ABSTRACTS
EXPERIMENTAL STUDIES; ANIMAL TUMORS


Benzpyrene was injected into seven series of rats which received 0.05 mg., 0.1 mg., 0.5 mg., 1 mg., 21 mg., 25 mg., and 75 mg. per animal in the respective series. The total dose was given in a single subcutaneous injection except in the last series, where three doses of 25 mg. were given at intervals of one month; in this series there was a heavy mortality (10 out of 16). The usual solvent was olive oil but there was no notable difference in results when lard or rat fat was used.

The yield of tumors increased gradually from 14.3 per cent with 0.05 mg. to 100 per cent with 25 and 75 mg. Apparently small doses reveal individual differences in susceptibility which are effaced by sufficiently large amounts. With increasing dosage, the interval between injection and death decreased from an average of nineteen months to five months. The authors gained the impression that the decrease was due especially to a shortening of the time between injection and the appearance of the tumor.

Metastasis was not observed with doses less than 1 mg.; the incidence rose from about 5 per cent with 1 mg. to 50 per cent with the highest doses. All the secondary deposits were in lymph nodes except that in 2 out of 3 rats which received 75 mg. and had metastatic tumors there were deposits in the lungs. In previous examinations of 250 rats with benzpyrene tumors pulmonary deposits had never been observed. Two possible explanations are advanced for the increased dissemination with increasing dosage: (1) the high doses by reason of their toxic action may depress the organism's resistance and so favor the production of distant tumors; (2) high doses may determine the appearance of races of cells which are especially prolific and aggressive. Carcinogenesis does not conform to the "all or nothing" law; the quantitative factor is assertive in all phases of cancer production and in the biological behavior of the cancer cell.

L. Foulds


Of a group of 40 hamsters (Cricetus aureus) given subcutaneous injections of 0.25 c.c. of a 1 per cent solution of benzpyrene, 93 per cent developed polymorphous-cell sarcomata after an average period of three months. One of these tumors, which has been carried in hamsters for a period of eighteen months, shows a marked tendency to metastasize to the lymph nodes. The axillary, inguinal, and mediastinal nodes are involved, as well as a chain of nodes in front of the lumbar spine down to the pelvis. Usually several nodes are affected; in many cases all the nodes in these regions are involved. The axillary region and mediastinum show the largest tumors. The dissemination, states the author, resembles a systemic disease.

Splenectomy or irradiation of the whole body with x-rays does not increase metastasis formation. In some cases it is possible to transmit tumors by the subcutaneous injection of blood from hamsters with metastases.

[Gye and Foulds (Am. J. Cancer 35: 108, 1939) have recently described tumors produced in hamsters by carcinogenic agents.]

A. F. Watson


A dilution of one in a million of 3:4-benzpyrene as a colloidal emulsion in glass distilled water was found to increase the growth of Paramecium. Optimum conditions
for growth were provided and the cultures were kept in the dark, all manipulations being carried out behind a 2a Wratten filter. These results, the author concludes, suggest that the localized hyperplasia which occurs when benzpyrene is applied to the tissues of animals is probably due to a direct action on the cells, to growth stimulation.

A. F. WATSON


The author previously described an increased incidence of lung tumors and the development of skin tumors in mice which were repeatedly exposed to atmospheres containing road dust and especially of dusts containing tar (Brit. J. Exper. Path. 15: 287, 1934; 18: 215, 1937. Abst. in Am. J. Cancer 23: 360, 1935; 32: 466, 1938. Also Brit. M. J. 1: 755, 1938). He now describes experiments in which tar extracted from the dusts of tarred roads was painted on the skin of mice and produced tumors within six months. Tar extracted from the soot of domestic chimneys also produced skin tumors in skin-painting experiments, though less rapidly, but when mice were exposed to soot in the atmosphere no skin tumors developed and the incidence of lung tumors was not significantly increased. It seems that carbon in the soot dusted on the skin antagonizes the action of tar. Tar extracted from the soot removed from the exhaust pipes of internal combustion engines burning heavy oils was not carcinogenic for the skin of mice. Mice exposed to the soot did not develop skin tumors, but showed a slight increase in the incidence of lung tumors. It is possible that the increase in lung cancer was due to the iron or sulphur present in the soot or to some other factor than a special carcinogenic substance.

It is concluded that dust from tarred roads seems to be the most dangerous source of carcinogenic agents. It is considered that the inorganic constituents of the dust enhance or aid the effect of the tar and that irritation without inflammation plays a part in the genesis of lung tumor both in control animals, i.e., those not exposed to increased atmospheric pollution, and in experimental mice.

Tar obtained from cigarette smoke was weakly carcinogenic.

References are appended.

L. FOULDS


Several series of experiments are recorded. In three of these, rats of a strain of relatively low susceptibility to spontaneous cancer were fed with an estrin product obtained from the urine of pregnancy, and some were subsequently painted with tar. Among 54 rats surviving 494 days 5 cancers developed. Three of these were cancers of the skin in tarred rats, one was a uterine, and one a gastric cancer. In a control group, receiving no estrin, one tar cancer was observed.

Two series of rats totalling 23 animals received injections of testosterone. Among these one metastatic adenocarcinoma of the cervical nodes was observed, but the majority of the lesions were fibrous tissue tumors in the injected area, some of which subsequently became sarcomatous.

Illustrations and a bibliography are included.


A preparation of anol (p-hydroxy-prophenyl-benzene) having an estrogenic activity of 10 rat units per mg. was found to stimulate the growth of the duct system of the mammary glands of normal and castrated female rabbits, rats, and male mice. Unlike the naturally occurring estrogens, however, anol also stimulates the proliferation of the lobule-alveolar system of the mammary gland.

The mechanism of action of anol upon the mammary gland was not determined. It is quite probable, however, that like estrogen it exerts an indirect action by way of the anterior pituitary gland.

Illustrations and references are included.

The production of seminoma and embryoma in birds as a result of partial castration was reported previously (Compt. rend. Soc. de biol. 127: 1197, 1938. Abst. in Am. J. Cancer 35: 564, 1939). The present paper deals only with the seminomas. Four were observed and their histologic structure is described in detail. In addition a large number of nodules of regenerating tissue were studied. In some of these nodules there were areas identical in structure with the malignant and fatal tumors and all the steps in tumor formation could be traced.

In previous studies it was found that the sex cells of birds may exist as primary gonocytes, small epithelial cells, large secretory epitheliform cells, or as small cells with chromatic nuclei of the adult spermatogonial type. Large germinative cells may form at various stages and especially at the beginning of spermatogenesis. The epithelial form occurs whenever spermatogenesis is in abeyance and the spermatogonial form is characteristic of beginning or active spermatogenesis. The gonadotropic hormone of the hypophysis controls spermatogonial and spermatogenic activity and normally the two are in equilibrium. It is believed that the equilibrium is disturbed by partial castration, which leads to regeneration or rapid compensatory hypertrophy. Spermatogenesis is more easily disturbed by unfavorable local conditions than is the development of spermatogonia. If spermatogenesis is suppressed by the local conditions, the gonadotropic hormone stimulates a simple but intense growth of spermatogonial elements and continued action produces considerable nodules of spermatogonial tissue. It is suggested that the increased and intensely gonadotropic activity of the hypophysis resulting from castration is exerted on a mass of spermatogonial tissue without spermatocytes, so that equilibrium cannot be attained, rapid unlimited growth ensues, and a seminoma is established.

The observed seminomas differ somewhat from those of man since the spermatogonia of birds are somewhat different and apparently have rather more extensive capacities for differentiation. Since tumors of this kind do not occur spontaneously in birds, it is evident that they were the result of the partial castration and consequent regeneration. The authors consider that zinc chloride, which has been used by Michalowsky and others to produce teratoma testis in fowls (see, for example, Anissimova: Am. J. Cancer 36: 229, 1939) causes, in effect, a partial castration and they regard excessive regeneration as a preponderant factor in carcinogenesis in general.

The paper is illustrated by photographs of gross specimens and photomicrographs.

L. Foulds


One hundred and twenty-five young rats were kept for three months or longer on a diet which, while adequate for growth and reproduction, was quantitatively deficient in casein, a protein which is lacking in cystine. All showed hyperplasia of the epithelium of the forestomach, varying from a few small elevated disks to long ridges of thickened epithelium with papillomatous projections. In older lesions the epithelium sometimes invaded the muscularis mucosae or, more rarely, the submucosa and muscularis. Metastasis was never observed. When the casein content of the diet was raised to 12 per cent, or when 0.2 per cent cystine was added, the lesions failed to occur. Gross and microscopic photographs are included. [The lesions observed by the author do not differ from those produced by mechanical irritation. There is no evidence they are malignant. See illustrations of paper by Rohdenburg and Bullock: J. Cancer Research 3: 227, 1918.—Ed.]


A liver tumor occurring spontaneously in a mouse of the leaden stock, apparently arising from reticulo-endothelial tissue, proved to be transplantable to mice of the same

Tumor grafts grew more slowly in hypophysectomized mice than in controls of the same age, but the relation of the final tumor weight to the body weight of operated and control animals of equal age was the same. Papillomas and carcinomas induced by 3:4-benzpyrene appeared markedly later in the hypophysectomized mice than in the controls.

With regard to the growth of tumor transplants and the response to carcinogenic agents, no qualitative difference was found between hypophysectomized mice and controls. The observed differences were entirely of a quantitative nature.

Illustrations and references are included.


Results of Microbiologic Studies on Malignant Tumors, F. Gerlach. Ergebnisse mikrobiologischer Untersuchungen bei bösertigen Geschwülsten, Ibid. 50: 1603-1610, 1937.


Gerlach reports the isolation and cultivation of virus bodies from various animal and human tumors. Injection of cultures of the organisms were capable of initiating neoplasia in a small number of animals. Staining with Victoria blue of direct tumor smears or of smears of cultures, and examination with the aid of the fluorescent microscope of preparations stained with primulin, were utilized in the demonstration of the tumor viruses.

For the preparation of cultures the juice expressed from a tumor was diluted 1:10 or 1:15 with saline, Ringer's solution, or bouillon, and passed through a filter candle to free it from cells and bacteria. The filtrate was inoculated in suitable artificial liquid or solid media, especially blood agar or brain mash mixture (pH 7.6-8.0), not containing living cells and incubated anaerobically at 37° C. for three to six days. Solid media proved better adapted for continuous cultivation of the organisms. Several strains are said to have maintained their viability during twenty to fifty successive passages on blood plates. The cultural characteristics of smooth and rough colonies are described in detail. No differences were observed in organisms isolated from human and animal carcinoma or sarcoma.

Morphologically the filtrable agent of tumors is described as not unlike that of contagious pleuropneumonia of cattle. A cycle of development apparently exists, consisting of a resting stage in the form of an elementary granular virus body and a second form which is described as a micromycete. The organism was also cultivated successfully on the chorio-allantoic membrane of the chick.

Suspensions of cultures varied in their pathogenicity for the common laboratory animals. Injections into mice were frequently followed by a generalized infection after one to several days. A polyserositis was characteristic and both elementary bodies and micromycetes were demonstrable in smears of the exudates. In many animals the infection tended to subside and become latent.

Tumors developed in 14 of 342 animals injected with cultures after periods varying from one to nine and one-half months. Organisms isolated from 5 human cancers,
when administered subcutaneously, intramuscularly or intravenously, gave rise to such variegated tumors as peritoneal sarcoma in the rat; mammary, salivary gland or lung cancer in the mouse; teratoma of the testicle in the rooster, and cancer of the oviduct in the hen. A tumor culture of spindle-cell sarcoma of the upper jaw in a chamois produced a carcinoma of the colon in the rat. All induced tumors contained organisms identical with those originally isolated, and in two instances the newly isolated viruses were capable of producing additional tumors on injection. It is striking, however, that the organisms derived from the Ehrlich mouse carcinoma should produce subcutaneously in 2 animals at the point of injection tumors corresponding histologically with the original growth. Other tumors elicited differed remarkably in their morphology from the original growths and never appeared at the site of injection.

Photomicrographs illustrate the morphologic characteristics of the isolated tumor organisms.

Gerlach's work has not been accepted. W. Schmidt, who with his father, O. Schmidt, has for years been talking about cancer parasites, claims that they were the first to discover this organism. Neumann, speaking before the Gesellschaft der Arzte in Wien (Wien. klin. Wchnschr. 51: 283, 1938), stated that Gerlach's organism is the same as Schmidt's.

