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## Abstracts

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## ABSTRACTS

Familial multiple endocrine adenoma-peptic ulcer complex. H. S. Ballard, B. Frame and R. J. Hartsock. *Medicine* 43:481, 1964.

The syndrome of multiple endocrine adenomatosis (MEA) is a familial disorder characterized by the concomitant occurrence of multiple tumors or hyperplasia involving endocrine organs. The parathyroid, pancreatic islets and pituitary are the glands most often involved. Less frequently involvement of the adrenals and thyroid has been noted. The adenomas may be hormonally active in one or more of the glands and in any combination. In more than 50 per cent of the reported cases peptic ulcer has been present. More often than not the peptic ulcer is multifocal in origin and fails to respond optimally to medical, surgical, or radiation therapy. The multiple endocrine adenoma-peptic ulcer complex as it occurred in a single family throughout a span of six generations is described. Seventy-four additional cases collected from the world literature are reviewed and analyzed. The clinical manifestations of MEA reflect the functioning states of the affected endocrine glands. Peptic ulcer disease occurring in association with MEA is of a severe intractable nature. In addition to pituitary, parathyroid, and pancreatic involvement with severe intractable peptic inflammatory disease, other significant findings include benign and malignant tumors of the thyroid as well as diffuse hyperplasia; benign and malignant tumors of the adrenal cortex and questionably adrenal medulla; benign and malignant bronchial and intestinal carcinoids; multiple lipomata; giant rugal hypertrophy of the stomach; steatorrhea and/or intractable diarrhea. In a given family the disease tends to manifest itself in a generally consistent manner. The MEA-peptic ulcer complex appears to be inherited as an autosomal dominant with variable expressivity, high penetrance, and notable pleiotropism. With present information it appears that many of the reported cases of the Zollinger-Ellison syndrome represent special variants of the more inclusive MEA.

Mechanism of aminonucleoside-induced nephrosis in the rat. IV. Hepatic mitochondrial oxidative phosphorylation. P. Bartlett, H. Schaefer and J. Keegan. *Proc. Soc. Exp. Biol. Med.* 117:248, 1964.

Phosphorylation associated with the oxidation of succinate is significantly higher in aminonucleoside-nephrotic rat liver mitochondria than in normal rat liver mitochondria. This alteration is induced as early as the 4th day during a 10-day period of induction of the disease with aminonucleoside. Phosphorylation associated with the oxidation of  $\alpha$ -ketoglutarate, malate, fumarate, and  $\beta$ -hydroxybutyrate is not significantly altered in liver mitochondria of the aminonucleoside-nephrotic rat. Phosphorylation associated with the oxidation of succinate is also increased in normal rat liver mitochondria incubated directly with aminonucleoside. In similar experiments conducted with rat liver submitochondrial phosphorylating complexes, however, aminonucleoside inhibits oxidative phosphorylation.

## ABSTRACTS

Stasis dermatitis and leg ulcers. J. Beninson. *Postgrad. Med.* 36:524, 1964.

Control of venous insufficiency in stasis dermatitis or ulceration, or both, depends on preventing edema. In stasis dermatitis, bed rest and a 30 degree elevation of the lower extremities may be sufficient to alleviate the edema. Further treatment depends on the severity of the skin eruption, infection, etc. Principles of managing ulcerations are essentially the same as in stasis dermatitis; however, in addition to resolving the edema it is necessary to maintain a physiologic pressure gradient. The author describes the pressure-gradient technics which he has used for the past decade in healing stasis ulcers occurring below the knee.

Subcutaneous calcifications in leg ulcers. J. Beninson and A. Morales. *Arch. Derm.* 90:314, 1964.

Three patients with recalcitrant leg ulcers complicated by calcification (ectopic mineral deposition) are presented. The ulcers in these three patients did not heal until the spicules of calcium were extruded or removed. Not only does ectopic mineral deposition interfere with healing of the leg ulcer, but also it may be the cause of the lesion. We suggest that in any case of recalcitrant leg ulcer, x-ray studies of the legs should be done to determine the presence or absence of calcified material. After the use of pressure gradient supports, two of these patients have not had any recurrence of the ulceration to date. Follow-up was not possible in the third patient.

Chylothorax. Observations in 20 cases. G. C. Bower. *Dis. Chest* 46:464, 1964.

