Abstracts Of Recent Publications Of The Professional Staff Of The Henry Ford Hospital And The Edsel B. Ford Institute For Medical Research

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ABSTRACTS OF RECENT PUBLICATIONS OF THE PROFESSIONAL STAFF OF THE HENRY FORD HOSPITAL AND THE EDSEL B. FORD INSTITUTE FOR MEDICAL RESEARCH


Effects of free and of conjugated bile acids on liver cholesterol levels and synthesis rates in mice were compared. Similar effects were found at the 0.5 per cent level. The actions of free bile acids at this level therefore are not due to exhaustion of amino acids used in formation of glycine and taurine conjugates of the bile acids.


We realize that reactions to urographic media occur; however, in a series of approximately 3,800,000 urograms, Pendergrass reported only 31 deaths, an exceedingly low mortality rate of 0.0008 per cent. Therefore, considering the important renal changes demonstrated by routine preoperative intravenous urograms, we feel this risk is not significant. From our definitive study we conclude that the 7.8 per cent of intravenous urograms in which renal changes were discovered is significant; and that some of the renal abnormalities demonstrated by the pyelograms merited precedence over the prostatism for immediate treatment.


The results of treatment of 203 cases of carcinoma of the larynx and pyriform sinus are reviewed. A total survival rate varying from one year to five years of 79.3 per cent was obtained in this series. Particular emphasis should be placed on early diagnosis so that more successful therapy can be given.


The finding of significant differences in ventilatory performance in comparable-aged groups of nonsmoking men over 40 and men who have smoked for a number of years is not altogether surprising. Chronic bronchitis and pulmonary emphysema are much more common in persons who have smoked cigarettes for many years than in nonsmokers. The ventilatory defects that accompany these diseases are well known. If smoking adversely affects the airways, differences in ventilatory performance might be expected when nonsmokers and smokers are compared. The biological significance of the differences observed in the present

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study can be interpreted only in the light of more complete respiratory investigators. A difference between the mean MMF of young men nonsmokers and the mean MMF of five plus pack-year smokers suggests that airway changes may occur within a short time after beginning smoking. The failure of the mean one second vital capacity to differ significantly in the young men of the present study confirms the finding of McKee and tends to substantiate the view that the maximal midexpiratory flow is a more sensitive measurement than the one second vital capacity (expressed as a percent of the vital capacity). The absence of significant differences in ventilatory performance in women nonsmokers and smokers in this study calls attention to the possibility that men and women may react differently when exposed to respiratory irritants.


It has been shown that THAM can correct acidosis either due to respiratory or metabolic causes. Before THAM can be used as a routine method of therapy, however, a more satisfactory means of controlling the dosage must be found, and also a more satisfactory method of administration. At present it is necessary to give it either by gastric tube, in which case diarrhea always develops within a few hours; or, if given intravenously, thrombosis or extravasation with resulting sloughing of the subcutaneous tissues occurred. To control the rate of administration, furthermore, it is necessary to measure the arterial pH, using an indwelling arterial needle, and most patients object to this after a few hours. Therefore, until these two problems of administration and dosage control can be solved, this buffer will probably not attain any wide clinical use.


The little curette has proved to be helpful in the curettage of epitheliomas, particularly of the basal-cell type. After the usual curettment with standard-sized instruments, it is well to curette carefully and firmly the base of the lesion with a curette having a two mm.-diameter cutting edge.


Two patients with increase in thickness of the subcutaneous layer of the scalp are reported. Reports of a similar condition were not found in the literature. Biopsy of one patient's scalp revealed hyperkeratosis, follicular plugging, atrophy of hair follicles, fibrosis around hair follicles, and also fibrous replacement of hair follicles. A biopsy of the other patient's scalp was essentially negative. The epilated hairs of the patient with the abnormal biopsy were normal, while those of the patient with the normal biopsy fractured at the keratogenous zone. We are of the opinion that the increased thickness of the scalp in these patients has caused abnormal pressure on the hair follicles, with resultant short hair cycles or decreased hair growth rate. Possibly both of these factors were involved.