Clauberg, discussing the use of methods of fluorescent microscopy in demonstrating organisms, says that he has not been able to confirm Gerlach's work though some of the ultramicroscopic parasites, such as those of molluscum, vaccinia and the mosaic virus of tobacco, can be demonstrated. In his opinion there is no specific filtrable and culturable organism in malignant tumors such as Gerlach has claimed.

Gerlach's paper is also the subject of an editorial in the Lancet (2: 1386, 1937). This refers to the wide publicity which the work received in the daily press and goes on to say that even if one assumes that all the tumors that appeared—14 in 342 animals—were true malignant new growths, which is by no means certain, the small number observed does not exceed the number of spontaneous tumors to be expected in laboratory animals, especially the short-lived rat and mouse, kept under observation for several months. The editorial concludes: "The story is not new. It reveals no appreciation of the pathology of cancer."

[Obviously Gerlach has not succeeded in establishing the claims which he made. In this connection it is important to remember that organisms of various types are demonstrable in the normal organs of healthy human beings and of animals, and also in human and animal tumors provided proper culture technic is employed. This was shown, I think by Ford at Johns Hopkins, thirty years ago or more and is continually being demonstrated in studies made of puncture materials and fresh tissues obtained at autopsy both in man and animals. Mice carry as a saprophyte a spirochete which can be easily demonstrated in the peritoneal fluid of healthy animals, the famous organism which Gaylord and Calkins described many years ago in mouse tumors (see, for example, Proc. Soc. Exper. Biol. and Med. 4: 55, 1907). All of these alleged demonstrations of bacteria in cancer tissues must therefore be accepted with the greatest scepticism. Scarcely a year passes that some apparently competent laboratory man does not publish a "discovery" of this sort.

[Woglom and Warren (J. Exper. Med. 68: 513, 1938. Abst. in Am. J. Cancer 36: 133, 1939) recently succeeded in isolating a filtrable organism resembling the viruses from rat sarcoma 39. This agent, which proved to be a pleuropneumonia-like organism, produced suppurative lesions in the rat, mouse, and rabbit, but was incapable of inducing tumors. No immunologic relationship to sarcoma 39 was detected. The authors concluded that the agent was a chance contaminant of the transplantable tumor.]

MILTON J. EISEN


Dietary experiments on mice bearing sarcoma 180 indicate that some specific nutrient in the vitamin B complex influences tumor growth. That this was not supplied by either vitamin B\textsubscript{1} or B\textsubscript{2} was shown by experiments in which these were added to a
vitamin-free diet. Tyrosine, tryptophane, and nicotinic acid also failed to counteract the effects of a deficient diet on tumor growth.


Excessive bile production occurs in mice inoculated intraperitoneally with a sarcoma (Mal. sarcoma) obtained originally through the agency of a 1 : 2 : 5 : 6-dibenzanthracene derivative (Cook, J. W.: J. Chem. Soc. 1931, p. 3277). This bile has been used by the author in filtration experiments (a) as an addition to the tumor filtrate and (b) as a preliminary injection in order to damage the tissues at the site of a subsequent inoculation of filtrate. The latter technic gave a considerable increase in tumors.

A. F. Watson


Experiments are recorded which indicate that the sterol balance of tumor-bearing mice does not differ from that of normal animals. References are appended.


Bacterial filtrates (meningococcus and *B. coli*) were injected intravenously into rats and mice bearing transplanted tumors. A Shwartzman reaction was evidenced by hemorrhage, often intense, in the tumor tissue. In one experiment with the Ehrlich mouse tumor there was a temporary arrest of growth but no regressions could be attributed to the injections. Anti-tumor sera (method of preparation not stated) when injected together with the bacterial filtrates did not affect the results. Photomicrographs are included, and there is a short bibliography.

L. Foulds


Observations are recorded which indicate that irradiation of mouse sarcoma 180 induces a chemotactic response on the part of the blood granulocytes in the tumor, with their consequent accumulation. This accumulation is proportional to the dosage of radiation. With sublethal doses it is only temporary. With lethal doses widespread necrosis may develop and the tumor become completely absorbed. Transplantability was found to be inversely proportional to the induced accumulation of granulocytes.

Milton J. Eisen


No essential differences were observed in the lactic and malic acid dehydrase systems in the Jensen rat sarcoma and rat muscle.

Milton J. Eisen


The authors measured the platinum potential of Jensen sarcoma tissue and of muscle in rats. The potentials of muscle averaged about 200 millivolts and never fell below 180 millivolts. For the potentials of tumor tissue the average was 100 millivolts and the figure never surpassed 125 millivolts. The calculated rH values were 20 lor muscle and 15.2 for tumor tissue. Similar modifications of the rH are found in proliferating embryonic tissue and are attributable to the special cellular metabolism which is common to embryonic and tumor tissues.

L. Foulds

The authors describe eight strains of myeloid leukemia, the malignant character of which was definitely established by transmission experiments. With rare exceptions these strains retained their original characteristics unaltered through successive sub-passages. Six cases of myeloid leukemia in which attempted transmission to mice not highly inbred was unsuccessful are also recorded.

The changes in mice with non-malignant extramedullary myelopoiesis are described and compared with the changes in myeloid leukemia. Features of the non-malignant disturbance include conspicuous maturation of myeloid cells, association with erythropoiesis, presence of megakaryocytes, absence of epicapsular and tumor-like infiltrations, and failure of transmission to other mice.

Twenty-nine photomicrographs are reproduced. References are appended.


Nine cases of leukemia were observed in albino rats. Six of these were of the lymphoid type, including two cases of subleukemia, one of which was associated with thymoma. These lymphoid leukemias were usually characterized by mononuclear cells with azurophilic granules. Of the three myeloid leukemias, two were chloroleukemias, with a green coloration of certain organs, notably the osseous system, the kidneys, and the lymph nodes. With one doubtful exception, attempts to transplant the lymphoid leukemias failed but the two chloroleukemias proved to be transplantable and at the time of writing one was in its third passage. A chloroma developed at the site of implantation of leukemic tissue and was accompanied finally by typical myeloid leukemia with the characteristic appearance of the liver and leukemic infiltrations of organs.

These observations resemble those made previously on mouse leukemia; they show that leukemia can be reproduced locally by inoculation of leukemia cells, the ultimate involvement of the entire hematopoietic system being due to progressive invasion by leukemia cells which behave in the same way as tumor cells. It is concluded that there is no essential difference between lymphoid leukemia, lymphoma, and lymphosarcoma or between myeloid leukemia, myeloma, and chloromyeloma; they are lesions of the same nature, differing only in their mode of evolution.


The authors measured the gaseous metabolism of lymph nodes of mice before, and at regular intervals after, intraperitoneal injection of leukemia cells of two lines, A and I, of transmissible mouse leukemia. The results confirmed previous conclusions to the effect that mouse leukemia is reproduced by multiplication of the injected cells and not by transformation of the host's lymphoid cells into leukemia cells. Intraperitoneal injections of leukemia cells caused a depression of anaerobic glycolysis in uninfiltrated lymphoid tissue, apparent one day after injection of line I and two days after injection of line A. The inhibition occurred in tissues free from lymphoid cells so that it must be attributed to an "inhibitor," separate from leukemia cells, which circulates in the tissue fluids.


Weekly subcutaneous injections of 0.25 c.c. of a 5 per cent emulsion, in a mixture of oil and a small amount of distilled water, of dried bile of patients who died of tumor or non-neoplastic disease induced leukemoid changes in the liver and spleen, and apparently less frequently in the lung, in 12 of 40 mice after four to eight weeks. In 9 animals the infiltration is described as myeloid and in 3 as lymphatic. Similar
effects were produced by steer bile. Locally the injections gave rise to inflammatory granulation tissue. Preliminary results of hematologic examination revealed leukocyte counts of 20,000 to 45,000 four weeks after the beginning of treatment. The active agent is in large measure soluble in ether and most probably is a non-saponifiable compound of the hydrocarbon series. Photomicrographs are included.

MILTON J. EISEN


Mice of a strain derived from the Bagg albino stock showing occasional lymphomatosis with a subleukemic blood picture were painted with carcinogenic tar. The incidence of lymphoblastoma and lymphatic leukemia was thus increased from about 2 to as high as 50 per cent, and the course of the disease was greatly accelerated. In another strain of mice, C57, in which spontaneous lymphadenopathy is extremely rare, no cases of lymphoblastoma followed tarring. Photomicrographs and references are included.


The authors record unsuccessful attempts to transmit lymphoblastic leukemia of a calf to two other calves of the same breed. Blood and emulsions prepared from hyperplastic lymph nodes of the diseased calf were injected into the recipients both intravenously and subcutaneously. The spleen of one recipient was irradiated with a large dose of roentgen rays prior to injection. References are appended.


This exhaustive study of the cytology of the tumor cell in the Rous sarcoma includes a review of the literature and an account of the author’s own observations on muscle tissues studied at various intervals from five minutes to seventy-three days after the injection of Rous tumor desiccates. The conclusion is reached that the evidence from this long series of in vivo studies of actively or slowly growing tumors induced in fowls by injections of Rous chicken sarcoma desiccate seems to indicate that the fibroblast-like cell is the predominating cellular element in the Rous chicken tumor, that it represents the tumor-forming element, and that it is probably the malignant cell.

There is a bibliography of 141 references and 161 photomicrographs accompany the text.


A further study of the inhibiting factor found in extracts of slowly growing chicken tumor suggests that it is a protein. References are appended.


Experiments are recorded which indicate that while a high dose of irradiation is necessary to produce an effect on proliferation of mammalian tissues, either normal or malignant, a much higher dose is required to influence respiratory changes. This is in direct contradiction to the conclusion of Rudisill and Hoch (Radiology 31: 104, 1938) that the biological effect of radiation may result from the inactivation or destruction of cell respiratory mechanism.

A dose of 30,000 r or of 4164 mg. hours of gamma rays alone produced no apparent effect on respiration, while a dose of 3936 mc. hours of radon (beta plus gamma rays) produced a decrease in respiration of 50 per cent. These observations indicate that the effective dose of radiation on living processes depends on the type of rays and the dose administered.
Since the effective dose of radiation in these in vitro experiments was greatly in excess of what can be applied in vivo, the author suggests that therapeutic doses act indirectly through their effect on the blood and lymph channels.


Colchicine in various concentrations was added to tissue cultures of chick embryo heart and iris. Weak concentrations produced the same effects as stronger concentrations acting for a shorter time. The effective dose varies according to the particular tissue used and the species of animal. Observations of other workers on the increase in mitotic figures and the arrest in metaphase are confirmed. Colchicine in low concentrations acts as a specific mitotic poison and also attacks the cytoplasm, producing vacuoles or granulations. Colchicine produced a great increase in "monocytoid" cells, which are round cells characterized by a contracted and deeply staining nucleus. These monocytoid cells are derived from macrophages and fibroblasts which pass rapidly through prophase and metaphase when condensation of chromatin or pyknosis occurs. If the action is not too strong, the monocytoid cells recover and regenerate into cells of macrophage or monocyte type.

**ETIOLOGY**


The author sums up present knowledge as to the etiology of cancer in his concluding paragraph, as follows:

"The fundamental cause of cancer is an intracellular alteration in the cells involved. This releases them from the regulation of the other cells. It makes them able to continue as independent cells. The ultimate causal agent at the same time releases them and makes them self-perpetuating. Theories advanced to explain it include the mutation theory; the virus theory; and intracellular chemical alterations. No one of these theories seems quite adequate to explain every type of tumor growth."

A bibliography of 144 references is appended.


This paper is of a purely speculative nature. The author is of the opinion that chronic affections in the body which produce some basic generalized disturbance initiate neoplastic disease. Surgery and irradiation, being directed at a local focus, are therefore without permanent value. Measures to increase the purity of foods are recommended in prophylaxis. An unnamed medicament gave encouraging results in the treatment of patients with cancer.

**GENERAL CLINICAL OBSERVATIONS; MISCELLANEOUS CASE REPORTS**


The authors discuss the characteristics of cancers developing as a result of burns and describe 15 cases which were observed in ten years among 5,000 patients treated at the Anti-Cancer Center of Marseilles. Though the number of such cancers encountered at special centers is considerable, the proportion of all burns which cause cancer is extremely small. It would seem that a single burn cannot produce cancer in the absence of a general predisposition to the development of the disease. The majority
of the burns are sustained in youth or infancy and the cancers frequently develop before the usual "cancer age."