Twenty cases of chylothorax are reviewed. Eight occurred in persons with malignant tumors, one in a probable tumor, seven occurred after intrathoracic (mainly cardiovascular) surgery, one followed nonsurgical trauma and three were without apparent cause. The anatomy of the thoracic duct is reviewed and characteristics of chyle described. In an adult who has not undergone thoracic surgery or suffered a chest or back injury, the finding of chyle in the pleural space is an ominous sign, usually indicating the presence of a widespread malignant tumor.

Critical analysis of 594 cancer patients treated with 5-fluorouracil. M. J. Brennan, R. W. Talley, E. L. San Diego, J. H. Burrows, R. M. O'Bryan, V. K. Vaitkevicius and S. Horeglad. *Chemotherapy of Cancer*, 1964.

As yet 5-fluorouracil remains the only pyrimidine antimetabolite which has received wide trial in solid tumor in man. It produces objective regressions at a rate of approximately 20 per cent in gastrointestinal cancer, breast cancer, cancer of the female genital tract, and in epithelial neoplasms of the head and neck. 5-fluorouracil is at present, the drug of choice in the palliative treatment of gastrointestinal neoplasia and hepatocarcinoma. The mortality associated with its use occurred primarily in debilitated patients and approximated 10 per cent of 594 cases. The minimal effective dose is equal to the minimal toxic dose. The mean duration of regressions produced by 5-fluorouracil is approximately seven months. The drug must be given in minimally toxic courses at monthly intervals if regressions are to be maintained. Palliation is sufficient, in spite of this requirement, to justify, in an otherwise hopeless clinical situation, the risks entailed in using it to treat progressive and symptomatic disseminated neoplastic disease of the several kinds which have been shown to respond to it.

Auriculotemporal syndrome. N. Chisa, C. G. Mendelson and J. D. Darnley. *Arch. Derm.* 90:457, 1964.

A case of auriculotemporal gustatory sweating following bilateral osteotomy for prognathism is presented. It is noted that the patient is likely to consult a dermatologist for this condition. The mechanism of production is discussed, and approaches to therapy are mentioned.

## ABSTRACTS

Gastrointestinal complications of collagen diseases. G. D. Couris, M. A. Block and C. E. Rupe. Arch. Surg. 89:695, 1964.

Life endangering gastrointestinal complications of collagen diseases occur with an increasing frequency. Perforation, massive hemorrhage, and infarction, in this order, are the most common complications from the gastrointestinal tract in patients with collagen diseases. They may occur separately or, more often than not, in combination and associated with gastrointestinal ulcerations, intraperitoneal infections, and various degrees of intestinal obstruction. Steroids may induce and precipitate gastrointestinal complications in collagen diseases. Their use should be cautious and practiced on an individual basis. However, gastrointestinal complications associated with collagen diseases occur in a significant number of patients who have never received steroid therapy. Until such progress can be made in the treatment of collagen diseases and the prevention of their complications, the most promising therapeutic measure remains a carefully elected and properly executed operation for patients with perforation, massive bleeding, or infarction involving the gastrointestinal tract. Early operations may be life saving for some of the patients, before deterioration ensues and the outlook becomes hopeless.

Squamous cell carcinoma as a complication of hidradenitis suppurativa. H. J. Donsky and C. G. Mendelson. Arch. Derm. 90:488, 1964.

The development of squamous cell carcinoma complicating hidradenitis suppurativa of the perianal region is reported. The patient, a 44-year old white male, had suffered from hidradenitis for 23 years. Malignant change was not confirmed pathologically until the eighth biopsy examination. The literature of hidradenitis suppurativa and malignancy in the disease is reviewed. The relation of hidradenitis suppurativa to the follicular occlusion triad is discussed.

The Radiological Society of North America. Fifty years of progress. H. P. Doub. Radiology 83:771, 1964.

In the preceding pages there has been presented a rather brief account of the founding and early years of the Radiological Society of North America. Many of the more personal activities of the early members have been omitted because of space limitation, but an attempt has been made to describe briefly the actual events as they relate to the history of the Society. It is obviously impossible, in so short a review, to describe in detail the multitudinous activities of fifty years. Most of the later activities are recorded in RADIOLOGY after 1923, and in the *Handbooks* of the business sessions of the annual meetings. The membership has grown from those 62 charter members in 1915 until there are at present 4,159 members in the various categories. It is believed to be the largest scientific radiological society in the world. The growth of the Society must be attributed to the conscientious work of the pioneer members and their wisdom in incorporating broad educational principles into the permanent framework of the Society. Much credit must be given also to the successive groups of younger members, who have introduced a spirit of scientific progressiveness and of buoyancy into the meetings.