Until now a single comprehensive reference source for those who deal with tomograms of the head has been lacking. The authors have supplied here a normal tomographic standard for every position in which a clinical tomogram is apt to be made. The exact anatomy that each view represents is clarified by radiographic and illustrative reproductions of the tissue involved. This is accomplished by matching tomograms of cadaver heads with special roentgenograms and illustrations of actual tissue slices which the tomograms represent. The book is divided into four sections, each of which deals with a different plane — sagittal, coronal, basal, and oblique. The detail preserved in the special roentgenograms of the tissue slabs is such that not just the radiologist but anyone dealing with the anatomy of the head will find this work a useful reference.
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The results of the physical examination and various accessory laboratory aids used in the diagnosis of valvular heart disease are compared to one another and evaluated in the light of the findings at operation and at autopsy. Physical examination alone is often inadequate for evaluation of the degree of stenosis or insufficiency which may be present in a mixed valve lesion and additional diagnostic aids, while often not supplying all of the necessary information, are helpful in arriving at a more precise quantitative diagnosis. The various roentgenologic methods were found to be much more helpful than the electrocardiogram in all of the categories studied with the possible exception of quantitating the degree of aortic stenosis, in which the two methods were about equal. Left heart catheterization was superior to both methods in evaluating cases of predominant mitral stenosis, both of the "pure" type and those with significant degrees of mitral insufficiency, but was less helpful in arriving at a more precise quantitative diagnosis when mitral insufficiency was the predominating lesion. It is felt that a judicious use of all available diagnostic aids should be made in an attempt to give the surgeon as much information as possible prior to operation. The opportunity that major heart surgery has afforded in making available a quick "check" on the findings of the physical examination has served to increase the accuracy of this medium considerably over the last few years. In addition, newer developments in the field of physiologic studies, including indicator dilution curves, selective angiocardiography and cinefluorography have added much to the ever increasing accuracy of preoperative diagnosis.


Three patients with a unique roentgenologic appearance of the axial skeleton, especially the cervical spine, are described. Open bone biopsies demonstrated increased width and numbers of osteoid seams compatible with the diagnosis of osteomalacic bone, in spite of the fact that serum chemical values were not suggestive of this disorder. The term axial osteomalacia is suggested for the disorder and it is postulated that an unknown defect in the involved axial skeleton of a local cellular origin is at fault.


Benzozoate or phenylacetate was added to the food of normal adult bitches to bring about biosynthesis of hippuric or phenaceturic acid at a rate which, for each acid, was comparable in experiments with and without growth hormone. Utilization of ingested $^{15}N$-labeled glycine for these syntheses was determined in control experiments and in growth hormone experiments at the time of maximal nitrogen storage induced in by treating the same animals with five mg of hormone daily for four days. The total amount, as well as the amount per mole, of labeled glycine incorporated into hippuric acid was greater in growth hormone than in control experiments throughout a 72-hour period of observation. During the first six hours after ingestion of labeled glycine, the rate of its incorporation into phenaceturic acid was also increased by growth hormone, but the total amount utilized for this synthesis in 72 hours was unaffected. A previously demonstrated effect of growth hormone, on utilization of $^{15}N$ from glycine for purposes other than synthesis of hippuric or phenaceturic acid was not prevented or notably reduced by feeding benzoate or phenylacetate.


Oral administration of 500 mg of tetracycline in a combination capsule with 250 mg of novobiocin resulted in lower serum antistaphylococcal activity than administration of 500 mg of tetracycline alone in nine nonfasting and three fasting subjects. Similarly, when doses

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of 750 mg of tetracycline and 375 mg of novobiocin in combination and 750 mg of tetracycline alone were given to four other fasting subjects the activity resulting from tetracycline alone was greater. Demethylchlortetracycline (two capsules of 150 mg each) seemed to have greater activity in fasting than in nonfasting subjects but much less than either of the other two antibiotic preparations.


In this editorial the author discusses the role of the American College of Obstetricians and Gynecologists in continuing medical education and appraises its activities. He presents a realistic definition of gynecology-obstetrics and evaluates the decisive periods of medical education: the “Osler,” “Flexner,” “Commission,” and “Critical” eras. The present day “Critical” era embodies the former three, calling for the critical mixing of the science of education with the technic of training.


Leg length discrepancy, of whatever cause, is undesirable. It results in a limp, makes fitting of clothes difficult, and in later years may contribute to or aggravate back discomfort. Correction of leg length disparity by the surgeon is usually accomplished by a temporary or a permanent arrest of the growing epiphysis. The surgeon usually chooses the distal femoral or the proximal tibial epiphyses to arrest growth because of their great growth potential and because of accessibility. It is therefore desirable to have a means of measuring accurately the exact length and growth rate of the long bones.