The authors distinguish between "acute cancer," appearing within a year on a burn which has not cicatrized, and "late cancer," arising in burn scars. One case of acute cancer is described, developing in five months. [This case was previously recorded by Cornil and Lamy in Bull. Assoc. franç. p. l'étude du cancer 24: 39, 1935. Abst. in Am. J. Cancer 24: 877, 1935.] The remaining 14 cases were examples of "late cancer" developing from one and a half to sixty-seven years after the burn. All the authors' cases resulted from a single burn; cancer due to repeated burns, as exemplified by the so-called kangri cancer, is well known.

The fully developed cancers have no distinctive features, although in general the ulceration is extensive and gradually covers the whole scar. The cancer usually appears in the form of small pruriginous papules or verrucous projections. The neighboring epidermis is usually parchment-like and sometimes bears papillomata which are progressively transformed into epitheliomas. Other cancers begin in the scar tissue as ulcerating plaques. The onset of cancer should be suspected whenever a scar becomes pruriginous and tumefied.

The commonest type of tumor is the squamous-cell epithelioma with intense hyperkeratosis. Basal-cell epithelioma is less common and is never of pure type. The stroma is variable but exceptionally inert. The course is usually slow, but the prognosis is poor. Irradiation produces temporary improvement. Radical operation gives the best prospects of cure and should be carried out without hesitation wherever practicable, radiotherapy being reserved for inoperable tumors.

The paper is illustrated by photographs and photomicrographs and there is a bibliography of recent papers.

L. FOULDS

Malignant Histiocytomas of the Skin, Tendon Sheaths and Aponeuroses, A. DUPONT.


The author describes four tumors which he designates malignant histiocytoma. Two were cutaneous tumors, one on the thigh of a woman aged thirty-three and the other on the arm of a woman aged twenty-seven; the third tumor developed on the flexor tendons of a man aged seventy-two, and the fourth on the aponeurosis of the thigh of a man of seventy-one. In each case surgical excision was followed by irradiation with apparent cure. The tumors showed no tendency to invade the neighboring tissues but were distinguished from benign neoplasms occurring in similar situations by their cellular polymorphism and abundance of monstrous nuclei. They were composed of cells of two types mingled in variable proportions, namely small cells about the size of fibroblasts, and often irregular in shape, and giant cells having a single giant nucleus or more often several nuclei and abundant cytoplasm without fibrils but often containing fat droplets or pigment granules. It is considered that the four tumors are of a single type, being malignant histiocytomas which often originate in benign histiocytomas. Those in the tendon sheaths and aponeuroses are most likely to be confused with myosarcomas and those in the skin with melanomas.

The histologic appearances are illustrated by drawings.

L. FOULDS


The authors review the literature concerning invasion of the left auricle by malignant growths via the pulmonary veins, and record two new cases.

The first patient, a man aged twenty-three, had bilateral pulmonary deposits secondary to a myeloid reticulosarcoma of the right leg, which had been amputated eight years previously. There was no evidence of slow lymphatic permeation to the lung and the latency of the hematogenous pulmonary deposits is unexplained. The left auricle contained a tumor 5 or 6 cm. in diameter, continuous with tumor invading the right pulmonary veins; a polypoid extension passed through the mitral orifice. There was no invasion of the mural and valvular endocardium.
The second patient was a man aged fifty-two with a tumor of the right bronchus invading the right lung, tracheobronchial nodes, inferior pulmonary vein, left auricle, and mitral orifice. The left auricle was distended to a diameter of 10 cm. by a globular growth continuous with the extension of the pulmonary tumor via the right inferior pulmonary vein. There was no invasion of the walls of the vein or auricle. The tumor is described as a rhabdomyoma sarcomatodes and it is suggested that it originated through dislocation of a portion of the paraxial mesoderm into the splanchnopleural mesoderm. In both cases the gross encroachment on the auricular cavity apparently caused relatively little circulatory embarrassment until the terminal stages.

Extension of pulmonary growths into the left auricle via the pulmonary veins should be differentiated from direct transpericardial proliferation of mediastinal tumors, hematogenous cardiac metastases from a distant organ, lymphatic permeation, and retrograde invasion of the pulmonary veins by a primary tumor of the auricle.

The paper is illustrated by photographs and photomicrographs and there is a bibliography.

L. Foulds


A general discussion of mixed tumors of the parotid type is followed by 3 case records. In 2 of the cases a tumor of mixed parotid type was present; in the third, with similar symptoms and physical findings, the lesion proved histologically to be hemangioendothelioblastoma. References are appended. There are no illustrations.


In the Pathological Institute of the St. Erik Hospital of Stockholm tumors were observed in 55 per cent of 4,000 necropsies. In 22.5 per cent of the total cases, or 40 per cent of those with neoplastic disease, tumor occurrence was multiple. Multiplicity was more common in patients with benign growths and in the older age groups. Prostatic hypertrophy is considered neoplastic in nature in the present series. Only 1.2 per cent of malignant tumors were multiple (2.2 per cent of the total tumors and 5.1 per cent of the total malignant growths). The greater incidence of multiple tumors in women (26.4 per cent compared to 17.7 per cent in men) may in part be accounted for by the frequency of multiple benign tumors of the female genital tract, accompanied in many cases by adenoma of the thyroid gland. Multiple benign tumors in the gastrointestinal tract were also a common finding. Congenital abnormalities, of which cystic kidney was most common, increased in frequency in proportion to the incidence of benign tumors.

Milton J. Eisen


The author applied benzpyrene to mice over a period of three weeks, exercising the greatest care in protecting himself from the compound. About three months after completion of the experiments he noticed a small intracutaneous nodule about the size of a pea on his left forearm. After having remained stationary for a year this lesion was excised and found to be a calcifying, so-called benign, epithelioma. The author thinks that the tumor was probably caused by benzpyrene, though admitting the possibility of coincidence.

[As all our accumulated experience with artificially induced neoplasms suggests that from ten to fifteen years would probably be required to elicit one in the average human subject the abstractor believes the second explanation the more probable.]

The paper is accompanied by three photomicrographs.

Wm. H. Woglom
ABSTRACTS


A sacrococcygeal tumor, the size of a large orange, was removed from a male infant twenty-two hours after birth. At the age of one month radium in a wax applicator was administered in discontinuous doses during eighteen days. The infant was in excellent health a year later. Histologically the tumor was an angiomyoma and was possibly malignant; it is to be described in another publication. Since infants support operation and irradiation so well during the first days of life, treatment should not be delayed.

L. FOULDS

DIAGNOSIS AND TREATMENT


A controlled clinical experiment shows that the incidence of metastases in squamous carcinoma is not increased by biopsy.


According to the authors cancer arises as a result of a local cataplasia and a decrease of function of the reticulo-endothelial system. The normal reticulo-endothelial system secretes a hypothetical anti-neoplastic hormone. This principle, "blasthormone," has been isolated, it is claimed, and used with success in the treatment of cancer, but the origin, method of preparation, and properties of the substance are not stated. Intramuscular injections in 5 patients with advanced neoplastic disease were followed by symptomatic relief and a reduction in size or disappearance of the tumor.

MILTON J. EISEN


Treatment with aristotrop (a polyvalent hormone extract) in a woman of forty-seven years with radioresistant pelvic metastases of a breast cancer, developing three years after radical mastectomy, and bilateral tumor involvement of the retina, was followed by relief of the symptoms, tumor regression, and deposition of calcium in bone. [See Absts. in Am. J. Cancer 34: 609–610, 1938, for a discussion of the value of aristotrop.]

MILTON J. EISEN


In an attempt to demonstrate the possibility of cure by radical surgery even of cancer which has already invaded the lymph nodes, Eggers presents numerous statistical tables of carcinoma of various types, drawn both from his own experience and from the literature. These lead to the conclusion that radical surgical procedures offer the best chance for cure and that such results are obtained with less suffering, frequently less tissue damage, and usually better function, than is possible with irradiation. Early diagnosis and operation before extension into the lymphatics or the blood stream has taken place.
have a tremendous influence on the prognosis. But even after the lymph nodes are invaded, cures are possible in a large percentage of cases by meticulous surgery. References are appended.


The technic employed for the treatment of tumors of the pharynx at the Memorial Hospital, New York, is given (for which see Martin and Lenz: Radiology: 24: 364, 1935. Abst. in Am. J. Cancer 25: 200, 1935), the value of the fractional method is pointed out, and some biological effects of radiation and technical details are discussed.

F. Burghem


This is a plea for the expression of dosage of roentgen and radium radiation in roentgen units delivered to the tumor.


In 12 patients receiving irradiation and suffering from vomiting the blood showed hyperchloremia, especially affecting the plasma, a fall in the alkaline reserve, an increase in pH, and increased glycemia and polypeptidemia. The same changes were found in 12 patients who did not vomit during irradiation. Vomiting thus seems unrelated to the humoral state. Nevertheless, a treatment which improves the latter brings about immediate cessation of vomiting in three-quarters of the cases. The treatment consists of an intravenous injection of a mixture of 75 c.c. of 30 per cent hypertonic glucose serum and 25 c.c. of 20 per cent hypertonic chloride serum, followed immediately by 15 units of insulin subcutaneously and an hour later by 10 units of insulin. Evidently this treatment has an effect other than that on the humoral equilibrium, perhaps on the vago-sympathetic equilibrium.

L. Foulds


Three tumors which developed on long-standing lupus resembled sarcoma histologically, being predominantly spindle-celled. Two of the tumors contained squamous epithelium and were diagnosed as spindle-cell epitheliomas; the nature of the third, in which epithelial tissue was not identified, was undecided.

The authors examined the records of 35 published cases and concluded that 13 were atypical epitheliomas, 12 were probably true sarcomas, and 10 were insufficiently described to allow an opinion to be formed. They believe that sarcoma developing on lupus is even rarer than supposed, since half the published cases are doubtful. The nature of the sarcoma-like tissue and the conditions which lead to its development are discussed inconclusively. There is no bibliography.

L. Foulds


A spreading ulcer developed on the bridge of the nose of a woman aged thirty-four, at the site of a scar from an accident twenty-two years previously. Histologic examination of a biopsy specimen showed squamous-cell carcinoma.

L. Foulds

This paper contains general remarks on the origin of nevus cells. On the basis of histologic studies the author confirms the older views of Unna and regards nevi as of epithelial origin, arising as a result of a migration into the cutis of cells of the basal layer of the epidermis. Variation in the form of the cells is secondary to their abnormal location. Their intimate relationship to connective tissue in some instances is a result of desmoplasia. The deep-seated blue nevus and the Mongolian spot, however, are exceptions. These pigmented lesions, bearing no relationship to the skin, appear histologically to be primarily of connective-tissue origin. Photomicrographs and a bibliography are included.

Milton J. Eisen


Benign pigmented nevi, present since birth and equal in position and shape, in the upper and lower lids of patients aged nineteen and twenty-six were successfully removed surgically. Photographs of the patients and photomicrographs are included.

Milton J. Eisen


Three cases are reported of pigmented basal-cell epitheliomas in patients sixty-four, sixty, and thirty-one years of age. In the first case the tumor was situated at the base of the nose, in the second on the forehead, and in the third there were multiple tumors on the nose. Microscopically these tumors were basal-cell epitheliomas with pigmentation in the tumor cells and in the fibrous connective-tissue stroma. Apparently there is a proliferation of the melanoblasts when the tumor tissue comes in contact with the overlying epidermis, and it is not necessary in these cases to postulate a pre-existing benign nevus to account for the pigmentation. Two photomicrographs are included.

Edward Herbert, Jr.


A man aged sixty-five had a black tumor originating in the skin of the nose; the skin had previously appeared normal but beneath it was a zone of irritation due to a lead shot which had been present for several years. A similar tumor developed, almost immediately afterwards, on the abdomen, and in a few weeks there were about a hundred nodules on various parts of the body surface. Two melanotic tumors were present in the mouth. The patient died about six months after the onset.

The internal tumors were almost completely restricted to the serosa, the peritoneum, pleura and pericardium being riddled with growths while the liver and lungs were free. The histologic structure was that of a nevo-epithelioma originating apparently in the intermediate and deep layers of the dermis. The tumor on the nose was irregularly pigmented. The metastatic lesions were in general more pigmented and rarely invaded the epidermis. Dissemination occurred by way of the blood stream.

It is suggested that the chronic irritation produced by the foreign body caused the inclusions of nevus cells in apparently normal skin to develop into a tumor.

