, and a carcinoma of the salivary gland in a female of the Wistar Stock Colony. On the whole the incidence of neoplasms is approximately that given by Curtis, Bullock, and Dunning in a much larger series of animals (Am. J. Cancer 15: 67, 1931). The frequency of the occurrence of tumors in the Wistar series was 3.1 per cent for all animals, 5.7 for females and 1 per cent for males.

The material is analyzed to show age distribution and type of tumors for the colony groups. Four photomicrographs are reproduced of tumors of the mammary gland: two are fibroadenomata, one is a carcinoma of the glandular type, the other a carcinoma of the breast of the squamous type. A bibliography is appended.

**NORMAL AND NEOPLASTIC CELLS**

**Particulate Components of Normal and Tumor Cells**, A. Claude. Science 91: 77-78, 1940.

Further study of the small granules of uniform chemical composition obtained by differential centrifugation of finely ground cell material showed that the particulate elements present in normal and tumor tissue have the general constitution of a phospholipid-ribonucleoprotein complex. There is some reason to believe that these purified fractions may be composed of mitochondria or their fragments.


This paper, from Bierich's laboratory, describes briefly the finding of at least 13.6 per cent of d(-)glutamic acid in pooled liver metastases from carcinoma in various organs of the human subject, collected during the course of other investigations. The work of Kügl and Erxleben (Ztschr. f. physiol. Chem. 258: 57, 1939. Abst. in Am. J.
Cancer 38: 116, 1940) is thus confirmed by this investigator, though several recent papers report no evidence of the presence of a racemic glutamic acid in cancer digests (see Absts. in Am. J. Cancer 39: 120, 266, 1940).

Wm. H. Woglom


In a critical review of the sixteenth annual report of the British Empire Cancer Campaign, E. Boyland (Nature 145: 246, 1940) comments on the following statement from the report of the Royal Victoria Infirmary, Newcastle-on-Tyne: "There appear at the present time to be two main points in which the metabolism of cancer differs from that of most normal tissues. First the ability of cancer cells to form lactic acid persists even when the tissue is respiring, secondly cancer tissue has a respiratory quotient indicating that the oxidation of carbohydrate is abnormal." This Boyland considers to be misleading. He points out that, since Warburg showed that slices of malignant tissue produced lactic acid from glucose in the presence of oxygen, other tissues, as retina, smooth muscle, striped muscle, liver, cartilage, bone marrow, lymph nodes, kidney medulla, and skin have also been shown to glycolyze aerobically. It is therefore impossible to consider this characteristic as peculiar to tumors. Neither is a lowered respiratory quotient specifically characteristic of malignant tissues.

F. Dickens of Newcastle-on-Tyne, in a letter published in a later number of Nature, maintains that, far from being misleading, the criticized statement is clear and correct. Although the association of a lowered respiratory quotient with a strong aerobic glycolysis is not specific to tumor metabolism, such an association in normal tissues is exceptional enough for it to be considered the most characteristic biochemical feature of cancer.

In a reply to this letter Boyland says that a statement from the 1936 Newcastle report—"Aerobic glycolysis is not specific for tumours, although practically all tumours have strong aerobic glycolysis"—represents the position more accurately than the statement criticized in his review.

In continuation of the controversy, Berenblum, Chain and Heatley of Oxford submit evidence from their own observations and from work recorded in the literature on the glycolysis of normal mucous membrane and fibroblasts, which in their opinion shows that when a tumor is compared with the tissue from which it is derived, there are no essential differences between the carbohydrate metabolism of the two. Dickens and Weil-Malherbe, however, consider that evidence either for or against this view is inconclusive. Only two examples (the hepatoma and the transformation of the skin epithelium into the Shope papilloma) where a strict comparison is possible are known. In these cases the information available is too doubtful to permit of any general conclusion as to the occurrence of an alteration in metabolism in the development of cancer.

A. F. Watson

GENERAL CLINICAL OBSERVATIONS


A report of a synovial tumor of the foot thought to be of bursal origin. The patient was alive a year after operation and recurrence was believed to be unlikely. The literature is reviewed, references are furnished and photomicrographs are reproduced.

Radiologic Study of Two Cases of Angioma of Muscle, M. Cace. Su due casi di angioma muscolare (Studio radiologico), Arch. di radiol. 14: 409-414, 1939.

Angioma in the gastrocnemius muscle in a thirteen-year-old child and on the posterior aspect of the elbow joint in a man of thirty-five years produced in roentgenograms shadows of variable density clearly distinguishable from the surrounding mass of muscular tissue. The growth in the first patient, which had been present since birth, had
given rise to reactive periosteal and intramedullary bone proliferation in the upper two-thirds of the fibula. The second patient had been cognizant of the mass since adolescence. Both tumors were excised and the diagnosis was verified histologically. Roentgenograms are reproduced.

MILTON J. EISEN

RADIOThERAPY


As a biological material for the study of radiation effects, the authors used hanging drop tissue preparations made from the choroid and sclerotic of chick embryo grown in fowl plasma and embryo extracts. Before irradiation these were examined and classified in pairs of approximately equal mitotic activity, one to be exposed and the other to be used as a control. After irradiation they were returned to the incubator for eighty minutes, then fixed in acetic alcohol, and stained with hematoxylin. The mitotic figures were counted in the fixed and stained specimens and the count in each exposed culture was divided by the count in the corresponding control, the ratio being plotted as the percentage against the duration of exposure. Roentgen irradiation was at approximately 60 kv., 160 kv., and 180 kv. The r per minute intensity was about the same with the 180 kv. and the 60 kv. roentgen rays, whereas the rate was about four times this with the medium roentgen rays and with radium. The effects of the three types of x-ray employed were not significantly different as revealed by the mitotic count, but gamma rays were markedly less effective, by a factor of about 2 : 1.

[Lasnitzki and Lea assume a dosage rate of 8.3 r per hour from 1 mg. of radium, filtered with 0.5 mm. platinum, at 1 cm. distance. Exner and Packard, however, have shown, in a paper with which these authors do not seem to be familiar (Radiology 25: 391, 1935) that, measured on Drosophila eggs, the dosage rate is only about 5.5 r per hour. The difficulties of measuring radium dosage in roentgens are well known. Perhaps the simplest way out of this impasse is to assume that the physical measurements are not correct and that the biological readings are, for Packard and Exner have found that the effect of x-rays, which can be fairly accurately measured in the higher voltages, is the same per roentgen from 12 kv. to about 900 kv. As radium is only about 1,000 kv., there is no reason for a sharp drop in the effect, and it is better to assume that the biological material measures the output more accurately than does the physical.—Ed.]


The author gives an outline of the methods of radiotherapy employed in the Tumor Clinic of Modena, with incomplete results in a small number of cases observed for less than a year. The Coutard technic is regarded as preferable.