Radial rate of osteon closure: Its application in the study of bone formation in metabolic bone disease. B. N. Epker, R. Hattner and H. M. Frost. J. Lab. Clin. Med. 64:643, 1964.

By use of the light microscope and fresh, mineralized cross-sections of human rib, the total cross-sectional areas and the Haversian canal areas were measured separately in 615 actively forming osteons. By performance of several normalizations and transformations on these data, a curve was obtained which plotted the changing size of the radius (of the Haversian canal as the osteon forms) against the time taken to make a new osteon. The first derivative of this curve was then taken, giving a curve which plotted the changing rate of radial closure against the time taken to make an osteon. In normal ribs taken from individuals aged 15 to 60 years, the radial rate of osteon closure proved to be approximately constant over the central 85 per cent of the closure time. Therefore, measurements of tetracycline or other markers of new bone formation that are deposited *in vivo* should be confined to this central portion of the osteon wall (or of the equivalent layer of trabecular or circumferential lamellar bone). The use of this restriction should permit meaningful comparisons of diseased bone with a norm.

## ABSTRACTS

The isolation and cytology of two pigment cell strains from B 16 mouse melanomas. F. Hu and P. F. Lesney. *Cancer Res.* 24:1634, 1964.

Two cell lines (HFH-14, HFH-18) isolated from B16 mouse melanomas were established as monolayer cultures. These cells retained their capacity of melanin pigment formation after repeated passages *in vitro*. According to their morphology and developmental history, various cell types, namely, melanoblasts, melanocytes, and mature melanocytes, are identified. These cells when inoculated into C57BL mice produced typical melanotic tumors which closely resembled the original melanomas from which the cell strains were derived. These cells have all the characteristics of melanocytes and are considered to be true pigment cell strains.

Hand disability due to tenosynovitis. A. P. Kelly, Jr., and H. S. Jacobson. *Industr. Med. Surg.* 33:570, 1964.

Tenosynovitis is a relatively common disorder of the hands, and one which is relatively simple to diagnose if one is aware of the sites of predilection, predisposing factors, and age groups most frequently involved. The most commonly encountered tenosynovitis in the industrial setting is stenosing tenosynovitis. Based on a number of studies we know we may expect the sites of predilection to be as follows; approximately one third will involve the abductor and short extensor of the thumb, one third the long flexor of the thumb, and one third the flexors of the digits. Patients with involvement of the abductor pollicis longus and the extensor pollicis brevis tendons have a sufficiently diverse clinical picture from the flexor tendons. Tuberculous synovitis is an infrequent cause of hand disability in this country. The sites of predilection are the radial and ulnar bursae in 60% of the cases, the common extensor in 20%, and the finger flexors in 15%. The right hand is affected twice as commonly as the left. The carpal tunnel is an unyielding fibroosseous passage comprised of the carpal bones on three sides and the dense fibrous flexor retinaculum. It contains the digital flexors and the median nerve. Rheumatoid tenosynovitis occurs with relative frequency in the course of rheumatoid arthritis. The disabling features of the disease will, however, remove many of the persons so affected from employment so that they will not constitute many cases in the industrial situation. Acute infectious tenosynovitis is not likely to be confused with other synovial affliction of the hands. Its symptoms, local and general, are unequivocal. The equitable settlement of compensation claims in these patients is difficult and the cost of some claims will unavoidably and unjustly be borne by the employer.

A cell system in which rate and amount of protein synthesis are separately controlled. O. Landeros and H. M. Frost. *Science* 145:1323, 1964.

The mean cross-sectional area of Haversian systems in adult human ribs tends to be constant in the face of sevenfold changes in the rates at which these systems are made. This implies that different mechanisms control the total amount of cellular work in making Haversian systems and the rate at which this work is performed.

A ten-year clinical study of plasma treated with betaprone and combined betaprone plus ultraviolet irradiation. Comparison with present methods of treatment. G. A. LoGrippe. *Pacif. Med. Surg.* 72:298, 1964.