The principal determinants of coronary blood flow are central aortic perfusion pressure and venous pressure in the right atrium. Central aortic pressure drives blood into the coronary arteries, and right atrial pressure resists their emptying. Pressure in the right atrium not only resists flow from the coronary sinus, which drains most of the blood delivered by the left coronary artery, but also flow from the anterior cardiac veins, which drain most of the right ventricular coronary flow. Thebesian venous drainage into the right atrium represents a very small amount of the total coronary venous return, but this too is resisted by the right atrial pressure. Perhaps because the right atrial pressure is normally so low (three or four mm. Hg mean), the significance of its resistance to coronary flow is sometimes forgotten. Studies on hemodynamic changes associated with experimental pericardial tamponade, recently demonstrated the practical importance of considering both of the principal determinants of coronary flow. The useful term of “effective coronary pertusion pressure” was introduced to express the difference between central aortic pressure and right atrial pressure. This simple concept has not received the clinical attention it deserves.


The morphology of the A-V node and its environs in man was studied in 81 hearts. Between the node and the endocardium of the right atrium are Purkinje fibers which may function as bypass tracts, allowing an impulse from the sinus node to circumvent the A-V node. This alternate pathway lends support to recent electrophysiologic studies which have suggested such a dual conduction system. Because of the profuse interconnections of the normal A-V node fibers, the suggestion is made that the slight delay in impulse conduction observed in this region may be a multiple cancellation effect within the node. The same morphologic feature may conceivably combine with focal nodal disease to produce dual conduction inside the A-V node.

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In each of 11 necropsied patients with myocardial infarction and atrial arrhythmias, a coronary occlusion was found proximal to the origin of the sinus node artery and there was infarction of the sinus node. The multiple factors influencing the onset of atrial arrhythmias during acute myocardial infarction are discussed. Infarction of the sinus node is only one of these factors. Other important ones are ischemia of the AV node, vagal and vagomimetic reflexes, atrial distention, and circulating chronotropic substances. By combination of a knowledge of the anatomy and pathology of the human coronary arteries with the observation of atrial arrhythmias during acute myocardial infarction, an accurate diagnosis of the point of coronary occlusion can often be made.


The case of a young man with progressive muscular dystrophy who had both cardiac arrhythmias and heart block is described. At necropsy, degeneration of fibers in the sinus node was found, and an unusual noninflammatory degeneration of the arteries which supply both the sinus node and the atrioventricular node. Similar involvement was observed in other arteries, but much less frequently than in the cardiac nodes. The pathogenesis of the arrhythmias and heart block which are commonly seen in progressive muscular dystrophy is discussed in the light of these observations.


Observations of two patients presenting unusual clinical manifestations of Epidermophyton floccosum infections are reported.


Cardiac laminography has been shown to be a clinically useful procedure. It provides confirmation of a fluoroscopic impression when the density at fluoroscopy is minimal and is helpful in distinguishing valvular from other calcifications. The identification of multiple valvular calcifications is greatly facilitated. A permanent record of the amount and location of the calcifications is provided and this record can be readily shown to conference groups. The bronchophrenic line for separation of mitral and aortic calcification is described.


Synthetic estrogens were given orally to virilized women with hirsutism and menstrual disorders, in amounts sufficient to suppress gonadotropin excretion to unmeasurable levels. In most subjects a significant and sustained reduction in urinary 17-ketosteroid excretion was observed both in patients with sclerocystic ovaries and in those with acquired adrenal virilism. In two patients receiving prolonged cyclic therapy, previously enlarged ovaries became impalpable, and in one case the reduced 17-ketosteroid excretion was maintained after therapy. Estrogen therapy significantly decreased urinary 17-ketosteroid excretion in an oophorectomized woman, but this effect was minimal in virilized subjects treated with prednisone. Accordingly, a functioning adrenal cortex seems necessary for the estrogen effect. A functioning ovary is not essential, but inhibition of its androgen secretion may result from estrogen therapy. Alteration in the secretion, plasma binding or metabolism of adrenal steroids is a more probable explanation for the reported observations.