MILTON J. EISEN

THE SKIN


The first essential for the proper management of skin cancer is accurate diagnosis. This is frequently impossible without biopsy. In early stages the border line between benign and malignant lesions cannot be determined, and in later stages the important distinction between rodent ulcer and epidermoid carcinomas cannot be made with certainty. Even less accurately can the histologic type be predicted or mixed or rare forms of malignant growth be identified. As to treatment, the method is believed by the authors to be of less importance than the skill and thoroughness of its application. Excision should include a wide margin of adjacent tissue, and for irradiation ample dosage and adequate fields are necessary. The quality of the radiation is of little or no
importance. High intensity and uniformity of tissue dose are essential. The final factor necessary for permanent results is a conscientious follow-up. Photographs and references are included.


The author reports the results of radium treatment of carcinoma of the skin and lips in all stages. Superficial lesions received contact therapy; otherwise moulages and needles were utilized. A single treatment was given of 72 hours' duration for tumors of the eyelid and of 120 hours for growths in other localizations, the amount of radium depending on the extent of involvement [exact dosages are not mentioned]. In cancer of the lips, the implantation of radium needles in the primary growth should be followed by surgical removal of the lymph nodes, which may be omitted only in cases of superficial cancer of the lower lip and in cancer of the upper lip. The three-year and five-year results in individual patients are reported in four tables.

F. Burgheim


The various types of cutaneous cancer are briefly described, and some general remarks on treatment are added.


In this report from Uganda, Central Africa, the authors describe the occurrence of xeroderma pigmentosum in three of a family of five Negro children. There was an associated keratitis in all three boys and the two older were blind and had also tumors of the tongue. The cases were of special interest for the close similarity in the sequence of events, the skin lesions, eye changes, and lingual tumor appearing in the same order and at the same ages in the two older boys. The youngest child had not yet reached the age at which his brothers developed tumors but the course was otherwise similar.

THE EYE


This report is based on a series of 188 uveal sarcomas studied microscopically. Of these, 164 or 88 per cent involved the choroid alone. There were in addition 2 choroid tumors with extension to the ciliary body, 4 sarcomas of the ciliary body, 9 of the ciliary body and iris, and 9 of the iris alone.

Of the choroid tumors, 86 were in the posterior segment, 33 in the anterior segment, and 27 in the equatorial segment; 8 occupied the whole globe, 8 half the globe, and in 4 the exact site was unknown. One hundred and twenty-seven of the choroid tumors were known to be pigmented. Round-cell, spindle-cell, and mixed round-cell and spindle-cell types were observed. Retinal detachment occurred in 127 of the 166 cases; glaucoma in 82 cases; extra-ocular extension, as evidenced by extension along the perforating vessels, was observed in 60 cases.

References are included.


An analysis was made of 55 cases of intraocular sarcoma—47 sarcomas of the choroid and 8 of the ciliary body—from the point of view of intraocular tension. In 9 eyes a secondary glaucoma was present. Omitting these from consideration, it was found that the tension of the affected eye was lower than that of the sound eye in 63 per cent of the cases (29 of 46); the intraocular tension of the two eyes was equal in 11 cases, or 24 per cent, and was higher on the affected side in 13 per cent. The amount of lowering of tension in the affected eye averaged 5 mm. mercury. References are included.

A boy of fifteen, blind in the right eye since the age of five and with failing vision in the left eye since the age of eleven, was found by ophthalmoscopic examination to have angiomatosis retinae. While a majority of observers concurred in this diagnosis, it was thought advisable to enucleate the blind eye to exclude any possibility of malignant disease. Examination of the enucleated eye showed the characteristic picture of angiomatosis—large cyst-like dilatations lined by endothelium and many newly formed blood vessels, as well as late secondary changes, including exudation, retinal detachment, and cataractous changes. Four photomicrographs and seven references are included.


A report of a case. The bilateral subconjunctival tumors were removed and found to consist solely of fatty tissue.


The overlying bone is said to be involved in about 25 per cent of meningiomas, such involvement being especially frequent when the tumor is of the flat or en plaque variety. Two cases are here recorded in which thickening of the bony wall of the orbit was associated with meningiomas of the sphenoid ridge and sylvian cleft. Photomicrographs of one of the tumors are included. References are furnished.

THE EAR


The clinical history of the case here reported covered a period of seven years. It may be summarized as follows:

1927. Mastoidectomy at age of five. No mention of tumor.
1931. Excision of helix and antihelix, above the cymba for recurrent tumor. Diagnosis: Fibrochondrosarcoma.
May 1932. Resection of ear, except lobe, for recurrence. Diagnosis: Myxochondrosarcoma.
December 1932. Radical operation for recurrence including wide and deep excision of all tissue about the right ear, complete removal of all ear cartilage, and a radical mastoid operation. Diagnosis: Myxofibrosarcoma.

The late result is not mentioned. A photograph of the patient is the only illustration.

THE ORAL CAVITY AND UPPER RESPIRATORY TRACT


In 1937 (Hospitalstid. 80: Dansk. radiol. selsk. forh. 26, 1937. Abst. in Am. J. Cancer 37: 130, 1939) Juul reported on 121 cases of carcinoma of the hypopharynx, rhinopharynx, tonsil, base of the tongue, and larynx, treated between 1931 and 1934. This report is similar except that 30 cases seen in 1935 are added. Forty-one of the patients, or 27 per cent, remained apparently cured in 1937. Treatment was by protracted fractional roentgen therapy, as previously described by the author (Acta Radiol. 17: 209, 1936. Abst. in Am. J. Cancer 33: 298, 1938), supplemented in 3 cases
of tonsillar carcinoma by radium and in one by electrosurgery. Of 26 patients treated five years before the report, 6 or 23 per cent were cured.

The author discusses especially the necessity of increased dosage with prolongation of treatment. For each additional day the dosage must be increased by about 90 r. Thus a dose of 6000 r in twenty days corresponds to a dose of 6900 r in thirty days, 7800 r in forty days, etc. A cure was obtained only in exceptional cases with doses of less than 4900 r in twenty days, 5800 in thirty, 6700 in forty, 7600 in fifty, or 8500 r in sixty days. When treatment is limited to three or four weeks an adequate dosage for a tumor of medium radiosensitivity will produce an exudative dermatitis or epithelitis. By extending the treatment over a longer period than four weeks it will, as a rule, be possible to avoid exudative epidermitis, and by extending it over a still longer period the epithelitis also may be avoided.


The author reports a series of 92 cases of cancer of the hypopharynx treated for the most part with fractional roentgen irradiation. A left and a right neck field received a dose of 1650 r each within twelve to fifteen days, according to the general condition of the patient. In a few instances in which the primary tumor was easily accessible, it was treated with 1200 mg. hours of radium element and only the lymph nodes were treated by roentgen rays. After three years 12 per cent and after five years 10 per cent of the patients were alive. Many, however, had such advanced lesions that a full course of treatment could not be given. Of those who received a full series of irradiations, 20 per cent were alive after three years and 17 per cent after five years.

F. Burgheim


The author found in the literature 27 examples of osteoma of the maxillary antrum. He presents brief abstracts of these and adds 2 further cases. In one of the latter the tumor was well differentiated and of adult type, without evidence of osteoclastic or osteoblastic activity. The other tumor was of the young type showing occasional osteoclasts and moderate osteoblastic activity.

These tumors have been said to occur more frequently in males, but a review of the collected cases does not bear this out. The average age is twenty-nine years. Taking into consideration the fact that the tumors often grow for many years before symptoms arise, even the few older patients reported may come under the age of development of the facial bones.