Of the 5 methods recommended for the sterilization of plasma, the combined Betaprone and ultraviolet irradiation was the only procedure which successfully sterilized the plasma without significantly altering the physiologic and physical properties of plasma. In experimental laboratory studies of these 5 procedures using *E. coli* T-3 bacteriophage as the virus test object, only the combined BPL plus UV irradiation completely eliminated the trace quantities of phage virus without marked alterations of the plasma proteins. To date, clinical evaluation of pooled plasma treated with Betaprone and ultraviolet irradiation show no evidence of clinical hepatitis, toxicity or allergic reactions in 1,160 patients receiving over 3,000 transfusions.

## ABSTRACTS

Primary liver carcinoma. Autopsy study of 60 cases. R. B. Patton and R. C. Horn, Jr. *Cancer* 17:757, 1964.

The clinical and pathological features of 60 primary carcinomas of the liver are presented. This uncommon tumor may present problems in diagnosis for both the clinician and pathologist. In this series the diagnosis was made clinically in 7, by biopsy of the liver in 11, and only at autopsy in 42. Other primary clinical diagnoses were: intra-abdominal cancer, primary site unknown, in 17, carcinoma of the colon and pancreas in 2 each, and carcinoma of the stomach, esophagus, and bronchus in 1 each. Cirrhosis was the main clinical diagnosis in 13 cases. Clinical records are unavailable in the remaining 5. The pathological diagnosis of primary liver cancer is strongly suggested when gross malignant tumor is found in a cirrhotic liver. Bile-duct cancer cannot be distinguished accurately from liver-cell carcinoma grossly but microscopically liver-cell cancer resembles the normal liver in its cytology and architecture whereas bile-duct carcinoma typically has abundant dense fibrous stroma, forms small ducts or solid clusters, and is composed of cells with dense homogeneous nuclei and inapparent nucleoli. Bile in or closely associated with cells of a liver tumor establishes its origin from liver cells. Intravascular tumor growth is extremely common in both forms of primary liver carcinoma and accounts for the frequency of pulmonary metastasis.

Local anesthetic techniques in geriatric surgery. J. L. Ponka, J. K. Welborn, and S. M. Sanchez. *J. Amer. Geriat. Soc.* 12:1022, 1964.

Local anesthesia, chiefly local infiltration or regional block, was used successfully in 4586 major diagnostic and operative procedures performed during the two-year period 1962-1963. The possible effective use of local anesthesia for operations on aged, poor-risk patients should not be overlooked despite the present-day availability of excellent general anesthesia. Local anesthesia is most satisfactory in the repair of inguinal, femoral or umbilical hernia; 923 such defects were repaired under local and regional nerve block without a single death. For intestinal operations, local anesthesia was used most frequently in the performance of transverse colostomy. Whenever operation is to be performed within a limited anatomic zone such as the anorectal area, local anesthesia is quite effective. In 21 patients with acute cholecystitis, cholecystostomy was safely performed under local anesthesia achieved by subcostal injection of the anesthetic through the thickness of the abdominal wall. Eleven patients underwent gastrojejunostomy, gastrostomy or closure of a perforated peptic ulcer. Although gastrectomy can be performed under bilateral intercostal nerve block, the procedure may be difficult in obese, muscular or hypersthenic patients. The following were the totals for diagnostic procedures: aortograms, 1037; arteriograms, 925; pneumoencephalograms, 337; bronchoscopies, 578; and esophagoscopies 59. There were no deaths and no major complications in these 2936 patients. In aged, poor-risk, or critically-ill patients who have to undergo surgical operations, local anesthesia is of great value.

Ultrastructural study of fibrin dissolution via emigrated polymorphonuclear neutrophils. J. M. Riddle and M. I. Barnhart. *Amer. J. Path.* 45:805, 1964.

The cytomorphology of an inflammatory exudate mediated by fibrin was almost exclusively polymorphonuclear neutrophils and eosinophils. The percentage of each present was clearly time dependent. Eosinophils migrated in greatest numbers from 4 through 6 hours. Neutrophils were present throughout the entire period of inflammation and dominated the later hours usually associated with an influx of lymphocytes, hypertrophied lymphocytes and macrophages. Exudative neutrophils exhibited diffuse cytoplasmic staining with rhodamine antifibrinogen. Conversely, circulating neutrophils from the same animal were not stained with this marker. At the ultrastructural level, exudative neutrophils clearly participated in both extra- and intracellular fibrin dissolution. In both cases the neutrophil granules were actively involved. These cytoplasmic organelles were found extracellularly as single granules intermixed with the altered fibrin, or contained in shed cytoplasmic neutrophil buds interposed in areas of lysis between the leukocytes and typical fibrin. Intracellularly, the neutrophil granules were located near fibrin-containing vacuoles or attached to their limiting membranes. Fibrin ingestion by neutrophils was mediated by pseudopods which formed hooks engulfing small fibrin masses and ultimately isolating them. Fibrin structure was progressively altered as dissolution continued. The typical filamentous structure was first altered to a compact granular mass of moderate density and later appeared as a loosely arranged mass of little density. Exudative neutrophils in contact with fibrin showed a striking loss of cytoplasmic organelles, chiefly specific granules and vesicles of the endoplasmic reticulum. Exudative neutrophils were found to be important cellular agents for removal of fibrin from inflammatory sites.