L. Foulks


The clinical and histologic features of a series of 62 cases of blue nevus seen at the Mayo Clinic in a period of eleven years are reviewed. None showed any evidence of
malignancy and the authors believe that most of the 9 cases which have been reported by others as undergoing malignant change are questionable. The lesion is to be distinguished from the Mongolian spot, which, however, usually disappears within the first few years of life, and from the ordinary pigmented nevus, dermatofibroma, and hemangioma. Occasionally a blue nevus may show increase in size or present a steel-blue color simulating that of a melano-epithelioma. In such instances wide and deep surgical excision is indicated.

Photomicrographs and a long bibliography are included.

**Interstitial Radiation Treatment of Hemangiomata, J. B. Brown and L. T. Byars.**

The authors have found the interstitial implantation of gold radon seeds to be the most valuable single method of therapy for hemangiomata which do not lend themselves to surgical excision or surface application of radium. A fairly small dosage per unit of volume is required, but the radiation should be uniform throughout the tumor. The possibility of damage to the skin and cornea, and the sensitivity of growing bone and cartilage must be borne in mind. Therefore, each individual seed should contain a relatively small amount of radon. For example, in treating small lesions about the eyelids, nose, lips and ears, seeds of 0.25 millicurie should be used. For large and growing tumors and in other areas, 0.5 millicurie seeds may be used, and very occasionally a 1 millicurie seed is necessary. It is better to use a dosage that is safe as far as important tissue structures are concerned, with the possibility that a later reapplication may be necessary, than to use a dosage which will eradicate the tumor but may cause damage. Four before-and-after illustrations are included.

**The Eye**
cuboidal, rounded, or elongated cells arranged about cavities of a varying caliber and embedded in a hyaline stroma. A diagnosis of lymphangio-endothelioma or cylindroma is suggested. [The photomicrographs are characteristic of the latter tumor, which is known to occur in the orbit.]

**THE ORAL CAVITY**

**Predisposing Factors in Squamous-cell Cancer of the Mouth, Pharynx and Esophagus.**


An analysis of the predisposing factors in squamous-cell cancer of the mouth, pharynx, and esophagus, observed in patients between 1931 and 1936, is reported. Cancer of the lip occurred in 312 males and 23 females, oral cancer in 146 males and 132 females, and cancer of the pharynx, larynx and esophagus in 137 males and 113 females. Ninety per cent of the males with cancer of the lip, 50 per cent of those with oral cancer, but only 10 per cent of those with pharyngeal, laryngeal, and esophageal cancer lived in rural communities, with a consequent greater exposure to outdoor conditions. Smoking was habitual in 86 to 99 per cent of the males, but 57 per cent of the rural patients with cancer of the lip were pipe smokers and 37 per cent chewed tobacco or used snuff. In the group with mouth cancer 23 per cent were pipe smokers and 70 per cent users of chewing tobacco or snuff. Not infrequently carcinoma arose at the site habitually in contact with the plug of tobacco during chewing. Cigarette smokers constituted 64 per cent of the patients with pharyngeal, laryngeal or esophageal cancer. Poor oral hygiene and pyorrhea were commonly present in patients of all groups. Syphilis and abuse of alcohol were relatively unimportant, although both appeared to be more common in the second and third groups, *i.e.* those with oral cancer and cancer of the pharynx, larynx, and esophagus.

Fifty per cent of the females with cancer of the lip indulged in pipe smoking, but a majority of the patients were of rural communities. In the group with oral cancer 15 per cent were pipe smokers. Alcohol and syphilis were of no consequence. Absence of the teeth and atrophy of the mucosa of the mouth and tongue, as a consequence of anemia, were common. Hematologic examination in 88 cases of oral cancer in females revealed 46 (53 per cent) with a chronic hypochromic anemia usually of the Plummer-Vinson type. This form of anemia is frequently observed in female patients in Sweden, and the attendant changes in the mucosa of the upper gastro-intestinal tract may account for the relatively high incidence of cancer in this region. In 73 of the 113 females with cancer of the pharynx, larynx or esophagus examination of the blood was possible, and anemia occurred in 55 (75 per cent). In males only 10 per cent of the 50 cancers of the hypopharynx were situated deeply in the post-cricoid region, in contrast to a similar localization in 90 per cent of the 74 females with hypopharyngeal tumors.

**Three Cases of Granular-cell Tumor of the Mouth, R. Leroux and J. Delarue.**


Tumors consisting of large clear or granular cells and situated almost always under the mucosa of the buccal cavity have been described as "granular-cell rhabdomyoma," or "myoblastic myoma," on account of a supposed origin from striated muscle. The characteristic cells form a homogeneous layer in the submucosa in immediate contact with the epithelium above and striated muscle fibers below.

The authors describe three cases. Two were of the common type; the small tumors were situated in the tongues of men aged thirty-seven and forty-five respectively and the histologic appearances were identical. The characteristic granular cells were in contact with striated muscle below and there were apparent transitions between granular and muscle cells. Each tumor was overlaid by a squamous epithelioma of small extent and
showing little invasiveness. There were apparent transitions between granular and epithelioma cells which were even more convincing than those between granular cells and muscle cells. The third tumor was situated in the upper gum of a new-born child. In this situation striated muscle is not present. The overlying epithelium was thin but at some points there was an apparent continuity between epithelial and granular cells.

The authors believe that the evidence adduced in favor of an origin of the granular cells from striated muscle is unsatisfactory. There is no true continuity between granular cells and muscle cells, but only contiguity; a similar and even more striking continuity is observed between granular and epithelial or epitheliomatous cells. No fibrils are demonstrable in the granular cells, and the analogies between the granular cells and muscle plasmodia or the cells of certain congenital rhabdomyomas are but superficial.

If the origin from muscle is rejected, the neoplastic nature of the swellings becomes improbable. It is noteworthy that they never contain mitotic figures and never ulcerate. The great majority of the granular cells are regarded as mesenchymatous cells of histiocyte type in a state of profound functional modification. The substance present in the granular cells has not been identified; it is suggested that it is glycogen. The tumors are regarded as the effects of local disturbances of the metabolism of certain substances due possibly to various factors, of which trauma may be one. The frequent association of the tumors with a superficial epithelioma is especially notable and the characteristic cells are observed only in the immediate neighborhood or "sphere of influence" of the epithelioma. The local metabolic disturbance results in a particular modification of the epithelial-connective tissue reactions; a particular type of stroma reaction runs parallel with an especially benign type of superficial epithelioma.

Seven photomicrographs and a bibliography are included.

L. FOULDS

THE BREAST


The author has devised a method of injecting a radiopaque substance into the lymphatics of the breast to determine roentgenographically the extent of the local malignant process. He describes its application in a patient with an inoperable mammary carcinoma. The substance used, lympholan, was non-toxic and its injection produced no irritation or other harmful effect. The lymphatic vessels were not damaged by rupture and extravasation of the injected material into the tissues. Satisfactory roentgenograms were made following its use. Some of these are reproduced.


In their use of preoperative irradiation followed by radical mastectomy in breast cancer the authors observed a wide variation in the response of the tumor to x-rays or radium. In the present study they have attempted a correlation between the amount of radiation actually delivered to the tumor and the radiation effect. They have calculated the minimum dose delivered within the tumor mass in two series of cases: one consisting of 63 cases treated by the radium element pack; the other consisting of 138 cases treated by 200 kv. x-rays. The size, shape, depth, and position of the primary tumor were carefully determined. The patient was assigned to the radium or x-ray group, as the case might be, and treatment was carried out accordingly. Subsequently, usually from six weeks to three months after irradiation was completed, a radical mastectomy was performed and the entire breast and axillary contents were subjected to pathological study. In every case the malignant character of the tumor was established by aspiration biopsy prior to institution of radiotherapy.
Maximum radiation effects were obtained in 69 per cent of the roentgen-treated cases receiving more than 6 threshold skin doses to the deepest portion of the tumor within three weeks, and in 56 per cent of the radium-treated cases receiving between 2 and 3 threshold doses within six days. With smaller doses the results were less favorable. It was found further that the degree of clinical regression is a fairly reliable index of the radiation effect. Thus of the x-ray and radium cases 71 per cent and 75 per cent, respectively, in which complete regression took place, showed either complete microscopic absence of cancer cells, or only a few scattered and badly damaged ones.

A definite relationship was observed between the size of the tumor and the radiation effect, the chance of obtaining a high radiation effect decreasing as the size of the tumor increased.

Since tumors vary enormously in size, as well as the amount of overlying tissue, it is evident that from the same beam of radiation, very different doses may be delivered to the deep-lying tumor cells. The inadequacy of expressing radiation dosage as a certain number of roentgens, or of milligram-hours per port, is thus evident.

The age of the patient and the interval between completion of irradiation and operation had no apparent influence on the radiation effect observed in the tumor in this series of cases.

References are appended.


A woman of forty-five complained of intractable pains in the bones, of six months' duration. The right thigh was first affected; later the vertebral column, thorax, shoulders, and the left leg were involved. The least movement produced violent pain. The patient suffered, also, from vomiting and emaciation and was reduced to almost complete immobility. Radiological examination showed a generalized lacunar decalcification corresponding either to a primary bone disease of the type of fibrocystic osteosis or, more probably, to osseous deposits from a latent cancer. Clinical examination then disclosed a tumor in the thyroid and one in the breast. Both tumors were removed and a piece of the iliac crest was taken for histologic examination. The breast contained a carcinoma of cylindro-cubical type and exactly similar carcinoma was present in the iliac crest. The thyroid tumor, composed essentially of thyroid tissue undergoing colloid degeneration, contained a nodule of hyperplastic parathyroid tissue. After the operation there was an immediate and almost complete subsidence of pain, still persisting after three months, when the patient was last seen. The authors believe that parathyroidectomy was responsible for the relief of pain and that it merits systematic trial in cases of diffuse cancerous osteosis.

L. Foulds


A tumor which had been present for three years was removed from the breast of a woman aged sixty-three. It was irregular in shape and complex in structure. One portion had the typical architecture of an intracanalicular fibro-adenoma with a somewhat cellular stroma. A second portion consisted in the main of fasciculated spindle cells resembling sarcoma, but in some regions there were areas of frank scirrhous carcinoma and others in which the two types of tissue were intermingled. The reticulum of the sarcoma-like tissue formed a network enclosing groups of cells and thus conformed to the accepted carcinomatous architecture. A third portion of the tumor was composed of moderately fibrous tissue resembling the stroma of a simple fibro-adenoma; it was traversed by elongated strands of cells of epithelial type. A fourth portion consisted mainly of a loose fibrillar stroma diffusely infiltrated by carcinoma and interrupted
by occasional elongated glandular clefts, the appearances suggesting carcinomatous infiltration of the stroma of a fibro-adenoma. There were also areas of cartilage-like tissue. Some of this was associated with osteoid tissue and was apparently true cartilage, but there was also pseudo-cartilage produced by the incarceration of epithelial cells in lacunae in an amorphous hyaline matrix with the staining properties of mucin and the ground substance of cartilage.

It is suggested that a carcinoma developed in the epithelium of a fibro-adenoma; in the delicate fibrous stroma of the fibro-adenoma the carcinoma cells met little resistance and so produced a diffuse carcinomatous infiltration of the stroma; mucoid degeneration was followed by the development of an epithelial pseudo-cartilage and by the formation of true cartilage and osteoid tissue by metaplasia of the stromal cells.

The paper is illustrated by diagrams and photomicrographs. L. FOULDS

INTRATHORACIC TUMORS


This study is based on 62 cases of bronchial carcinoma in which the diagnosis was confirmed by autopsy or biopsy. Forty-nine of the tumors had a central or hilar location; 7 occurred near the periphery of the lung; in 6 the site was undetermined. Metastases were frequent and in 11 cases produced symptoms before any evidence of pulmonary disease was observed.

Histopathologic studies showed most of the tumors to be pleomorphic, but a predominating cellular tendency was usually obvious. Thus 6 cases are classified as adenocarcinoma, 34 as squamous-cell lesions, and 22 as showing anaplastic tendencies.

The most frequent roentgen findings were atelectasis, increased markings, and the presence of a mass.

Treatment, whether by surgery or radiation, appeared to be of little avail. The treated patients survived only slightly longer than the untreated. The longest survivals were eighteen months in one case and twelve months in two others. The average survival for seven patients who lived over eight months after treatment was 12.6 months.