Treatment is surgical. In 22 of the reported cases operation was done with 2 postoperative deaths (8.7 per cent). Two of the patients not operated on died as a result of extension of the tumor. There was a history of trauma in 20 per cent of the cases, including one of the author's; in 28 per cent sinus infection had occurred.

Two roentgenograms and two photomicrographs are reproduced. A bibliography of 67 items is included.


Following a general review the author records 2 examples of chordoma of the sphenoccipital region involving the nasopharyngeal passages. In one case the histologic diagnosis was made by biopsy and in the other at autopsy. It is stated that 52 cases of sphenoccipital chordoma have been recorded, but the author believes this is not representative of the true incidence. In none of the reported cases has there been evidence of metastasis. Two photomicrographs and a roentgenogram are included. The bibliography is brief but contains a reference to Mabrey (Am. J. Cancer 25: 501, 1935), who furnishes a long list of references.

According to the authors, the results of irradiation are at the present time so erratic and unpredictable that whenever the diagnosis of laryngeal cancer has been established from the history, examination, and biopsy, and the growth is still localized and can be safely removed, operation should not be postponed. They describe and illustrate with a series of drawings a one-stage procedure for total laryngectomy, which is indicated when the anterior commissure is involved or the vocal cord is fixed.


The literature on papilloma of the tonsils is briefly reviewed and 3 examples are recorded. Three photomicrographs and a bibliography are included.

THE BREAST


An analysis of 196 cases of mammary carcinoma representing a cross-section of a much larger group seen over a period of eleven years at the Lahey Clinic adds to the accumulated evidence that the most important single factor in the treatment of this disease is early recognition and prompt operation. To this end, every breast tumor, regardless of the patient's age, should be excised for microscopic study.

In the series recorded here simple mastectomy was done in 34 cases in which a more radical procedure was contraindicated. Radical mastectomy was done in 162 patients, including 6 with bilateral lesions. There were 6 operative deaths, 10 patients died of intercurrent disease within three years, 12 were not followed, and 17 were operated upon less than three years before the report; 82 patients died from recurrence and 69, or 35.4 per cent of the total, survived three years or more. There were 34 five-year survivals, or 17 per cent, and 14 seven-year survivals.

From their results the authors conclude that patients without lymph node involvement have a 31.9 per cent greater chance of survival than those in whom the nodes are involved. This points, further, to the importance of the position of the tumor in prognosis, since 73.4 per cent of the growths with node involvement were in the upper outer quadrant. The fact that 43.7 per cent of those living three years and 50 per cent of those living five years had node metastases indicates the importance of carefully cleaning out the axilla in all cases and of not refusing to operate because of the presence of palpable nodes.

The authors are now using postoperative roentgen therapy but are not yet prepared to express their opinion as to the effect on the survival rate.

INTRATHORACIC TUMORS


From 1875 to 1914 the records of the Massachusetts General Hospital show only 45 cases of pulmonary cancer. In the single year 1936 there were studied 62 and in the following year 51 examples. The present report is based on 158 cases proved histologically. The clinical and microscopic features were those usually observed. The author states that the follow-up is not complete, but reports that 105 patients are known to be dead. The average duration of life for those with epidermoid or squamous-cell carcinoma was 9.6 months, for those with adenocarcinoma 7.5 months, and for those with the oat-cell or undifferentiated type of carcinoma, previously often confused with sarcoma, 5.6 months. In a fourth group reported as carcinoma but not otherwise classified, the average survival was 12.6 months. Roentgen irradiation is of little avail in these cases, offering no hope of cure and only slight prolongation of life. Surgical
resection may be useful in selected cases. It was tried in 18 of the present series. Thirteen of these patients died either as a result of operation or from extension of the disease. Three of those still alive were apparently well after two or three years.


A man of sixty-two had a bronchiogenic carcinoma diagnosed by bronchoscopic biopsy. Autopsy showed metastases involving the entire myocardium and pericardium, as well as secondary nodules in the liver. In spite of the extensive involvement of the heart there had been little clinical evidence of cardiac disease.


A man of forty-three was admitted to the hospital with evidence of profound cardiac failure. At autopsy this was found to be due to a hemopericardium secondary to an adenocarcinoma of the right upper bronchus which had surrounded and invaded the right and left innominate veins with consequent oozing into the pericardial sac.


The author enumerates the types of malignant and benign neoplastic growth in the mediastinum and discusses in a few paragraphs the symptoms and diagnosis of such lesions.

**THE DIGESTIVE TRACT**


Sixty-two cases of primary esophageal carcinoma seen at the Lahey Clinic prior to 1938 constitute the basis for this paper. The series included 36 men and 26 women, ranging in age from thirty to seventy-six years. In 17 cases the lesion was in the upper third of the esophagus, in 21 in the middle third and in 19 in the lower third; in 5 cases the exact location between the middle and lower third was not stated.

The first evidence of the disease is usually some disturbance in swallowing, and this should always lead to roentgen examination and esophagoscopy, which are the only means of early diagnosis. The prognosis is in general unfavorable, though the number of cures recorded in the literature is increasing. One of the author's series with a cervical esophageal carcinoma was treated by radical resection and was alive at the time of the report four years and seven months after operation. Details of the operative procedure are given. Four other patients submitted to radical surgery died soon after operation. Roentgenograms illustrate this report.


This report, like that of Hoover (see preceding abstract), comes from the Lahey Clinic. The patient was a man of forty-six with an adenocarcinoma obstructing the lower end of the esophagus. The diagnosis was made by roentgen examination and esophagoscopy. The lower portion of the esophagus was resected together with the upper third of the stomach, followed by anastomosis of the remaining part of the esophagus with the anterior wall of the stomach, the latter organ having been partly pulled up into the thoracic cavity. The patient was alive seven months later. Though no recurrence could be demonstrated, this was believed to be likely as metastases were present in the lymph nodes at the time of operation. Drawings illustrate the operative procedure and a roentgenogram shows the result.

In the case here recorded the chief complaint was severe dyspnea, which was found post mortem to be due to compression of the trachea by a mediastinal metastasis from an esophageal carcinoma.


A review is made of 132 cases of gastric carcinoma and the observations are compared with other published series. Over three fourths of the patients were between the ages of forty and seventy. The outstanding symptoms were loss of weight, epigastric pain, vomiting, flatulence and anorexia. A palpable mass was present in 45 per cent; 81 per cent showed absence of free hydrochloric acid. In all occult blood was present in the gastric contents and stools. Roentgen studies were made in 93 cases and in 82 per cent of these led to a diagnosis of carcinoma. In more than half the patients the lesion was at the pylorus, the next most common site being the lesser curvature.

Forty-four patients were operated upon, but only 4 of these lived as long as a year. Thirty-six autopsies were done, confirming the diagnosis of carcinoma. In 12 there were metastases to the regional lymph nodes and an equal number showed involvement of the liver. Five patients had metastatic deposits on the omentum, 4 in the peritoneum, 2 each in the pleura and spleen, and 1 each in the esophagus, mediastinum, brain, pancreas, and renal vein. In 10 cases no metastases were discovered.