## ABSTRACTS

Maximal absorption capacity for xylose in nontropical sprue. J. A. Rinaldo, Jr., and R. F. Gluckmann. *Gastroenterology* 47:248, 1964.

We found that the 5-gm. oral dose of D-xylose did not separate patients with nontropical sprue from controls as well as the 25-gm. dose. The use of 5-, 25-, and 50-gm. oral doses of xylose showed the absorptive maximum to be between 25 and 50 gm. in nontropical sprue. Although the 50-gm. dose of xylose separates patients with functional disease from those with nontropical sprue, the continued use of the 25-gm. test dose is recommended because it is cheaper, causes diarrhea only infrequently and still manages to separate efficiently patients with functional disease, nontropical sprue, and exocrine pancreatic insufficiency.

Proctomicroscopy: In vivo approach to the microcirculation of the rectum. J. A. Rinaldo, Jr., and B. M. Schuman. *Bull. Gastroint. Endosc.* Aug. 1964.

The colpomicroscope was originally designed to make possible the *in situ* diagnosis of cervical cancer. We have not made any attempt to examine variations in the epithelial cell layer of the rectum. This might be a further application of this instrument. A proctomicroscope adapted from the Reichert Colpomicroscope is described. This instrument allows examination of the venous capillaries and venules of the rectal mucosa at magnifications of about 170x.

The allergic emergency — Aftermath of modern therapeutics. J. H. Shaffer. *J. Kentucky Med. Ass.* 62:433; 523, 1964.

The widespread use of newer diagnostic drugs and chemotherapeutic agents has seemingly resulted in an ever increasing incidence of serious allergic reactions. The possibility of a life-threatening allergic emergency as a result of the use of these preparations should always be kept in mind as we write prescriptions for our patients or perform diagnostic and therapeutic procedures. The incidence of such reactions increases from approximately 2% in non-allergic individuals to 20% in those who are allergic. Heredity, route of administration, sensitizing quality of the drug, and associated diseases in the patient are all determining factors. Diagnostic pitfalls may be partially avoided by eliciting and using as a guide an accurate medical history which should document previous allergic responses on the part of the patient. Strict avoidance of highly reactive foods, biologicals and chemotherapeutic agents is helpful. Mass testing with protein substances is contra-indicated in highly allergic individuals. Therapeutic pitfalls exist in the office of every physician. Precautions should be taken to know the ingredients in preparations that we prescribe. Care must be used to ascertain that we administer the intended dose and strength of allergenic extracts. Treatment of the anaphylactic type of reaction to drugs, biologicals and chemotherapeutic agents requires abrupt discontinuance of therapy, prompt use of Epinephrine Hydrochloride, tourniquets, pressor substances, cardiac stimulants and resuscitation, and maintenance of adequate airway for the administration of oxygen. Present knowledge concerning the time intervals between the initiation of therapy with steroids and the first evidence of therapeutic effect indicates that nothing is to be gained by their use in the early treatment of anaphylaxis or acute allergic shock.

Lodged catheter during cardiac catheterization. J. D. Stewart and E. H. Drake. *Amer. Heart J.* 68:538, 1964.

Many and varied are the reports of complications of cardiac catheterization. Among them are: subendocardial hemorrhage; local thrombosis, including septal wall thrombosis after transeptal puncture; transient and more persistent arrhythmias; heart block, ventricular fibrillation progressing to cardiac standstill; cerebral emboli; peripheral vascular emboli; accidental air embolus to the brain; intracardiac knotting of the catheter; fever and bacteremia. A No. 7 Cournand catheter became lodged in the subclavian vein, requiring removal under general anesthesia. It was found to have been held by a cuff of vessel intima which was torn out when the catheter was dislodged.