Photomicrographs, roentgenograms, and references are included. L. BERKESY


Twenty-four cases of cancer of the lung are described. Diagnosis was verified by necropsy in 11 cases and by the identification of neoplastic cells in the sputum and pleural exudate in 5 cases each. In 11 cases no specific treatment was given; all patients in this group died. Roentgen therapy was administered to 13 patients, but was completed in only 4 of these. The latter received 3,500 to 4,000 r by the continuous fractional method. The treatment appeared to relieve symptoms temporarily, and in several instances was followed by a decrease in size of the pulmonary mass. Of the 13 treated patients, 9 died and 3 were alive, but the survival period is not stated. In one case no follow-up record was available. MILTON J. EISEN


The clinical and necropsy findings in two atypical instances of bronchial cancer are described. The first patient, a man of fifty-six, had a tumor in the left upper lobe with metastases in the liver, kidneys, and suprarenal glands. The extreme debility, hypotonia and brown pigmentation of the scrotal skin were suggestive of Addison's disease. In the second patient, a man aged fifty-four years, a carcinoma in the left upper lobe was associated with a spontaneous pneumothorax resulting from a rupture of the necrotic tumor. MILTON J. EISEN

The authors here report a second case of carcinoma of the lung associated with asbestosis [for their first case see Am. J. Cancer 24: 56, 1935]. The 2 carcinomas occurred among 35 cases of asbestosis observed in a period of twelve years, an incidence of 6 per cent. For the same period the general incidence of lung carcinoma, based on all necropsies, was 0.3 per cent.

A case of advanced squamous metaplasia of bronchial epithelium is also recorded. Photomicrographs and references are included.

Differential Diagnosis of Primary Lung Tumor and Tuberculosis and the Importance of Tuberculosis in the Initiation of a Precancerous State, O. Feuchtinger. Über die Differentialdiagnose zwischen primären Lungentumoren und Lungentuberkulose und die Bedeutung der Tuberkulose für die Schaffung eines präcancerösen Zustandes, Ztschr. f. Tuberk. 77: 81–107, 1937.

Seven cases of lung cancer verified by post-mortem examination are described. In each instance the patient was originally admitted to a tuberculosis sanatorium as suffering from pulmonary tuberculosis. Tumor was detected in the course of observation. Two patients had uncomplicated bronchial cancer; in 3 bronchial cancer was associated with tuberculosis. In one of the latter group each process was distinctly limited to one side of the chest; in a second an inactive tuberculous focus was present in the right apex and a carcinoma in the left lung, and in the third both lesions involved the same lung. One patient had a pleural endothelioma and one a thoracic lymphosarcoma arising in the mediastinal lymph nodes. Neither of these had evidence of tuberculosis. It is obvious, the author believes, that tuberculosis and tumor are independent, unrelated affections.

The paper contains a discussion on the differential diagnosis of tuberculous and neoplastic disease of the lung. Roentgenograms of the chest and a photomicrograph illustrating tumor tissue in the sputum are reproduced. There is an extensive bibliography.


A case of "oat-cell" cancer of the right lung with metastases in the suprarenal gland and sixth dorsal vertebra, in a man of sixty, is described. The growth arose in the bronchial wall 1 cm. beneath the thickened pleura at a site corresponding to a fracture of the third, fourth, and fifth ribs sustained nine years previously.


A woman aged thirty-three had bronchial stenosis which had been demonstrated by radiography with lipiodol two years previously; cough had been present for twenty years, following an acute pneumonia. An endobronchial tumor was found by bronchoscopy and a piece was removed; it was diagnosed histologically as cylindroma with a mucoid and hyaline stroma. A radium needle was implanted for ten days. Permeability of the bronchus was restored and four months later the patient was considerably improved. The prognosis is unfavorable, however, on account of the damage resulting from the long-continued stenosis.

Benign tumors of this kind are of interest because they are curable by simple radiotherapy. They closely resemble malignant tumors and their true nature can be established only by biopsy. In the case recorded the age of the patient and the long history were against a diagnosis of malignant tumor.

The paper is illustrated by roentgenograms and photomicrographs, and a bibliography is added.

A twenty-eight-year-old man had had pain between the shoulder blades for three years and a severe cough for two months. Diagnosis of a mediastinal tumor was made by an x-ray picture. A posterior mediastinotomy with simultaneous opening of the pleura gave a satisfactory field and a 370-gram neuroma was removed successfully. A good roentgenogram is reproduced and a short list of pertinent references is appended.

Sophian (Ann. Surg. 101: 827, 1935. Abst. in Am. J. Cancer 24: 897, 1935) has reviewed the literature and Harrington (J. Thoracic Surg. 3: 590, 1934. See Abst. in Am. J. Cancer 23: 880, 1935) has recorded 14 cases from the Mayo Clinic. This thoracic condition is not as rare as it has been thought to be.

THE DIGESTIVE TRACT


A tumor of the esophagus, 19 cm. from the dental arch, was found in a woman aged sixty, who had suffered for a year from difficulty in swallowing and emaciation. The symptoms were greatly ameliorated by radiotherapy, but four months later evidence of gastric disease appeared and the patient died seven months after the beginning of treatment. Autopsy revealed a tumor $3 \times 2$ cm., 5 cm. below the arytenoid cartilages, a tumor $5 \times 6$ cm. at the cardiac orifice of the esophagus, extending into the stomach, and four tumors, each about $0.5 \times 1$ cm., in the middle third of the esophagus. Multiple tumors of the esophagus are extremely rare.

L. Foulds


Two cases are recorded in which removal of a carcinoma of the middle thoracic segment of the esophagus was attempted. In the first patient, a man of thirty-eight, a one-stage procedure was done. After preliminary narcotization of the left phrenic nerve the lower end of the esophagus and stomach were separated through an abdominal incision, following which an incision was made over the left clavicle. The esophagus was dissected away bluntly with the fingers above and below and the end with the tumor was drawn through the cervical incision and ligated. The stomach was then drawn through the esophagus bed and sutured in the cervical incision. The left pleura was punctured during the operation and the patient died on the following day with a pneumothorax and right-sided bronchopneumonia.

In the second case, in a sixty-year-old woman, a preliminary gastrostomy was performed, and the stomach was not drawn through the thorax as in the previous case following removal of the esophagus. The patient is alive and well after six months, although a metastatic node was removed from the lesser curvature of the stomach at operation. The author believes the procedure to be feasible in selected cases.

The paper is well illustrated.

Seaton Sailer


The authors believe that 10 to 20 per cent of chronic ulcers of the stomach without definite criteria of malignancy prove eventually to be carcinomatous. In their clinic
at the University of Rochester, response to a strict ulcer régime is made the basis for
classification of all gastric ulcers into two groups. If (1) ulcer pain diminishes in the
first week, (2) if symptoms and occult blood in the stool disappear, and (3) if roentgen
examination shows a significant decrease in the size of the ulcer niche by at least one-
third of its cross-sectional area within three weeks, conservative treatment is continued
and the case is followed roentgenographically until the niche disappears. If, however,
any of the three conditions mentioned is not fulfilled, if disappearance of symptoms is
later followed by their recurrence, or the niche, having decreased in size, becomes
stationary or begins to enlarge, the case is classified as a carcinoma suspect and operation
is carried out without delay. This consists in subtotal gastrectomy, including the
lymph node-bearing areas along the left gastric artery, in the paraduodenal region, and
of the gastrocolic omentum. The authors prefer the Moynihan modification of the
Polya operation, though their choice is modified by the physical conditions encountered.

Attention is called to the fact that ulcers just proximal to the pylorus may simulate
duodenal ulcer roentgenologically, showing a constant spastic deformity of the duodenal
cap, without anything to suggest the localization of the lesion on the gastric side.
Where a supposedly duodenal ulcer fails to respond to treatment, therefore, the possi-
bility of a prepyloric lesion should be considered.

Illustrative cases, roentgenograms, a photomicrograph, and references are included.
No statistics are given.

Chronic Gastritis and Carcinoma of the Stomach, H. Finsterer. Chronische Gastritis

This report was presented at a meeting of the Surgical Society in Vienna. A
seventy-two-year-old woman, who had suffered for two years from stomach symptoms
and vomiting, was found to have a marked narrowing of the antrum by either a scirrhous
carcinoma or perigastritis following an old ulcer. At the time of operation the pylorus
was practically completely closed. The muscle was greatly hypertrophied and the
mucous membrane was hypertrophic, but no tumor could be palpated. A gastro-
duodenostomy was done and a portion of the hyperplastic mucous membrane excised.
Microscopic examination showed a beginning carcinoma with invasion of the muscular
wall. About three weeks later a subtotal resection of the stomach was carried out,
with removal of the pylorus and the omentum. Examination of the specimen showed
no ulceration of the mucous membrane but histologically carcinoma was present both
in the form of gland tubules and scirrhouus areas, and several nodes from the lesser
curvature were completely involved. This case shows how difficult is the differential
diagnosis between chronic gastritis and beginning carcinoma.

A second patient was operated upon for what was supposed to be a large carcinoma
but was found to be only an extensive hyperplasia of the muscularis and mucosa.
On further exploration of the stomach one small ulcer was found on the lesser curvature,
which on microscopic examination showed carcinoma. The patient died eight months
later with extensive metastases in the liver.

Finsterer feels that in these very difficult cases, where a differential diagnosis is
impossible, it is wiser to do a partial resection in the presence of marked hypertrophy
of the mucous membrane, for the mortality is relatively low, his own being only 0.9
per cent, and it is quite impossible during the operation to recognize minute carcinomata.
Nor can certain small carcinomata be recognized gastroscopically.

Pernicious Anemia and Gastric Cancer, R. Teufl. Perniziöse Anämie und Magen-
karzinom, Arch. f. Verdauungskr. 61: 166–180, 1937.

Two cases of associated pernicious anemia and gastric cancer are described. In
the first patient, a woman aged forty-nine, a permanent remission of a severe primary
anemia was obtained with liver therapy. Three years later evidence of gastric disease
developed and laparotomy revealed an inoperable carcinoma of the stomach. The
second patient, a man aged fifty-three, had the classical syndrome of pernicious anemia
two years following resection of the stomach for cancer. There was no evidence of a recurrence or metastases and the symptoms were completely relieved by liver therapy. The patient continued symptom-free one year later.

Milton J. Eisen


In the decade 1926-36 there were performed 16 total gastrectomies at the Massachusetts General Hospital. Fourteen of the patients had cancer of the stomach, one a lymphoblastoma superimposed on an old ulcer for which gastro-enterostomy had previously been done, and one a large benign ulcer mistakenly diagnosed as cancer. Eight of the series survived operation. Five were still living at the time of this report, but two of them were believed to have had recurrences after nine months and three years respectively. Two were believed to be free of recurrence fourteen months and four and a half years respectively after operation. The ulcer patient was thought to be well, although she could not be traced. The patient living the longest time had a highly malignant adenocarcinoma with metastases to the regional lymph nodes.

The author's operative technic is described and illustrated by drawings. It involves an esophagojejunostomy, the jejunum being previously fixed to the diaphragm posterior to the cut end of the esophagus by a row of fine sutures. Among 8 patients in which this procedure was used there were but 2 operative deaths. Of 3 patients in whom an esophagoduodenostomy was done, none survived.

References are appended.


A general discussion of carcinoma of the stomach illustrated by drawings showing the operative technic. The author precedes gastrectomy by a jejunostomy through a separate small incision and the institution of jejunal alimentation as described by Wolfer (Ann. Surg. 101: 708, 1935).


In 1932 Mateer and Hartman (J. A. M. A. 99: 1853, 1932. Abst. in Am. J. Cancer 19: 175, 1933) reported 6 cases of duodenal carcinoma from the Henry Ford Hospital. These are again recorded with 5 additional cases, bringing the number seen in a decade to 11—approximately one for each 14,000 hospital admissions. In only 2 cases was a preoperative diagnosis of carcinoma of the duodenum made. The symptoms pointed simply to the gastro-intestinal tract as the seat of the trouble and in only 4 cases did roentgen studies show a duodenal defect. The authors consider the presence of occult blood in the stool the most valuable sign of the disease. When this is not otherwise accounted for, a malignant lesion of the duodenum should be suspected.