Five references are appended.


The author makes a plea for a thorough clinical study, roentgen examination, and exploration in patients with mild digestive disturbances. From 1918 to 1937 he measured all resected gastric carcinomas and found in that period an increasing number of small, presumably early lesions. Altogether 128 cancers measuring not more than 2.5 cm. in diameter were found among 1978 specimens. None of the patients showed the usual text-book symptoms of carcinoma; gastric acidity tended to be high, and in the majority the hemoglobin percentage was normal.

Treatment is not discussed. In the ensuing discussion, however, reference is made to an earlier paper (J. Cancer Research 12: 1, 1928) in which results are quoted. Photographs and photomicrographs are included.


A general discussion of the difficulties of diagnosis of gastric carcinoma.


The most important single factor influencing operability in gastric carcinoma is early diagnosis. In advanced lesions the presence of metastases must be taken into consideration. Metastases to the supraclavicular gland are readily palpable and are evidence of widespread dissemination rendering operation useless. The presence of multiple tumors or of fluid in the peritoneal cavity is a contraindication to surgery, and so, in general, is a fixed mass in the abdomen. Size of the tumor is not necessarily a factor in operability, and the roentgen picture is not usually decisive except in correlation with the clinical findings.

Operative exploration may be necessary. In a series of 291 cases from the Lahey Clinic, 173 were operated upon but in only 76, or 26 per cent of the total, was the tumor found to be resectable.

For radical resection of the tumor the author employs the Hofmeister modification of the Polya operation, the technic of which is described and illustrated by drawings. Figures on cures are not given.

According to the author's own admission there is nothing new or original in this paper, the sole justification for its publication being the hope that it may serve to focus the attention of some reader on the subject of cancer of the stomach.


Carcinoma of the cardiac end of the stomach presents a special diagnostic and therapeutic problem. As in gastric carcinoma in general, the first complaint is usually "indigestion." When the lesion is situated at or near the esophageal orifice dysphagia is a frequent symptom. It was the chief complaint, on admission, in 13 of a series of 28 cases reviewed by the author. The occurrence of hiccoughs, though unusual, is significant, being probably due to involvement of the diaphragm. Loss of weight, occult blood in the stools, and achlorhydria are frequent findings. Roentgen examination is the most important diagnostic procedure and esophagoscopy may give valuable information. In 5 of 8 cases in which the latter procedure was carried out a correct diagnosis was made.

Treatment even with early diagnosis is difficult because of the inaccessibility of the lesion, and the mortality is high—50 per cent in 4 cases operated upon in the author's series.

Roentgenograms are included to show the diagnostic signs and the conditions to be differentiated.


In a case of carcinomatous ulcer of the stomach the roentgen picture showed in the pyloric third a series of bands or ring-like constrictions lying transversely to the long axis of the stomach. At operation this part of the stomach was found to be turgid and swollen, while the normal mucosal folds were completely obliterated. The picture is attributed to an obstruction of the lymphatics of the submucosa, caused by neoplastic permeation and resulting in a uniform mucosal edema. "The curious transverse markings seen can thus only be due to 'frozen waves' of peristalsis, struggling over a section of the stomach stiffened by oedema." A roentgenogram is included and there are references to two papers in which striation "against the grain" is mentioned. The author has found no example, however, corresponding to his.


Gastric polyps are of rare occurrence, only 6 cases having been observed in 381 specimens from gastric operations over a period of ten years. They are, however, to be regarded as precancerous and should be removed at once. Symptoms are variable, but achlorhydria is a constant laboratory finding. Its presence with intermittent obstruction or regurgitation after ingestion of solid food suggests the possibility of pyloric polyp. One of the 6 autopsy specimens mentioned above showed carcinoma simplex. Two roentgenograms are reproduced and a bibliography is appended.


A report of a case, of interest because of the absence of digestive symptoms though the disease was evidently of long standing as evidenced by recurrent hemorrhages and severe secondary anemia. Four years before the patient's admission to the Lahey Clinic a number of tumors had been excised from the stomach and a total gastric resection had been advised, though the lesions were diagnosed microscopically as benign myomas. A total gastrectomy was eventually done and a diagnosis of leiomyosarcoma was made. The patient was alive six months later. Drawings show the location of the lesions and photomicrographs the histologic features.

The literature on malignant neoplasms of the small intestine is reviewed and 9 cases seen in the Lahey Clinic and proved at operation are recorded. A preoperative diagnosis was made in only 4. There were 6 carcinomas and 3 lymphosarcomas. Two patients, both in the lymphosarcoma group, were alive and apparently well at the time of the report—three years and three years and a half after operation. Four of the carcinoma patients were dead and the latest reports from the other two showed recurrences. Roentgenograms are included and references are furnished.


A man of forty-nine was operated upon for a duodenal diverticulum diagnosed roentgenographically. At operation there was found associated with the diverticulum a tumor, which proved microscopically to be a leiomyosarcoma. There was no evidence of metastasis to the liver or surrounding tissues. Eight months later the patient was in excellent general condition.


Two case reports. Both patients died postoperatively.


In an attempt to emphasize the incidence and importance of the early symptoms in patients with carcinoma of the large bowel, the authors reviewed 300 cases taken at random from the files of the Lahey Clinic. Three symptoms predominated, being found in 97.7 per cent of the 300 patients: a change in normal bowel function, 80 per cent; unexplained abdominal cramps or pain suggesting obstruction, 57 per cent; abnormal stools, 46 per cent. Only 7 patients, or 2.3 per cent, failed to complain of at least one of these symptoms. Loss of weight was not a significant finding and anemia was not commonly present except when the lesion was confined to the cecum.

In establishing a diagnosis three methods of examination are utilized: (1) digital examination of the rectum, (2) proctoscopic and sigmoidoscopic examination of the rectum, rectosigmoid and the lower portion of the sigmoid colon, and (3) the various types of roentgenologic study for lesions higher in the bowel. Notes on the methods of conducting these examinations are included.


A general discussion of neoplastic, inflammatory, and functional lesions of the rectum and their diagnosis. The principal benign neoplastic lesions are polyps, either single or multiple, which can usually be felt digitally, seen proctoscopically, or demonstrated by proper roentgen technic. By far the most frequent malignant lesion is carcinoma, and its outstanding danger signal is some recent change in colon function. Roentgenograms are reproduced.


Klemperer gives the following figures for the frequency of carcinomatous transformation of polypi in clinical and autopsy material.

<table>
<thead>
<tr>
<th>Description</th>
<th>No.</th>
<th>Carcinoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polypi found in colons resected for carcinoma</td>
<td>79</td>
<td>18 (22.7%)</td>
</tr>
<tr>
<td>Polypi either biopsied or excised</td>
<td>99</td>
<td>14 (14%)</td>
</tr>
<tr>
<td>Polypi found in autopsy material</td>
<td>66</td>
<td>4 (6%)</td>
</tr>
</tbody>
</table>
No single criterion exists which can be accepted as a reliable index for the malignant potentiality of a given polyp. The villous adenomas, however, show such a high percentage of malignant change that they should be looked upon with suspicion. In general, the frequency with which polypi have been found in the clinical material studied warrants their removal whenever encountered. References are appended.