The normal exfoliative cytology of the tongue is described. Five patients with moderately severe classic iron-deficiency anemia were studied in relation to the gross and microscopic appearance of the tongue, exfoliative cytology, and histology of the lingual mucosa before, during, and after therapy. In some patients with apparent complete atrophy of the mucous membrane of the tongue, microscopic examination disclosed stunted papillae. Atrophy of the filiform papilla precedes that of the fungiform papilla. After iron therapy there is restoration toward a normal state. Exfoliated squamous epithelial cells of the tongue in cases of severe iron deficiency demonstrated a marked deficiency in the cornified and keratinized population. The cytoplasmic diameter of exfoliated cells was reduced with paradoxical enlargement of the nucleus. The nuclear pattern was altered, and abnormal cellular maturation was found, as evidenced by a disturbed nuclear pattern, an increase in nucleoli, the presence of double nuclei, and karyorrhexis. Histologic sectioning of the tongue in patients with iron deficiency and glossitis demonstrated atrophy or absence of papillar formation, lack of keratinization, and thinning of the mucosa. After a course of iron therapy and adequate diet, the cytologic and histologic appearance as well as the gross structure returned to normal. Iron, rather than vitamins of the B complex, is believed to be the major factor in the production of lingual lesions in an iron-deficiency state. To substantiate this impression, a study of intensive intravenous treatment with vitamin B compounds prior to iron administration is planned. Iron-deficiency anemia is a systemic disease in which oral manifestations are important and reemphasize the role of iron in body metabolism at a cellular level. Our findings suggest the usefulness of the techniques described in the diagnosis and management of deficiency states. The methods may be of value in the diagnosis of oral lesions of unknown etiology and pathophyiology. The in vivo metabolic effects of therapeutic agents on the morphology of exfoliative cells of the oral cavity may prove to be a rewarding investigational tool.


Profound and disturbing neuromuscular manifestations occur in myxedema and may be the most prominent feature of the disease. Myxedema coma is now more frequently recognized and is a medical emergency requiring the prompt use of rapid-acting parenteral thyroid preparations and proper ventilation to combat carbon dioxide narcosis. Progression of this complication to death can occur in a few hours to days after the onset of coma. Convulsions, psychosis, and cranial nerve involvement are additional features of the advanced hypothyroid state. The cerebellar syndrome which occurs in myxedema is usually but not always improved by replacement therapy. Myxedema neuropathy and myopathy, consisting of paresthesia, sensory loss, and objective muscle weakness, should be added to the list of conditions causing peripheral neuritis and myopathy. A characteristic feature of myxedema is the high gamma globulin and total protein in the cerebrospinal fluid.


In a consecutive series of 350 patients requiring partial gastrectomy for the treatment of benign peptic ulcers, confined perforation occurred with 80 ulcers (22.8 per cent) and previous penetration, marked by dense fibrous adhesions, was found in 89 (25.4 per cent). The sites most commonly affected by extra-alimentary penetration were the pancreas (56.8 per cent), the gastrohepatic omentum (16.6 per cent), and the biliary tract (12.5 per cent). Laboratory data, including the levels of concentration of gastric acidity and serum pancreatic enzymes, as well as the preoperative radiographic configurations, were not helpful in predicting the degree of penetration. Rather, the changes in pathological anatomy were, in a majority of cases, reflected by certain altered features which included: reference of pain to the back; night pain; distorted rhythmicity; changes in the location, spread, and severity of anterior abdominal pain; and refractoriness to agents previously yielding prompt relief of distress. The complication of penetration is often tantamount to medical intractability and usually requires a surgical remedy.


An experiment was performed on cats to study the acoustic effects of a high-frequency microvibrator used in dentistry. It was determined that prolonged exposure of the ear to the handpiece, at a distance of one inch, failed to produce changes in auditory thresholds as
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determined by the conditioned-response technique. It was also determined that prolonged exposures of the molar teeth and skull to the vibrating microprobe failed to produce alterations in auditory thresholds. On the other hand, application of the vibrating probe tip to the cochlear capsule produced basal turn cochlear injuries resulting in high-frequency deafness. Application of the instrument to the ossicles for short periods of time produced severe cochlear injuries. These hearing losses were in direct relationship to the duration of the stimulus and were more marked when the probe was applied to the stapes than when applied to the malleus. The histopathological changes were typical for those occurring in other forms of stimulation injury, such as a pistol shot, high-intensity noise, or pure tones, and head blows. The cytological and spatial magnitudes of the lesions were consistent with the severity of the hearing loss for these animals. From these observations, it would appear that this instrument is not harmful to the operator or to the patient when used as a tool for removing calculus from the teeth, but that it would be dangerous if used in otological surgery, particularly if it came in contact with the auditory ossicles.


The use of X-ray diffraction to identify crystals from the fluid obtained from a brain tap is illustrated. The procedure for making this type of analysis is described and a very brief description of X-ray diffraction process given. Photographs of the powder diffraction patterns are included, as well as a table giving the interplanar distances and relative intensities corresponding to the pattern for cholesterol.