Three cases in the series were not operated upon. In 2 cases the tumor was not found at operation, though its presence was proved at autopsy; in 3 of the remaining cases a palliative operation was carried out and in one case a radical resection of a portion of the duodenum was done, with transplantation of the common duct into the stomach and a posterior gastro-enterostomy. At a subsequent operation for a pancreatic fistula numerous tumor implants were found scattered over the surface of the transverse colon and adjacent mesentery.

Ten of the tumors were cylindrical-cell adenocarcinomas, with associated squamous-cell carcinoma in one case. The exception was diagnosed as medullary carcinoma.

The author has collected from the literature 97 cases of duodenal carcinoma in which some attempt at radical operation was made. Twenty-five patients were reported to have survived from one to twenty-two years. One roentgenogram and three photographs of tumors are reproduced.

A bibliography is appended.

Stenosis of the third part of the duodenum in a woman aged forty-five was caused by a malignant lymphogranuloma strictly localized to that situation except for invasion of a mesenteric node. The third part of the duodenum was resected; an end-to-end duodenojejunal anastomosis was made, supplemented by a gastro-enterostomy. The patient was well sixteen months later. The surgical procedure is discussed and the microscopic appearances of the tumor are described and illustrated by photomicrographs. A bibliography is provided.

L. Foulks


A lymphoblastic sarcoma of the first loop of the jejunum was removed from a man aged twenty-six, who died soon after the operation. The tumor was exceptional in that it had produced stenosis and caused hematemesis. Malignant tumors of the small intestine, and of the jejunum in particular, are rare and those that occur are almost all sarcomata.

L. Foulks


A neurinoma of the ileum, measuring 8 cm. in diameter, and the involved portion of the intestinal canal were resected in a twenty-nine-year-old man. As a result of central necrosis the tumor had ruptured and given rise to acute peritonitis. Generalized abdominal involvement by tumor developed three years later. Radiotherapy was without effect. A necropsy disclosed diffuse peritoneal dissemination of the tumor. The metastases showed the characteristic histologic aspects of neurinoma, but malignant alteration was indicated by the numerous mitotic figures. Photographs of the gross specimens, photomicrographs, and a bibliography are included.

Milton J. Eisen


The authors review the literature on neuromatous tumors of the appendix and furnish a bibliography. In their own investigation 600 appendices were studied and in 202 of these neuromata were found. The Masson stain proved most satisfactory for demonstration of these lesions.

Of the 202 neuromata, 140 occurred in completely or partially obliterated appendices. Some were of microscopic dimensions while others measured 2 or 3 mm. in diameter. In only one instance was there gross evidence of a neuromatous mass. In this case, recorded here, the neuroma had broken through the muscularis mucosae and appeared in the subserosa. Only 2 other cases in which this occurred have been reported (Masson: Am. J. Path. 4: 194, 1928).

Two photographs and two photomicrographs are included.

Milton J. Eisen


The author cautions against confusing diverticula of the colon complicated by inflammatory changes with cancer. In two patients, aged fifty-six and fifty-eight, inflamed diverticula of the sigmoid gave rise to symptoms and radiographic signs, such as an irregular filling defect, suggestive of cancer. Examination several days later, after subsidence of the inflammation, revealed the uncomplicated roentgen signs
of diverticula. In a third case, confirmatory studies were unfortunately not made; a sigmoidal mass was resected and the patient died four days postoperatively. The condition proved to be a diverticulum with edema of the surrounding tissue, but no evidence of malignant disease was found. Roentgenograms are reproduced.

Milton J. Eisen


A single woman aged thirty-two had three attacks of supposed appendicitis in the course of three years, with digestive disturbance and pain localized in the right iliac fossa but no fever. Two of the attacks coincided with the menstrual periods, which had been painful for ten years. At operation the appendix and a portion of epiploon were removed. Histologically, endometrioma was present in both. The features of endometrioma of the appendix are discussed briefly and a bibliography is furnished.

L. Foulks

THE PANCREAS


The author suggests certain modifications of his two-stage procedure (Ann. Surg. 102: 763, 1935. Abst. in Am. J. Cancer 26: 840, 1936) for carcinoma of the ampullary region and head of the pancreas, with a view to the prevention of cholangitis and cholecystitis. According to the modified technic the first stage will consist of ligation of the common duct below the cystic duct and an antecolic cholecystojejunostomy on the Roux principle of anastomosing the distal cut end of the jejunum to the fundus of the gallbladder, with an end-to-side anastomosis of the proximal cut end of the jejunum to the side of the jejunum 10 to 12 cm. below the cholecystojejunostomy. The second stage, to be done after three weeks, will begin with a gastrojejunostomy, followed by an excision of the descending or second portion of the duodenum, the ampulla of Vater with the lower end of the common duct and a wedge-shaped portion of the head of the pancreas, with ligation of the cut end of the pancreatic duct and closure of the pancreatic stump.

The first stage has been done in three patients without the development of a cholangitis.

The immediate results of 11 two-stage operations of which the author has records are given. One of his own patients is alive and well after two years.

Drawings illustrating the technic of operation are included.


A case is recorded, with autopsy findings, of carcinoma primary in the ampulla of Vater. The terminal common bile duct, proximal pancreatic duct, and mucous membrane covering the papilla of Vater were entirely free of neoplastic growth. Photomicrographs are included.

THE BILIARY TRACT


A man aged sixty-five died during an emergency operation for intense abdominal pain and vomiting of sudden onset. The peritoneal cavity was found to contain about three liters of unclotted blood derived from a tumor of the liver which had undergone necrosis. The neoplasm was an adenocarcinoma of the usual type.

L. Foulks

The portion of the common bile duct involved by a stenosing adenocarcinoma situated 1 cm. above the sphincter of Oddi was resected successfully in a man of fifty-four years. Bile drainage was obtained by means of a cholecystogastrostomy. A roentgenogram, photograph of the excised tumor, and a photomicrograph are reproduced.

MILTON J. EISEN

RETROPERITONEAL TUMORS


A twenty-two-year-old woman had a palpable abdominal mass and pyelographic evidence of caudal displacement of the left kidney, without changes in the outline of the renal pelvis. The urine and kidney function were normal. The signs were suggestive of a retroperitoneal mass and at operation by a transperitoneal approach a retroperitoneal hypernephroma above the upper pole of the kidney was removed. The author believes the tumor to have originated in heterotopic suprarenal tissue. Two cases of extrarenal suppuration producing similar clinical signs are also described. Pyelograms are reproduced.

MILTON J. EISEN

THE SUPRARENAL GLANDS


A tumor measuring 6 × 5 × 4 cm. was found at autopsy in the left suprarenal gland of a woman aged seventy-three. It is described as a cortical adenoma developing from the glomerular layer, yet predominantly of spongiocytic structure. The medulla was destroyed. The right suprarenal was apparently normal. There were no symptoms referable to insufficiency of the medulla or to disturbance of the cortex. The absence of signs of cortical dysfunction is explained by the age of the patient. Two photomicrographs are included.

L. FOULDS

THE FEMALE GENITAL TRACT


This discussion of precancerous changes in the cervix is based on the study of several hundred cervices removed mainly for chronic inflammatory conditions. Naked-eye examination usually gives no clue to the probable onset of carcinoma. Apparently, though the material examined is not very large, the lacerated, everted, badly eroded cervix is no more prone to carcinoma than is a mere superficial erosion. Patches of leukoplakia invisible to the naked eye may be distinguished by the colposcope. The lesions consist of small, sharply defined, slightly elevated, oval or circular areas up to 1 cm. in diameter and of a pale gray color. A variable degree of epithelial thickening and keratinization is seen, but the basement membrane is not penetrated. Changes in the stroma may favor the development of carcinoma by facilitating the down-growth of epithelium as a result of lack of the normal resistance or by interfering with the normal epithelial metabolism and so predisposing to malignant change. The most suggestive lesion seen by the author is marked hyalinization in the subepithelial stroma. A mere increase in the thickness of the surface epithelium does not indicate the probability of carcinoma. The chief precancerous changes, affecting mainly the squamous epithelium, are irregular staining of cytoplasm, hyperchromatism, mitoses, increased size of nuclei,
and metaplasia with multinucleated epithelium. The author states that his deductions are speculative but that it is well worth attempting to explore this area halfway between malignancy and non-malignancy.

Two photomicrographs are included.


The author analyzes the influence of previous pregnancy on the incidence of uterine cancer and concludes that child-bearing is of importance in the etiology of cancer of the cervix. The number of children of 181 patients with cervical cancer was as follows: none, 14; one, 23; two, 20; three, 22; four, 16; five, 15; six, 16; seven, 19. Thirty-six patients had eight or more offspring. [The number of cases is too small to warrant positive conclusions, and the incidence of disease is not calculated on the basis of general population figures in each category.]

Of 19 patients with cancer of the body of the uterus 10 were nulliparae.


During the years 1921-1932, 813 patients were examined and 592 were treated by irradiation in the Cancer Institute of the University of Paris. The cases were classified according to the League of Nations criteria as follows:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Patients treated</th>
<th>Patients surviving five years without recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>40</td>
<td>23 (57.5%)</td>
</tr>
<tr>
<td>II</td>
<td>92</td>
<td>45 (48.9%)</td>
</tr>
<tr>
<td>III</td>
<td>284</td>
<td>91 (31.6%)</td>
</tr>
<tr>
<td>IV</td>
<td>176</td>
<td>8 (4.5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>592</strong></td>
<td><strong>167 (28.2%)</strong></td>
</tr>
</tbody>
</table>

The number of patients seen in Stage I (9 per cent of the total) was still unsatisfactory, despite propaganda. Late recurrences were rare, only 10 cases being observed among 592 treated; 5 were in the sixth, 3 in the seventh, 1 in the ninth, and 1 in the twelfth year.

The clinical determination of the stage of the disease is difficult and the help which may be derived from cystoscopy is emphasized. Histologic examination often discloses secondary deposits in apparently normal lymph nodes. Penetrating irradiation of the nodes is, therefore, justified even in the earliest tumors, for which local radium treatment may be inadequate.

The method of treatment is discussed briefly. Radium treatment is given in a single application of 7,000-7,500 mg. hours in the course of six to twelve days. It is usually advisable to produce cicatization of the cervix by vaginal application of radium or by deep x-ray therapy before introducing radium into the uterus; cicatization is usually produced in four or five days. Radium treatment is always supplemented by x-ray therapy. During the period under consideration, a total dose of 8,000-10,000 r was given in weekly or bi-weekly exposures, at 200 to 300 kv. The comparative value of the 600 kv. apparatus now in use is not yet decided. The author is doubtful whether there is any advantage in using 1,000 kv., which may, indeed, be less satisfactory. She has found no advantage in using a 5 gram radium bomb instead of x-rays. The proportion of cures of cases in Stages II and III has increased since the systematic use of x-rays
in conjunction with radium was instituted. The mishaps which may occur during radiotherapy are described and their prophylaxis and treatment are discussed.

The statistical results are presented in eight tables. L. FOULDS


The author previously found the incidence of vaginal fistula in untreated patients with carcinoma of the cervix to be more than twice as high as in irradiated patients (Am. J. Cancer 22: 52, 1934). In a study of 499 additional cases treated in 1933–1936 he has found the incidence to be 3.3 in irradiated patients and 8.1 in those untreated. The incidence appears to have been only slightly higher, if at all, with the divided dose technic than with massive dosage. Four references are appended.


Hysterectomy was performed in a woman aged forty-five for cancer of the body of the uterus. The patient had been sterilized four years previously with roentgen rays to control uterine bleeding, at which time curettage had revealed no evidence of disease.

**Case of Anuria Following Bilateral Closure of the Ureters by Carcinoma Metastases, H. Löwenkron.** Ein Fall von Anurie infolge doppelseitigen Ureterverschlusses durch Karzinommetastasen, Wien. med. Wchnschr. 87: 877–878, 1937.

A woman aged forty-six died of uremia five years after hysterectomy for uterine cancer. Necropsy disclosed extensive metastases in the pelvis, paravertebral lymph nodes, bladder wall, and both ureters, with hydronephrotic atrophy of the kidneys subsequent to complete ureteral obstruction.


Two cases are described. In the first patient, aged sixty-two years, hysterectomy was performed. Replacing the anterior wall of the uterus was a cystic mass 13.5 × 11.5 × 9 cm., consisting of tubules of varying caliber lined by one or two layers of cylindrical cells embedded in a fibromuscular stroma. No direct relationship to the mucosa of the body of the uterus or cervix existed.