In the Lahey Clinic the operability rate for rectal carcinoma has risen from between 48 and 55 per cent in 1922–31 to over 70 per cent. Determining factors are the stage at which diagnosis is made, the extent of the lesion, the general condition of the patient, the type of operation, and the experience of the surgeon. The author believes that the limits of operability should be extended to include many cases in which there is no prospect of cure for the sake of the palliation which may be obtained. Eight cases are briefly reported to illustrate the points made.


A case report illustrated by photographs of the tumor, which was removed, and a photomicrograph.


Five cases are recorded to illustrate the palliative results that may be obtained from the resection of the primary tumor in cases of advanced gastro-intestinal carcinoma. One patient, a man of forty, was active and without symptoms five years after a two-stage operation. In the others life was apparently prolonged for shorter periods and suffering was relieved.

THE BILIARY TRACT


A review of 16 cases of primary liver carcinoma proved by necropsy (12 cases) or biopsy. Half of the patients were between the ages of forty-five and sixty. There was but one woman in the series. One of the tumors was of the primary massive type, 2 of the primary infiltrating or diffuse type, 5 were nodular or multiple, and 8 were associated with cirrhosis. The clinical manifestations were variable, pain, anorexia, and emaciation being fairly constant features. Jaundice occurred in 10 patients but in 4 was of the subclinical type. The course was rapidly fatal. Fifty per cent of the series had metastases in the regional nodes and in one instance each there were secondary lesions in the pericardium, lung, and mesentery. Six references complete the paper. There are no illustrations.

A Rare Case of Primary Liver Carcinoma in Liver Fluke Disease (Clonorchis sinensis), W. A. Swalm, E. S. Gault, and L. M. Morrison. Am. J. Digest. Dis. 4: 789–792, 1938.

The authors' patient was a Chinese male adult who had formerly lived in South China but had been resident in America for twenty-one years. Though the stools were negative for parasites, the ova of Clonorchis sinensis, a liver fluke common in the Orient, were discovered in bile obtained by non-surgical drainage. Tissue from the liver obtained after death (complete necropsy was not permitted) showed interlobular cirrhosis, areas of necrosis, and primary liver-cell carcinoma, so-called cholangioma. Photomicrographs show the Clonorchis ova in the bile and the liver changes. References are appended.


Because of the disappointing results of operation in carcinoma of the gallbladder, surgical treatment is seldom stressed. The authors believe, however, that palliative procedures have a definite place in this condition. They record a series of 20 cases seen at the Lahey Clinic in a nine-year period. One was discovered at autopsy but in the remainder, operation was done. In 9 cases exploration showed the condition to be entirely inoperable; in the others some form of palliation was attempted. In 4 patients this took the form of a choledochostomy with drainage of the common duct by a T tube, for relief of obstructive jaundice. Two patients survived operation and their jaundice disappeared. One lived four months; the other was alive at the time of the report ten months after operation. In 5 cases cholecystectomy was done, with choledochostomy in 3. In all improvement followed. One patient was alive after four and one-half years, 3 died after a survival period averaging 4.6 months, and one was untraced. In still another patient it was possible to remove completely a small early carcinoma from a remnant of gallbladder remaining after a cholecystectomy for stones eight months earlier. This patient was alive four and a half years later.

THE PANCREAS


A series of 47 cases of pancreatic carcinoma operated upon at the Lahey Clinic is recorded. In 35 the diagnosis was based on gross observation at operation, in 7 on biopsy and in 5 on the autopsy findings. Twenty-four of the patients were women and twenty-three men. The average duration of symptoms before hospital admission was 3.6 months. The most frequent complaints were loss of weight (85 per cent of the cases), anorexia (83 per cent), pain (76.5 per cent), jaundice (59.5 per cent), nausea and vomiting. An abdominal mass was palpable in over half the patients. Gastro-intestinal roentgenography was done in 21 cases and in 71 per cent of these the findings were positive. Duodenal drainage may offer additional evidence of a pancreatic neoplasm. A number of operative procedures were used. In 10 cases biopsy was performed at the time of operation and the author considers this important from a prognostic point of view. There were 9 postoperative deaths in the series. The average survival period among the remaining 38 patients was 8.6 months. Eight patients received postoperative radiation and life was prolonged by the procedure, the average survival period in the irradiated group being 16.8 months. As a palliative procedure cholecystojejunostomy is preferred to cholecystogastrostomy or cholecystoduodenostomy.


The author explains the absence of jaundice in a patient with an extensive and advanced carcinoma of the head of the pancreas as follows. At some previous time a sinus had been formed between the gallbladder and duodenum presumably as a result of perforation by a gallstone, thus permitting drainage of the bile in the gastro-intestinal tract in spite of the occlusion of the common duct.

RETROPERITONEAL TUMORS


A woman of fifty-one had a large abdominal mass which was diagnosed as a mesenteric cyst. Hysterectomy had been done three years before, for multiple myomata. There was no evidence of any connection of the mass with the cervical stump, and both ovaries were palpable as small atrophied bodies. At operation the tumor was found to have arisen retroperitoneally and penetrated between the two layers of the mesosigmoid.
Histologically the tissue was typical of a granulosa-cell tumor. It is believed to have arisen in embryonal remnants of the germinal cell tract, possibly under the influence of an increased secretion of anterior pituitary hormone, such as is known to occur after cessation of ovarian function.

A photograph of the tumor, two photomicrographs, and references are included.

THE SUPRARENAL GLANDS


A woman of twenty-three had suffered for four years from repeated attacks ushered in by a sense of constriction in the chest and substernal pain and followed by severe generalized headache, dyspnea, and contraction of the extremities. A diagnosis of essential hypertension had been made in another hospital and the attacks were regarded as hysterical. Examination showed a blood pressure of 190/160, which rose during an attack to 300/160. Though the electrocardiographic findings were consistent with hypertensive heart disease, the possibility of an adrenal paraganglioma was considered. The patient died, however, before exploration could be undertaken. At necropsy the right adrenal was found to be almost completely replaced by a tumor which on microscopic study was shown to be a paraganglioma. The adrenaline content was estimated at 70 mg. as compared to 5 mg. for the normal adrenal.

In general patients with adrenal tumor give a longer history of attacks than those with crises due to essential hypertension. In the former the attacks show a more orderly progression in frequency and severity and prodromal symptoms are rare.

Photographs and a photomicrograph of the tumor are reproduced and there is a bibliography.

THE FEMALE GENITAL TRACT


For many years attempts have been made to measure the radiation from radium in terms of r units, but the results have been extremely variable. Some of the differences are due to the form in which the radium was held, the filtration, the different distances, and different time factors. One of the chief errors in using the human skin erythema dose as a standard, only recently recognized, has been that the backscatter at 200 kv. is very high while the backscatter with radium is only about 3 per cent of the impinging dose. As early as 1920 Jüngling tried to measure radium with bean sprouts. He found that the beans grew during irradiation and that impossible quantities of radium were required to get an effect in twenty-four hours, so that he failed to obtain any accurate results. Packard in 1928 (J. Cancer Res. 12: 60, 1928) rayed the eggs of Drosophila and computed that 345 mg. hr. at 1 cm. distance corresponded to a skin erythema. Zuppinger (Strahlentherapie 38: 639, 1928), using Ascaris eggs at 1 cm. distance, found the dose to be 169 mg. hr. The measurements on Ascaris eggs were repeated by Braun, who found that at 1 cm. distance from the preparation 185 mg. hr. was required for a skin erythema. The author believes that the high figure which Packard obtained may be due to the fact that the Drosophila eggs were irradiated aerobically and that the dose was not accumulated.