## ABSTRACTS

The durability of aorto-iliac endarterectomy. D. E. Szilagyi, R. F. Smith and D. G. Whitney. Arch. Surg. 89:827, 1964.

The incidence and development of recurrent stenosis in the sites of operation were studied by serial angiograms in 67 cases of aorto-iliac endarterectomy fulfilling rather rigid follow-up criteria and observed for from two to over seven years. Among 151 operative sites, 49 (32%) showed stenotic recurrence. In 84% of these instances, the degree of stenosis was mild (of the order of 20%-30% of the lumen). Among nine cases that were followed angiographically for two years or more after the onset of recurrence all showed progression, and four occluded. In three cases the microscopic examination of the aorto-iliac segment excised at secondary operations disclosed lesions typical of atherosclerosis. These observations in no way detract from the great clinical value of aorto-iliac endarterectomy, but they point up the obvious fact that the surgical treatment of arteriosclerosis is not lastingly curative.

Laminagrams of the thorotrast-opacified liver in evaluation of chemotherapy for metastatic cancer. R. W. Talley, A. K. Poznanski, J. H. Heslin and M. J. Brennan. Cancer 17:1214, 1964.

The use of Thorotrast as a contrast medium for radiographic studies of the liver and spleen is definitely limited to patients with a short life expectancy because of the known carcinogenic action of thorium dioxide. However, with the increasing interest in recent years in the development of chemical agents that will modify the course of metastatic carcinoma, the accurate evaluation of serial changes in size of hepatic metastases is very important. With the technique of laminographic studies of the Thorotrast-opacified liver, the evaluation of response to hormonal therapy or chemotherapy in patients with a variety of neoplasms metastatic to the liver has become accurately quantitative. However, it should be emphasized that because of the hazards associated with Thorotrast, its use should be confined to those patients who have known metastatic disease either in the liver or elsewhere.

Synergistic effects of colistin sulfate in combination with the sulfonamide drugs. J. P. Truant and W. P. Penn. Third International Congress of Chemotherapy, Stuttgart, July 1963, Stuttgart, Georg Thieme Verlag, 1964.

The effect of combinations using colistin sulfate and one of the seven sulfonamides was frequently at least additive and on many tests demonstrated synergistic activity against *Proteus* strains. The mixtures of colistin and various sulfonamides were not nearly as effective *in vitro* against the *Pseudomonas* group of organisms. However, there is mounting *in vitro* and *in vivo* evidence that the combination provides enhanced inhibitory effect against some isolates of this very resistant group of Gram-negative organisms. Occasionally other isolates such as the *Paracolonbactrum*, etc. were more susceptible to the combination of one of these drugs than to the single agent. A survey of the *in vitro* susceptibility for the more resistant organisms may be helpful if other agents have failed and/or the clinical situation warrants such a consideration. This approach to therapeutic treatment of infectious disease problems must be thoroughly evaluated by *in vitro* and *in vivo* experience with various drug combinations for specific organisms.

Autologous transplantation of enzymatically prepared and freeze-preserved human tumors. V. K. Vaitkevicius, M. Sugimoto, M. L. Reed, and M. J. Brennan. Cancer 17:666, 1964.

A method for preparation and freeze preservation of suspensions of human tumor cells for autotransplantation experiments is described. These tumor cell suspensions can be stored for prolonged periods of time without apparent loss of cell viability. At least 10 cells were required to produce "takes." The percentage of subcutaneous autotransplants produced by freeze-preserved suspensions approximately equaled that by fresh cell suspensions and was higher than that for tumor fragments implanted by trocar. Treatment with trypsin and collagenase did not alter the histogenetic behavior of neoplastic cells detectably. Transplants growing from an inoculum of enzymatically dissociated freeze-preserved human tumor cells responded in the same manner to hormonal treatment and chemotherapy as did spontaneous metastases in the same human host.

Elliptocytosis and sickle cell trait. E. J. VanSlyck and J. W. Rebeck. Arch. Intern. Med. 114:657, 1964.