In the second patient, aged sixty-three, peritoneal sarcomatosis was found at necropsy, with metastases in the anterior abdominal wall and lungs. Hysterectomy for fibromyoma had been performed two years previously. Re-examination of the original histologic sections revealed zones of adenofibroma similar to those described in the first case. A spindle-cell sarcoma had developed as a result of malignant alteration confined solely to the stroma. The author surmises an origin of the adenofibroma in heterotopic remnants of the wolffian body.

A photograph of the gross specimen in the first case and photomicrographs are reproduced.


A nulliparous woman aged twenty-two complained of vaginal discharge and intermittent hypogastric pain; both symptoms had been present for one week only but operations for cervical polypi had been performed four times during the previous year. Total hysterectomy was carried out and deep x-ray therapy was administered; the outcome is not stated. The uterus was extensively infiltrated by a mixed-cell sarcoma but the adnexa were not invaded.

The author distinguishes between adenomyosis and endometriosis. The first, the more common condition, consists in the presence of endometrial tissue in the muscular layer of the uterus or more rarely of the uterine tube, as a result of direct penetration by the uterine mucosa. The etiology is most likely hormonal. Cystic spaces containing hemorrhagic fluid may develop secondarily, but the lining cells do not always participate in the menstrual cycle. Adenomyosis occurs rarely in the cervix and must be distinguished from adenocarcinoma. The cardinal symptom is irregular bleeding. The treatment advocated is either vaginal hysterectomy or roentgen sterilization.

Endometriosis signifies the existence of endometrial tissue in sites other than the uterus or tube. It is believed to develop following the transportation of endometrial fragments to an abnormal location. The chocolate cysts of the ovary are the common prototype. The chief symptom is the presence of a mass. Treatment consists in excision.

Several illustrative case histories and photomicrographs are included.

Milton J. Eisen


Disturbances in urination, varying from temporary intervals of anuria to painful or frequent micturition, were observed in 84 (20 per cent) of 428 patients with fibromyoma of the uterus. Growths on the anterior or posterior uterine wall may cause urinary complications as a result of pressure on the urethra, bladder, or ureters, or through the production of circulatory disturbances in the urinary tract. Secondary urinary infection may occur. The condition is generally relieved by surgical intervention for the fibromyoma. Roentgenograms are reproduced.

Milton J. Eisen


An unmarried woman of thirty-two had a large abdominal tumor involving the uterus and adnexa. Inspection of the pelvic contents at laparotomy led to a diagnosis of bilateral malignant ovarian cysts with pelvic metastases. A radical abdominal hysterectomy with bilateral salpingo-oophorectomy was done and on histologic examination the diagnosis was changed to papillary carcinoma of the left fallopian tube with metastases to both ovaries and the left mesosalpinx. The patient made a good operative recovery and roentgen therapy was given, but the author is still guarded in his prognosis. Photomicrographs and references are included.

Milton J. Eisen


The author utilized silver impregnation methods and the azocarmin stain to ascertain the presence of reticular fibers in 19 granulosa-cell tumors. Great variation was observed in the extent of their development in various tumors and in each individual tumor. Associated with a diffuse, solid arrangement of tumor cells or the trabeculated type was a well developed network of argyrophil fibers surrounding the individual tumor elements. When the cells were arranged in circumscribed groups, with or without a lumen, reticular fibers were less prominent. They were absent in areas of follicular and pseudo-follicular differentiation and in non-differentiated zones of tumor containing secretory masses. No fibrils were observed between cells lining the inner margins of cystic spaces. This recalls the normal ovum, in which a network of reticular fibers is present between the theca cells, but is absent in the granulosa.

No relationship was detected between greater tumor differentiation, associated with a decrease in argyrophil fibers, and the extent of endocrine function of the growth.

Drawings are reproduced.

Milton J. Eisen

A squamous-cell cancer arising in the region of Bartholin's gland in a woman aged sixty-three was removed surgically. Seven months later a metastasis in a femoral lymph node was excised. Further details are not given. A photograph of the involved area and photomicrographs are reproduced. Milton J. Eisen

THE GENITO-URINARY TRACT


A woman of twenty had papillary carcinoma of the right kidney adjacent to a large calculus occupying the renal pelvis. A previous history of renal colic and hematuria indicated the presence of nephrolithiasis since the seventh year of life. Nephrectomy was performed, but the subsequent course is not recorded. A pyelogram, 2 photographs of the excised kidney, and a photomicrograph are reproduced. Milton J. Eisen


A man aged sixty had hematuria, increasing in frequency, following several months of lumbar pain. Nephrectomy was carried out six months after the first attack of hematuria, for a large carcinoma of the left kidney. The patient recovered, but two years later he suffered increasing lumbar pain and wasting. He died about three years from the onset of symptoms. Autopsy revealed complete destruction of the third lumbar vertebra by metastatic tumor, but no secondary growth was found elsewhere. The late development of the secondary deposit in bone is exceptional. L. Foulds


A hemangioma occupying the upper two-thirds of the right kidney in a woman aged thirty gave rise to renal colic and hematuria of several years' duration. Pyelographic examination showed distortion of the outline of the calyces. The condition was cured by nephrectomy. A pyelogram, a photograph of the extirpated kidney, photomicrographs, and a review of the literature are included. Milton J. Eisen


A man of fifty-seven years had pain in the right flank for three years, but hematuria was never observed. Intravenous pyelography revealed absence of excretory function in the right kidney and cystoscopic examination showed a blockage of the right ureter 12 cm. above the bladder. A hydronephrotic kidney and the ureter containing a papilloma attached to its wall by a pedicle 5 cm. in length were successfully removed. A photograph of the gross specimen is reproduced. Milton J. Eisen


This paper contains a general discussion of the diagnosis and treatment of tumors of the bladder based on a study of 218 cases of papilloma and 167 of cancer. There were 167 male patients in the first group and 51 females; 120 males in the second group and 47 females. For benign tumors endovesical electrocoagulation or destruction of the growth chemically with trichloracetic acid is advocated. Suprapubic excision is resorted to when the location of the tumor or its size precludes successful endovesical therapy.
In 42 patients a recurrence was observed following the treatment of benign tumors and in 6 instances the recurrent growth showed evidence of malignant alteration.

In the treatment of malignant tumors excision, irradiation, and electrocoagulation are employed. In cases of advanced disease symptomatic therapy is indicated. Of 54 patients from whom the growth was excised, 15 survived after one year, 9 after three years, and 1 after five years; of 30 patients in whom surgery was combined with radium therapy, 18 survived after one year, 9 after three years, and 1 after four years; of 41 patients receiving roentgen therapy, 25 survived after one year and 1 after three years; of 18 in whom the tumor was destroyed by electrocoagulation, 4 were living after one year and 1 after four years.

Three roentgenograms of the bladder are reproduced. 


A case of leiomyosarcoma of the bladder in a child of four years is recorded, with autopsy findings. Only 4 other cases could be found in the literature and details of these are given. One was in a child and the others in adults. The symptoms are not pathognomonic and diagnosis depends upon biopsy. One of the patients is known to have been alive more than four years after a segmental resection. None of the others lived more than four months after operation. A cystogram, a photograph of the bladder, and photomicrographs from the authors' case are reproduced. There is a bibliography covering leiomyosarcoma of other organs as well.


A series of 215 cases of carcinoma of the bladder treated at the Memorial Hospital, New York, by radium cystoscopically or by the suprapubic implantation of radon seeds, showed 32 per cent three-year cures and 24 per cent five-year cures. The method of treatment is determined by the size of the tumor, the condition of the kidneys, and the degree of infection present. The tendency is toward increasing use of the cystoscopic technic. If the tumor is ulcerated and infected and if the kidneys are hydronephrotic, the suprapubic implantation of a large amount of radon is a dangerous procedure from the standpoint of infection.


A man aged twenty-seven had left lumbar pain; the left testis, though not enlarged, was heavy and firm, and the urine gave a positive prolan reaction. Castration was followed by irradiation. About a month later the patient had violent epigastric and lumbar pain. The prolan reaction was still positive. Lymph node metastasis was suspected but had not been confirmed at the time of the report.

The left testis contained a tumor of mixed structure comprising epithelial formations of various kinds and mesenchymatous tissue. The epithelial tissue included tubular formations and keratinizing epidermoid formations. The tubules were lined variously by cylindrical cells with or without cilia, muciparous cells, cubical and endotheliform cells. Some of the cylindrical cells had the cytological characteristics of the epithelial cells of the mucosa of the body of the uterus; others resembled intestinal cells. The muciparous cells were also of uterine or of intestinal type. The uterine types predominated. Some tubules were lined in part by cylindrical and in part by epidermoid cells. The mesenchymatous tissues consisted of loose connective tissue and bundles of smooth muscle cells, the latter often forming cuffs around the tubules with an intervening layer of histiogenic tissue containing histiocytes.

The authors consider that the association of pseudo-glandular tubules with cuffs of histiogenic and smooth muscle tissue constitutes a typical endometrial formation, and
they think that the presence of red blood cells in cystic tubules is suggestive of menstrual bleeding. The significance of the positive prolan reaction is discussed. No chorio-placental tissue was detected, and there was no histological sign of malignancy.

The paper is illustrated by a photograph of the gross specimen and eleven photomicrographs.

L. FOULDS

THE NERVOUS SYSTEM

Mental Disorders in Brain Tumors, F. G. v. STOCKERT. Psychische Störungen bei Hirntumoren, Nervenarzt 10: 119–125, 1937.

This is essentially a review of the literature. The writer notes the higher percentage of mental disorders in the older literature as contrasting with the low percentage in modern reports. This is explainable by the improvement in diagnosis and the earlier operations done today. Two cases of craniopharyngioma are briefly recorded, in each of which the patient had shown mental symptoms.

Practically, as the writer shows, mental symptoms are rather rare in association with intracranial tumors.


Reference is first made to the author’s previous studies on deafness referable to the midbrain. In these studies it was shown that that portion of the secondary cochlear paths lying within the midbrain greatly resists pressure. A case is recorded of unilateral deafness in a patient with a “glioma” of the cerebellum on the same side. Necropsy findings are given in detail and there are seven illustrations. Brunner prefers the term “central peduncle deafness” to “midbrain deafness” in this case.


Of 24 patients with cerebellar tumors studied by the writer, only 4 showed disturbed hearing. Three of these cases (previously reported) are mentioned briefly. The fourth case is presented in detail. The patient, thirty years of age, complained of diminished hearing on the left, headaches, and a feeling of “falling to the left.” At operation a large cystic “glioma” was found in the left cerebellar hemisphere. Hearing returned to normal after the operation. Thus there was temporary deafness on the diseased side in this case of cerebellar tumor. Such deafness, the writer states, may result from “stasis hydrops” in the labyrinth. The literature is reviewed but no references are given.


Report of data obtained from a series of 32 cerebellar and 48 cerebral tumors. The results obtained with cerebellar tumors were those generally found. In cerebral tumor cases, the writer states, hyperexcitability is a less genuine response than in cerebellar cases. In the former it is chiefly an oculo-motor hyperexcitability, usually in association with a lesion of the cortical optical centers and fibers, and may be unilateral, contralateral, or bilateral. This oculo-motor hyperexcitability does not eventually give place to non-excitability.


This is the concluding paper of a series dealing with caloric tests in clinical diagnosis. The present report deals with 73 patients with intracranial tumors. A positive test was obtained in 53 per cent of 28 cerebellar cases and in 23 per cent of 45 cerebral tumor cases.

The author cuts large sections from the fresh tumor with the frozen section technic using pieces 20μ or more in thickness. These are stained with cresylecht violet and differentiated with alcohol. Sections are diagnosed not only as to the predominating cell type but as to the entire tissue relations. With this method a nicety of differential diagnosis is obtained fully equal to that with celloidin-embedded tissue stained with Nissl's technic.


The author has devised a proportional method of pineal localization which he has found superior to the graphic method of Vastine and Kinney (Am. J. Roentgenol. 17: 320, 1927) in ascertaining the position of the pineal body in normal subjects (Arch. Neurol. & Psychiat. 38: 1199, 1937). He has now applied his method to a series of 147 brain tumors and has obtained a correct localization in a higher proportion of cases than with the graphic method, especially in the case of frontal tumors, which commonly give few or no localizing signs. He draws the following conclusions:

1. The absence of a lateral shift, determined by actual measurement of the antero-posterior or postero-anterior film, combined with a shift backward or downward, is strong evidence in favor of a frontal tumor.