Since it is impossible to use such biological material in practical measurements, because of the very low intensity of the radiation from any reasonable quantity of radium, the author’s measurements were performed by the photometric method of Holthusen and Hamann, which compares the blackening of films by different radium tubes with the blackening produced by a standard preparation whose effectiveness can
be approximately defined in r units per minute. A female pelvis, with its contents, hardened in formalin was used as a phantom in these investigations. In the first experimental series films were placed in the cul de sac, bladder, rectum, parametrial and ovarian area, and along the lateral pelvic wall. In the second series the pelvis was dissected through the uterine cavity sagittally and frontally, and a film was placed in each of these planes. Isodose curves were obtained from these films by measuring the blackening with a photometer after development.

The results showed that the distribution of the dose was somewhat more favorable with the method of the Curie Institute (Regaud) in Paris, because the small pelvis received a more homogeneous radiation, than when the method of the Radium Institute (Forssell) in Stockholm was applied. With each method, however, the parametria received an insufficient dose. Therefore, the author stresses the necessity of giving additional external radiation in all those cases where the parametria are involved. Exact comparisons of the dosage by these two methods are difficult, as the intensity of their radiation by the Stockholm method is two and a half times that of the Paris technic. As the time of exposure is much longer with the latter method, the total dose in the cervix is not very different, but the parametrial dose is smaller with the Stockholm procedure.

The article is illustrated by five drawings, and a bibliography is appended.

F. Burgheim


Using the method employed by Hirsch (see preceding abstract) the authors studied the distribution of gamma rays in the treatment of cancer of the uterine cervix. Small ionization chambers were used, however, and the measurements were performed in air as well as in a phantom. As the anterior wall of the rectum receives higher doses with the Stockholm method, which results in injuries of the mucous membrane, the authors place the radium in a cork container to increase the distance. The necessity of subsequent roentgen therapy to the parametria is also emphasized in this article.

Six tables giving the exact measurements and three pictures are included, and references are appended.

F. Burgheim


This article supplements an earlier one (Strahlentherapie 50: 529, 1934. Abst. in Am. J. Cancer 23: 900, 1935), reporting the further observation of the cases previously described. Six years after treatment of cancer of the uterine cervix with radiotherapy alone 41 per cent of the patients were still alive and free of symptoms in stage I, 23 per cent in stage II, 17 per cent in stage III, and 5 per cent in stage IV, i.e. 19 per cent of the total number. The five-year rate was 20 per cent. Of 13 patients with carcinoma of the body of the uterus, 2 remained well, while 2 others had recurrences in the sixth year. As for the combined treatment with surgery and postoperative roentgen therapy, 42.4 per cent of the cervical cancers were cured after five years, 39.8 per cent after six years. For the body of the uterus both the five-year and six-year figure was 50 per cent. Because of the damage to the skin and mucous membranes without increased effect on the tumor, the authors changed their roentgen technic, applying only one series of fractional (not protracted) irradiations instead of the two series with a three-months interval.

F. Burgheim


The author records a case of cervical carcinoma in a girl of seventeen and tabulates the reported cases in patients under twenty, furnishing the references. One photomicrograph is included.

In a series of 35 hysterectomies done at the Lahey Clinic for carcinoma of the body and fundus of the uterus associated fibroid tumors were found in 34 per cent. The author does not attribute to the latter an etiologic role but believes that common factors may play a part in the production of the benign and malignant lesions. In this series the patients were found to be older than the average patient with cervical cancer, confirming the statistics of others. None were under forty and 8 were over sixty. The presenting symptoms were bleeding, vaginal discharge, and pain.

Panhysterectomy was done in 26 of the 35 cases, a radical Wertheim operation in 4, and a supravaginal hysterectomy in 5. There were 4 postoperative deaths. Of 17 patients operated on prior to 1934, 11 were free from recurrence after five years. No irradiation was given in these cases.

Two photomicrographs are reproduced.


A case is recorded of ovarian carcinoma in a woman of fifty-five. The tumor filled the abdominal cavity and the peritoneum was studded with metastatic nodules. In spite of the extent of the disease the patient was well five years after a bilateral salpingo-oophorectomy and supravaginal hysterectomy (for fibroids) followed by roentgen irradiation. A photomicrograph is reproduced.


A woman with carcinoma of both ovaries received roentgen therapy two weeks after incomplete operation: Two abdominal and two sacral fields received 500 r each, at 180 kv., 30 cm. focus-skin distance, 0.5 copper + 3 mm. aluminum filtration. This treatment was repeated several times at intervals of six to eight weeks. One year after operation diabetes was diagnosed; the large, hard pelvic tumor was still palpable at this time. Two years later only a small infiltration was present and at the end of another two years this had disappeared entirely. The good general condition of the patient has not changed since, although five more years have elapsed. The author regards the moderate roentgen doses at intervals of several weeks and the concomitant diabetes as causes of this remarkable result.

THE GENITO-URINARY TRACT


This is a report of 26 examples of tumor of the kidney seen in private practice. Fifteen of the patients were males and 11 females. The youngest was a child of eight, the oldest was seventy-one. Sixteen of the patients were operated upon, and in 11 of these the duration of symptoms was less than a year. There was one postoperative death; metastasis occurred in 7 patients, and recurrence in 4. Four lived more than a year—six and a half, four and a half, four, and one and a half years at the time of the report. Two of these patients had hypernephroma, 1 a fibroma, and 1 a papillary carcinoma of the renal pelvis.

The author discusses the importance and the difficulty of early diagnosis, stressing the importance of hematuria and the dangers inherent in a diagnosis of "essential hematuria." Pain occurs more commonly with the diffuse infiltrating type of lesion. A palpable mass is a late symptom. The disease may, indeed, be well advanced before producing any symptoms, as is illustrated by several cases in the series recorded here. Urography is the most important single aid to an accurate diagnosis. Radical removal offers the only hope of cure but the operation is frequently difficult and the prognosis is generally speaking unfavorable.

Eleven cases are reported, including cysts, inflammatory lesions, and neoplasms of the upper pole of the kidney, suprarenal neoplasms both intrinsic and extrinsic, and enlargement of the spleen causing displacement of the kidney. Intravenous and retrograde pyelography are of great value for the demonstration of renal and suprarenal tumors. Their differential diagnosis, however, is difficult and may require exploratory operation.

Tumors arising in the suprarenal region, when they reach a large size, cause dislocation of the kidney but without the distortion or obliteration of the calyces which is characteristic of lesions involving the renal parenchyma. Hematuria is indicative of a renal tumor. Fixation of the kidney may occur in the presence of perinephritis, infiltrating carcinoma, or a suprarenal growth.