The occurrence of elliptocytic red blood cells in all racial groups is not rare (0.04%-0.1% of population at large), and the occurrence of the sickle cell trait in the Negro is



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reasonably common (8.5% in the USA). Since each condition is known to be determined by an independent autosomal gene, the coincidental occurrence of both traits (double heterozygote) can be calculated to be 1 in 67,200 Negroes. We have recently had the opportunity to study a patient with both red blood cell anomalies, and it is the purpose of this paper to describe the clinical details of the case as well as the results of some special studies which demonstrate that both defects occur in the individual red cell, and that the elliptocytes can and do sickle. We have been impressed by the rarity of the simultaneous occurrence of both traits in one individual relative to the incidence of each trait alone. Study of the available genealogical charts in which the two traits occur suggest that both traits do not occur in the same individual with the expected frequency, although the data are too incomplete for the establishment of this observation as fact.

Utilization of ammonia nitrogen, administered by intragastric, intraperitoneal, and subcutaneous routes: Effects of growth hormone. T. G. Vitti, R. Vukmirovich and O. H. Gaebler. *Arch. Biochem. Biophys.* 106:475, 1964.

Incorporation of  $N^{15}$  from ammonium citrate into proteins of liver, heart, kidney, spleen, and 3 fractions of quadriceps muscle, was studied in untreated and growth hormone-treated hypophysectomized rats. Three successive lots of animals received the same dose of  $N^{15}$  per unit of body weight, by the intragastric, intraperitoneal, and subcutaneous route, respectively. Changing the route of administration drastically altered the distribution of  $N^{15}$  between  $\alpha$ -amino, amidine, and amide nitrogen of organ proteins. Subcutaneous injection apparently facilitated contact between labeled ammonia and the widely distributed glutamine synthetase system. When this route was used, heavy labeling of amide nitrogen in both control and growth hormone-treated rats reduced the difference between the two groups, with respect to total  $N^{15}$  incorporation. This was particularly true for liver protein, where labeling of  $\alpha$ -amino and amidine groups decreased. When  $N^{15}$ -labeled ammonium citrate was given intragastrically or intraperitoneally, labeling of arginine, glutamic acid, and other amino acids of liver protein, was extensive, and growth hormone augmented total  $N^{15}$  incorporation into all proteins examined. Effect of the hormone on ammonia utilization appears to be related to its effect on utilization of amino acids to which ammonia is transferred.

A histologic study of micro-organisms and human periodontal tissues. F. W. Wertheimer. *J. Periodont.* 35:406, 1964.

Serial sections from ten human autopsy jaw blocks were stained by the Hematoxylin and Eosin, Brown and Brenn, Gomori's Methenamine silver nitrate, and Warthin-Starry stains and examined for micro-organisms under oil immersion. Examination of the sections failed to reveal the presence of micro-organisms in the connective tissue contiguous to bacterial plaques in gingival crevices or pockets. In several sections micro-organisms were identified in the superficial epithelial layers in areas of disrupted epithelial cells which were interpreted in part as due to mechanical artifact. The results suggest that micro-organisms do not reside in non-traumatized intact human periodontal connective tissue. Mechanical artifact or the presence of nuclear debris may have been responsible for previous reports of micro-organisms in the connective tissue of excised gingiva.

Meaning of five-year cure in cancer of the breast. D. G. Whitney, R. F. Smith and D. E. Szilagyi. *Arch. Surg.* 88:637, 1964.

Among a group of 512 radical mastectomies performed at the Henry Ford Hospital between January 1, 1917, and December 31, 1944, there were 238 five-year survivors (46%) available for study with follow-up periods ranging from 15 to 35 years. A statistical analysis of these patients' postoperative histories has been made to obtain information with regard to the factors influencing length of long-term survival, late deaths from breast cancer, probability for continued survival following "five-year cure," and the biological behavior of breast cancer. The following conclusions were reached: Survival for five years after radical mastectomy must not be interpreted as cure; rather it represents a probability of living an additional indeterminate length of time. In this series, survival beyond the initial five-year period carried a probability of 0.786 for 5 years, 0.579 for 10 years, and 0.164 for 20 additional years. Patients may still die of cancer of the breast after 30 postoperative years. The presence of axillary metastases at operation reduces the chance for five-year survival by 60%. However, it does not materially influence survival beyond five years. Postoperative radiotherapy has not increased long-term survival rates. The true salvage rate that can be credited to radical mastectomy (the proportion of patients with axillary metastases and cure) is small; in terms of 15-year survival it constitutes about 8%. However, since results of this order of success have not been achieved by any other means the rationale of the operation remains sound.

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MEDICAL BULLETIN