2. The presence of a lateral shift, combined with normal position in respect to the other two planes of space, is strong evidence in favor of a temporal or parietal tumor or a unilaterl collection of fluid in these regions.

3. The absence of a lateral shift practically rules out a space-occupying mass in the temporal lobe and renders a parietal tumor highly unlikely.

4. The absence of any shift in the three planes of space in the presence of a brain tumor indicates usually a subtentorial mass or a basilar midline mass above the tentorium.

5. The presence of a lateral shift combined with marked displacement backward or downward favors a frontal mass but does not exclude a temporal or parietal tumor above the tentorium.

6. The presence of a lateral shift combined with a forward or upward shift in the other plane of space may indicate an occipital mass or a sellar tumor and rarely a temporal or parietal mass.

Roentgenograms are included.


Remarks upon Lindau's monograph (Acta path. & microbiol. scandinav., Supp. I, 1926) are followed by a case report. A man of twenty-seven years showed clinical evidence of an expansive lesion of the posterior fossa. Operation disclosed a typical cyst, deep within the right cerebellar hemisphere. Sections made from the tumor led to the diagnosis of "angio-reticulo-xanthoma."


A woman of forty-three years had an illness of ten years' duration characterized by signs of intracranial tumor, headache, vomiting, papilledema and optic nerve atrophy, diminished sense of smell and taste, paresis of the right side, epileptiform seizures, and terminal dementia. Obesity and diabetes insipidus had developed in the second half of the course. Radiographically the sella appeared completely decalcified. Two operative interventions were unsuccessful. Necropsy disclosed a well vascularized,
malignant hypophyseal adenoma, probably composed of chromophobic cells, arising in the stalk and extending into the enlarged sella turcica and the sphenoid bone. The tumor penetrated and destroyed the optic nerves, large areas of the basal portions of the frontal, parietal, temporal and occipital lobes, the left basal ganglia, and cerebral peduncles. A photograph of the brain and 3 photomicrographs are reproduced. References are included.

MILTON J. EISEN


Injection in rats of blood serum of diabetics, three patients with acromegaly, and one with Cushing's syndrome resulted in a greater increase in the blood acetone and beta-oxybutyric acid than a corresponding injection of normal blood. No differences in the liver glycogen of the animals was observed.

MILTON J. EISEN


Sixteen cases of intraspinal tumor in children from ten weeks to eleven years of age are recorded, of which 6 were malignant. In one case the nature of the tumor was unverified. The diagnoses in the other cases were as follows: cystic teratoma (2 cases); neurofibroma (2 cases); teratoid tumor; chondrosarcoma; neuroblastoma; fibrillary astrocytoma; rhabdomyoma; cholesteatoma (2 cases); meningioma (2 cases); medulloblastoma; astrocytoma. Weakness of some sort was the presenting symptom in 11 cases and pain in only 5, though pain may well have been present in some of the presumably pain-free cases without giving any sign which could be correctly interpreted. The cerebrospinal fluid showed pathologic changes in all but one case, in which there is no record of a lumbar puncture. The changes were those typical of a block in the circulation of cerebrospinal fluid, viz., xanthochromia and elevation of the total protein content. In only 2 cases was iodized oil used for determination of the tumor level and the author believes that this procedure is required only exceptionally. A complete neurological examination and study of the cerebrospinal fluid are the essential diagnostic measures.

Nine of the patients died, one immediately after operation and the others after intervals of a month to five years; 2 patients were improved but showed some residual weakness; 5 were well fifteen months, five years, five and a half years, six years, and ten years after operation. The two patients in this series under one year of age—ten weeks and thirteen months respectively—are the youngest on record with intraspinal tumor. The thirteen-months-old child was well after five and a half years.

Photographs, drawings, photomicrographs and references are included.


The author describes 3 cases of schwannoma of considerable malignancy and one case of Recklinghausen's disease with multiple cutaneous tumours in which neurofibrils were demonstrated. Axis cylinders were also demonstrated by silver impregnation in all the cases. It is concluded that true neuromas of the peripheral nerves occur and that there are no precise limits between these and peripheral gliomas. The neurofibrils in the neuromas are not derived entirely from the invaded tissues but may be elaborated by the tumor. The paper is illustrated by 9 drawings and photomicrographs and a bibliography is appended.

L. FOULDS


A girl aged eighteen had a symptomless swelling, the size of a large banana, of one year's duration, in the tenth right intercostal space. The tumor was removed by
enucleation and had not recurred eighteen months later. The histologic diagnosis was peripheral neurinoma. The structure and the clinical course indicated that the tumor was benign.

L. FOULDS

Peripheral Glioma of a Branch of the Median Nerve, Lapeyre and H. L. Guibert.

Un nouveau cas de gliome périphérique d'une branche du nerf median, Ann. d'anat. path. 16: 231–234, 1939.

A tumor the size of a small walnut was enucleated from the external branch of the right median nerve of a woman aged thirty-two. Histologically it was a peripheral glioma developing from cells of the sheath of Schwann. The structure is described and illustrated by a photomicrograph.

L. FOULDS

BONES AND MUSCLES


The authors discuss the following primary bone tumors occurring in childhood: osteogenic sarcoma, endothelioma or Ewing's sarcoma, bone cysts and giant-cell tumors, cartilaginous tumors and liposarcoma. Five cases of osteogenic sarcoma in children with survival for five years or longer are tabulated.


Only 3 instances of tumors of the astragalus are recorded with the Bone Sarcoma Registry of the American College of Surgeons, of which the case here described is one. As in the other 2 cases, the initial symptoms were pain in the dorsum of the foot with swelling. The tumor was demonstrated roentgenographically, operation was undertaken, and a frozen-section diagnosis of osteogenic sarcoma was made. Amputation was carried out and two years and a half later the patient was well with no complaints. The histologic picture was like that in the other 2 recorded cases in suggesting a more favorable prognosis than is usual in osteogenic sarcoma of the long bones.

Photographs of the foot and roentgenograms are reproduced, but no photomicrograph.


A man of forty-five fell and struck his right knee, which was the site of one of multiple exostoses. Three weeks later some enlargement of the knee was noticed and three months after this a large tumor was present. The roentgen findings led to a diagnosis of periosteal osteogenic sarcoma. The patient refused amputation and a sharp dissection was done, followed by the implantation of radium (100 mg. hrs.). The tumor involved the bone at the site of the exostosis and infiltrated the muscles. It was cellular and highly vascular and contained small spicules of bone. The cells were embryonal in type and mitotic figures were numerous. The diagnosis was osteogenic periosteal or parosteal sarcoma and the prognosis was regarded as hopeless. In spite of this, the patient was alive and well thirteen years later. The suggestion is made that osteogenic sarcoma arising in an exostosis has a more favorable prognosis than the typical form. [It is more probable that the diagnosis was wrong.—Ed.] Roentgenograms and photomicrographs are included.


Konjetzny denies the neoplastic nature of giant-cell tumors of bone and considers alterations of this type to be a result of a chronic inflammatory reaction. A comparable inflammatory tissue may be observed occasionally at the periphery of central osteogenic sarcoma as a result of a reactive process. This is not to be confused with a malignant
alteration in a giant-cell tumor, which the author has never observed. Care must be exercised in obtaining biopsy material of bone tumors, since inadequate sections of a growth may show only the giant-cell inflammatory lesion. Photomicrographs are included.

Milton J. Eisen


Report of a tumor of the axis in a man of forty-five, characterized by severe pain unrelieved by rest. The patient died after eighteen months, of lung abscess with empyema. At autopsy the body of the axis was found to be almost completely destroyed by the tumor, which also largely replaced the odontoid process, forming a rounded mass covered in part by a thin shell of bone. The superior and inferior articular surfaces of the axis were intact, but the cancellous tissue of both the laminae was invaded. In addition to the destruction of the axis, the lesion extended on to the upper part of the anterior and posterior surfaces of the third cervical vertebra; there was some invasion of the anterior common ligament and muscle attachments in this region.

Microscopic examination showed areas of typical giant-cell tumor. Elsewhere osteoclasts were absent and collagen fibers were present in varying amount. Much of the tumor had undergone fibrosis, but there was only a little new bone formation. The gross picture closely resembled hemangioma and the authors suggest the possibility of this diagnosis in similar cases if complete microscopic examination is not made.

A roentgenogram, a drawing in color and photomicrographs are included. There is a bibliography.


A woman aged forty-seven had a swelling on the second phalanx of the right little finger; it grew rapidly and became painful. The tumor was removed, and histologic examination showed a fibroblastic sarcoma with osteogenetic properties. Bone sarcoma in the fingers is rare.


A cavernous angioma, 2 × 3 cm., on the internal aspect of the synovial membrane of the left knee in a man of thirty-six years was successfully excised. The involved joint had been intermittently painful for twenty years. A roentgenogram of the knee, photograph of the mass, photomicrograph, and review of the literature are included.

Milton J. Eisen


Report of a case. The tumor was removed and recovery was uneventful. A photograph and low-power photomicrograph are included.


Pronounced symptomatic improvement followed resection of a circumscribed mass of hypersecreting parathyroid tissue, approximately 2 × 1 cm. in size, in a woman of forty-three years with generalized osteitis fibrosa cystica. Blood calcium and phosphorus were 20 and 2.2 mg. per cent preoperatively and 10.45 and 4.2 mg. per cent two months after operation. A photograph of the parathyroid mass and photomicrographs are included.

Milton J. Eisen

An hemangioma containing angioliths was excised from the flexor muscles of the forearm of a boy aged eleven and a half. He was well six months later except for loss of muscular power in the hand.

Previous observations on hemangiomas of striated muscles are briefly reviewed and a bibliography is appended.

THE LEUKEMIAS


Five cases of lymphatic leukemia, verified at necropsy, are described, in which a clinical differentiation from other diseases of the hematopoietic system was impossible. Characteristic leukemic changes were not present in the peripheral blood. In one case of the subacute type a diagnosis of thrombocytopenic purpura appeared indicated, in two cases of the chronic form the condition resembled hemolytic anemia, and in two more rapidly fatal cases aleukemic leukemia gave rise to the clinical signs associated with agranulocytosis. Sternal marrow was normal in the first case and showed evidence of leukemia in the second and third cases. The results of sternal puncture in the remaining cases are not recorded. There are no illustrations. References are included.

Milton J. Eisen


This is a case report with autopsy record of an acute hemocytoblastic leukemia in a woman of twenty-eight years. The patient died in the fifth month of pregnancy, two days after spontaneous abortion. There are no illustrations.

Milton J. Eisen


A girl aged six was admitted to hospital for progressive pallor and weakness of three weeks' duration. The red-cell count was 1,400,000 with a color index of 1.3. The white cell count was 13,600 showing a neutrophil leukocytosis; later it fell to normal. During the next eight months the red cell picture was one of extreme hypoplasia of slowly diminishing severity; the leucocytes ranged from 3,000 to 8,000, the lymphocytes rising to 75 per cent. Splenectomy was carried out and was followed by the usual neutrophil leukocytosis. Seventeen months after the onset the white cell count was 3,000–10,000 with 88–89 per cent lymphocytes; the sternal marrow showed an increasing proportion of primitive cells, and the liver and inguinal lymph nodes were enlarged.

L. Foulds


A male child aged seven months was admitted to hospital with eczema, enlarged spleen, and enlarged lymph nodes. His condition remained stationary for two months. Blood counts suggested a diagnosis of myeloid leukemia, the other possible diagnoses being monocytic leukemia, or von Jaksch's syndrome.

L. Foulds


A case of chronic leukemia with combined involvement of the lymphatic and myeloid systems is described, in a man aged thirty-seven. The white blood cells varied from 8,000 to 76,000, the lymphocytes from 60 to 80 per cent, myeloblasts from 5 to 35
per cent, neutrophilic myelocytes from 1 to 4 per cent, and eosinophilic myelocytes from 0.3 to 0.5 per cent. Differentiation was possible by means of oxidase stains. Necropsy disclosed infiltration by leukemic cells of lymphatic and myeloid types in the lymph nodes, liver, spleen, kidneys, and bone marrow, with secondary osteosclerosis of the skull and bones of the extremities, and osteoporotic changes in the ribs. Roentgenograms of the skull and thorax are reproduced.  

EDUCATION

A lecture in general terms on recent progress in the experimental study and methods of treatment of cancer.  

General remarks.  

A discussion on the advisability of enlightening the cancer patient as to his true prognosis. The author is in favor of imparting full details, especially where the patient is unwilling to accept operation.