The authors regard perirenal insufflation as of limited diagnostic value and not without danger. It should be employed only as a last resort and never when suppuration is suspected.

Roentgenograms are reproduced and references are added.


The initial complaint in the case here recorded was pain in the left heel. Subsequently attacks of painless hematuria occurred. The pyelographic findings suggested a kidney tumor and biopsy of the lesion in the heel showed metastatic hypernephroma. Autopsy revealed a large hypernephroma in the right kidney and tumor nodules in the left occipital and frontal lobes. In spite of the extensive infiltration in the kidney, the indigo carmine test had shown no serious disturbance of renal function. A photomicrograph of the tumor in the os calcis is reproduced.


A left nephrectomy was done in a woman of sixty-five. The removed kidney was found to be completely replaced by carcinoma, apparently arising in the secreting tubules of the cortex with invasive growth throughout the kidney and extension by progressive carcinogenesis in situ to glomeruli in the cortex and to collecting tubules in the medulla. The renal pelvis and left suprarenal gland were also invaded, and death occurred seven months after operation. Photomicrographs illustrate both accounts of this case.


Malignant papillary cystadenomas of the kidney are rare. The case here recorded is of added interest because of its occurrence in a double kidney with double ureter and pelvis. The patient was alive and well a year after nephrectomy followed by roentgen irradiation—4000 r in a period of thirteen days, 200 kv., 0.5 mm. copper and 1 mm. aluminum filtration [intensity not stated]. Photomicrographs and a pyelogram are included. References are appended.


A bladder tumor was removed from a boy of ten but was discarded without pathological study. About a month later the child fell and the operative wound reopened. The bladder was now found to contain multiple soft nodules which were diagnosed histologically as lymphosarcoma.


A case is recorded of a leiomyoma of the bladder arising at the internal urethral orifice and extending intravesically, in a woman of twenty-six. The symptoms were
those of obstruction of the bladder neck. A suprapubic cystotomy was done and the
tumor was resected. Histologic preparations showed interlacing bundles of smooth
muscle and some hyaline fibrous tissue.

The chief danger in such a case is urinary tract infection and the other sequelae
of obstruction. If the tumor is removed before these phenomena are too advanced, the
prognosis is good. The late result in the present case is not mentioned. References are
added. There is no photomicrograph of the tumor.

Carcinoma of the Prostate with Metastases in the Testis, J. H. Semans. J. Urol. 40:
524-529, 1938.

A case of prostatic carcinoma is recorded in a man of eighty-three. The diagnosis
was made clinically and confirmed at autopsy. Grossly the tumor extended into the
periprostatic tissues and metastasized to the sacrum and lumbar vertebra. Micro-
scopic deposits were found in the interstitial tissue of the right testis; the efferent ducts
were not involved but tumor cells were present in the veins and lymphatics.

The author mentions a number of reports of prostatic carcinoma with metastases in
unusual locations but he could find no reported instance of involvement of the testis.
Photomicrographs of the metastatic lesion are included and references are added.

Metastases from Occult Carcinoma of the Prostate, O. S. Culp. J. Urol. 40: 530-538,
1938.

have shown that carcinoma of the prostate occurs in 14 per cent of men over fifty years
of age. While extension and metastasis occur for the most part relatively late in the
course of the disease, even small early growths as yet undiscovered may metastasize
extensively. Such a case is recorded here. The patient was a man of fifty-six whose
symptoms—intercostal neuritis, paraplegia, and "neurological bladder"—were due to
metastases in the thoracic vertebrae causing compression upon the spinal cord. At
autopsy no prostatic tumor was evident on gross examination but microscopic study of
serial sections showed at one point tumor cells filling the acini and invading the fibrous
tissue.

The author mentions a number of recorded examples of carcinoma of the prostate
with neurological manifestations and furnishes references. Photomicrographs of the
vertebral metastases and of the primary lesion are included.

Sarcoma of Prostate and Adjacent Retrovesical Structures, E. Hess. J. Urol. 40:
629-640, 1938.

Sarcoma of the prostate is a disease of youth and should always be suspected in the
presence of a prostatic mass before the age of twenty-five. Operation in these cases is
useless. The only hope of alleviation lies in radium or x-ray therapy.

Two cases are recorded: one in a young man of twenty-two and one in a six-year-old
boy. In the first patient the preoperative diagnosis was prostatic abscess but tissue
removed at operation showed spindle-cell sarcoma. Postoperative x-ray therapy was
given but death occurred in three months. The author believes that the diagnosis of
abscess in this case was inexcusable. Palpation should have suggested tumor rather
than an inflammatory process and a biopsy would have been conclusive.

In the younger patient the tumor was of a most unusual type—a neurogenic sarcoma
involving also the bladder, penis, and scrotum. The boy was brought to the hospital
because of enlargement of the base of the penis present in some degree since infancy
but with a noticeable increase in the last month. A firm irregular mass was also present
in the abdomen. Tissue taken from the perineum and shaft of the penis was diagnosed
as myxosarcoma, but treatment was refused and the patient was not seen again until
a year and four months later. The base of the penis had increased in size and a mass
was present in the abdomen and on the right rectal wall. At operation a third of the
mass was resected with the bladder wall. Histologic study showed it to be a plexiform
neurofibrosarcoma of the sympathetic nervous system. The prognosis was considered
poor but ten months later the child had gained in weight and was apparently well. Photographs and photomicrographs illustrate this unusual case history. References are appended.

**Priapism and Chordee Due to Metastatic Carcinoma of the Penis, the Prostate Being the Primary Source, C. N. Peters and R. L. Huntress. J. Urol. 40: 810-813, 1938.**

A man of sixty-four with carcinoma of the prostate too far advanced for radical operation was treated by resection of the obstructing tissue by the Caulk punch. Symptoms were relieved but within a few weeks multiple nodules appeared in the glans penis, in both corpora cavernosa, and in the spongiosum, causing continuous erection of the penis, which was twisted to the left. The urethra was also infiltrated and there was roentgen evidence of metastases in the lungs. Death occurred from acute pulmonary edema eight and a half months after the original diagnosis of prostatic carcinoma. Autopsy is not mentioned. A section of one of the penile tumors obtained at biopsy is reproduced.

Kessell (J. Urol. 32: 213, 1934. Abst. in Am. J. Cancer 23: 453, 1935) recorded a case of priapism due to metastatic carcinoma and cited several others, but in only one was the primary site in the prostate (Frontz and Alyea: J. Urol. 20: 135, 1928).


A case is reported, with autopsy findings, of an endothelioma of the corpora cavernosa in a man of forty-five with metastases in the lungs, liver, spleen, kidneys, and brain. The diagnosis of endothelioma was based upon the general character of the tumor and its mode of extension rather than upon the appearance of the individual cells, which varied somewhat in size, shape, and staining properties. The origin was apparently from the cells lining the blood spaces of the corpora cavernosa. In places the cell masses plugging the blood channels or arteries appeared to have become canalized, so that their central portions contained intact, presumably circulating red blood cells. Capillary-like channels were also present throughout the cell masses, lined with tumor cells and sending out twig-like processes to unite with similar processes from neighboring masses, these also were occupied by intact red corpuscles. Infiltration through the vessel walls with fibrous tissue overgrowth and reactive inflammation in the perivascular tissues was almost completely absent. Six similar cases were found in the literature and are briefly abstracted. Three photomicrographs are included and references are furnished.


Reports are given of 23 cases of brain tumor, with emphasis upon the importance of the visual fields in diagnosis. Six of the tumors were in the frontal lobe, and in these, as might be expected, the visual fields with a single exception showed no localizing defects. In the exceptional case, in a subnormal patient, localizing signs were incorrectly obtained. In one of this group a Foster Kennedy syndrome—unilateral loss of vision with secondary atrophy of the optic nerve and swelling of the opposite disk—was present. This is an important sign of a frontal lobe tumor. In its absence a progressive concentric contraction, choked disks, and an enlarging blindspot on one side are suggestive of such a lesion.

There were 8 tumors of the region of the chiasm and the midbrain. It is in this group that visual field studies are particularly fruitful. In 6 of the present series the visual fields were of definite localizing value, as they were, also, in all 6 patients with tumors posterior to the chiasm.

The 3 cases of posterior fossa tumors, which complete the series, correctly showed no localizing defects.
In the presence of a brain tumor a correct negative field may be as significant for diagnosis as a positive field. To summarize the results in the author's cases: 12 of the 14 tumors in the region of the chiasm and midbrain or posterior to the chiasm, which would be expected to present visual defects, showed signs of localizing value, while among the 9 tumors of the frontal lobe and posterior fossa incorrect localizing signs were present in but one. The evidence obtained from visual fields was thus correct in 20 of 23 cases. Neurologic examination gave correct information in only 16 patients. Flat roentgenograms made in 13 cases were of correct localizing value in 7. Encephalograms were made in 15 cases and in only 1 of these was the diagnosis missed. Twenty-four illustrations of visual fields are included, and references are appended.


A case of brain tumor is described in which the diagnosis was obscured by long-standing diabetes, arthritis, hypertension, and symptoms referable to the climacteric. Neurologic examination showed no definite evidence of disease of the central nervous system. Eventually, however, an encephalogram was taken, revealing obstruction in the extreme anterior part of the fourth ventricle. A small cerebellar tumor weighing 1.1 gm. was removed and the patient made a good recovery. The prognosis was believed to be favorable.


Some brief notes on brain tumors, illustrated by roentgenograms.


A diagnosis of vertebral angioma was made in a twenty-two-year-old woman on the basis of signs of compression of the spinal cord (spastic paraplegia) and roentgen evidence of an expanding lesion with erosion of the body and arch of the eleventh dorsal vertebra. A clinical cure was achieved with roentgen irradiation, 4000 r being administered in two cycles in fractionated doses to each of two posterior fields. Roentgenograms are reproduced.

Milton J. Eisen

THE BONES


In 1933, Colville and Willis (Am. J. Path. 9: 421, 1933. Abst in Am. J. Cancer 21: 481, 1934) reported a case of tumor of the femur which had exhibited in every detail the characteristics generally accepted as diagnostic of Ewing's sarcoma, but which post-mortem study proved to be a clinically precocious metastasis from a small primary neuroblastoma of one adrenal gland. In view of this finding the authors reviewed previous records of cases diagnosed as Ewing's sarcoma but could not find any in which the post-mortem observations were adequate to afford convincing proof of the primary nature of the bone tumor. On the contrary, in some of the recorded cases evidence was found suggesting the possible metastatic nature of the neoplasm.

The case is here recorded of a girl seventeen years of age, who noticed in March 1935 a swelling of the thigh which steadily increased in size. A biopsy showed a cellular, undifferentiated, round-cell growth devoid of any osteogenic characteristics. The tumor proved to be radiosensitive and for about a year the patient was well. A rounded mass was then found in the abdomen, which also disappeared on irradiation. Later tumors developed in the lungs and death occurred about three years after the growth was first noticed. At autopsy a large abdominal tumor was found with many smaller masses extending up along the vertebrae and down into the pelvis. These appeared to be metastases into the lymph nodes. There was a large amount of peritoneal tumor also. The photomicrograph of a section of the retroperitoneal growth shows distinct rosettes
in the otherwise diffuse, round-cell tumor tissue. The bone lesions were characteristic of those ascribed to the Ewing tumor, showing onion skin layers on the shaft.

While the characteristics conformed in every way with those of the Ewing sarcoma as usually described, the tumor was, the author believes, a metastasis from a primary neuroblastoma of the left lumbar sympathetic chain. He reaches the conclusion that the subject is chaotic, that the occurrence of a primary growth of bone of this nature is still unproved, and that metastatic growths of various types, especially neuroblastoma, will probably prove to be responsible for many of the cases.

A bibliography is appended. There are included, also, one plate, which shows the lesions of the shaft in the femur, a sketch of the distribution of the lymph node deposits and the main pelvic tumor, and two photomicrographs, high- and low-power, showing the rosettes.


A case is reported in which dysphagia was caused by an osteochondroma of the cervical spine compressing the esophagus. After surgical removal of the tumor, the patient made a complete recovery and was relieved of practically all symptoms. A roentgenogram and a photomicrograph are reproduced. The author found in the literature 6 examples of bony vertebral tumors compressing the esophagus but in none of these was operation done. References to these cases are included.

LEUKEMIA AND HODGKIN’S DISEASE


Of 22 patients with leukemia, in 16 of which the diagnosis was proved by biopsy or autopsy, 12 showed characteristic retinal changes. The first and most frequently observed sign was a change in the appearance of the retinal veins, which were fuller and darker than normal. Retinal hemorrhages were observed in 13 of the 22 patients. There may also occur a narrow white line on either side of the vein, indicating perivenous diapedesis of the white blood cells.

A close correlation was observed between the extent of the retinal hemorrhages and the degree of anemia present. Illustrations are included and a few references are appended.


Clinical and laboratory data are presented for 20 cases in which blood films showed an abnormal number of myeloblasts. In these patients there were found a varying degree of splenomegaly, severe anemia, leukopenia, moderate to marked thrombocytopenia, and a hemorrhagic tendency. In 10 instances in which it was possible to examine the bone marrow either by biopsy of the sternum or post mortem, myeloid hyperplasia was found consistent with leukemia. The increase in number of myeloblasts was sufficient to be of diagnostic importance, and enabled the clinician in a high percentage of cases to make a diagnosis of aleukemic myelosis. References are appended.


Symptomatic improvement generally followed roentgen therapy in 22 patients with chronic myeloid and 7 with lymphatic leukemia. Details are not recorded.

Milton J. Eisen

The authors review the clinical and histologic aspects of Hodgkin's disease and record their observations in a series of 19 cases. Twelve of their patients were males and 7 females. Nine were less than forty years of age. A clinically demonstrable splenomegaly was present in only 4. Seventeen of the patients had been followed to the time of the report. Six were dead, of whom 4 had received radiotherapy. The average duration of the disease in the 11 living patients was 2.85 years. All of these had received radiotherapy, some with excellent palliative results. References are appended.