The records for a two-year period, at the Serology Laboratory of the Henry Ford Hospital, revealed 680 patients with reactive results in VDRL tests, and, in these instances, quantitative Kolmer and RPCF tests were performed. Examination of the clinical records of the 680 patients revealed 523 in whom a diagnosis of syphilis could reasonably be made or excluded. Specificity and sensitivity of the results from Kolmer and RPCF tests are discussed. The low false-positive rate for the RPCF test in this series of patients illustrates its value as a secondary screening test, or a definitive test for luetic infection.


Acute postoperative pancreatitis is seen most frequently after surgery upon organs supplied by branches of the celiac artery. Surgery of the gastroduodenal area most often precedes this complication, followed next by biliary tract surgery, particularly when the ampullary area is involved. When the complication develops following surgery on organs remote from the upper abdomen, the underlying biliary tract disease will be found subsequently in about half of the cases. Trauma, in the broad interpretation of the word, was present as an important genetic factor in 70 per cent of our patients. It was the summation of several individual types of traumatic surgical endeavors that ultimately terminated in acute postoperative pancreatitis, in most instances. Diagnosis should be made more frequently. A high index of suspicion is necessary in a patient who has severe pain, vascular collapse, or who is responding poorly postoperatively. Blood amylase determinations must be done more often. Important differential diagnostic possibilities include cardiac failure or myocardial infarct, pulmonary infarction or pneumonitis, and peritonitis from a number of causes. Blood amylase determinations, chest x-rays, electrocardiograms, x-rays of the abdomen, hemoglobin and hematocrit determinations, blood volume, and leucocyte counts are important in appraising such patients. Treatment includes early and vigorous blood volume replacement (colloid, fluid, and electrolyte), control of pain, nasogastric suction, vagolytic drugs, steroids, antibiotics, vasopressors. Prevention of the complication begins with a knowledge that the pancreaticoduodenal area and the ampullary area should be treated gently. Difficult duodenal dissections may be avoided by doing a gastrojejunostomy and vagotomy for ulcer. Excessive traumatic stretching of the ampulla of Vater with large dilators is to be avoided once patency

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is determined. In selected patients, sphincterotomy may be less traumatic than vigorous manual disimpaction of stones. Excessive pressures should be meticulously avoided when injecting radio-opaque fluids, or saline, into the common bile duct or pancreatic ducts. The volume injected should be carefully measured, as well. The mortality rate following acute postoperative pancreatitis in this series was 46 per cent.


A case of gastrocolic fistula secondary to carcinoma of the stomach is presented. Careful preparation was carried out preoperatively with intravenous fluids and blood transfusions. Interruption of the fecal stream by performing a colostomy proximal to the fistula is an important preliminary step. Intrajejunal administration of whole liquefied food via a small-lumened tube permits restoration of nutrition after the colostomy is functioning. The importance of this phase of treatment cannot be overemphasized. En bloc excision of the stomach, omentum, transverse colon, spleen and two thirds of the pancreas was then accomplished. Long term palliation is possible, even in dealing with large complicated lesions in the absence of distant metastases. Our patient survived six years after the extensive procedure and is still alive and active.


Studies of the cellular relationships in the reticuloendothelial cell, macrophage, lymphocyte, and plasma cell series can now be approached by three important avenues: structural transitions, which, with modern histologic methodology, are supported by histochemical, phase microscopic, and electron microscopic transitions; cellular transitions in disease affecting one or more of the member cell systems; and immunologic transitions encountered in investigations of the cytologic characteristics of inflammatory leukocytic defenses, antibody formation, and allied processes. It is the purpose of this paper to explore each of these three avenues in turn.


The pulmonary manifestations of rheumatoid arthritis have received considerable recognition. Although varied and widespread nonspecific findings are being increasingly noted, true rheumatoid nodules situated in the lung or pleura, occurring without known occupational exposure to dust, have remained distinctly uncommon. It is our purpose to report another case of nodular rheumatoid lung disease which was especially interesting because of the association of pulmonary nodules with widespread subcutaneous nodules and a strongly positive reaction to the L E. test.


Some pertinent facts gleaned from a survey of the clinical course of 270 cases of abdominal aortic aneurysm are presented for the demonstration and clarification of some diagnostic and therapeutic problems in the management of expanding and ruptured abdominal aortic aneurysms. In 27 per cent of 55 cases of expanding abdominal aortic aneurysms, and in 20 per cent of 33 cases of ruptured abdominal aortic aneurysms, the correct diagnosis had not been made until surgical exploration under wrong indications had been undertaken or the patients had been subjected to a series of laborious investigative studies, the method of management in either case seriously damaging the chances of cure. With very few exceptions (probably less than one in ten), the diagnosis of an expanding aneurysm can be made on grounds of two cardinal findings — abdominal pain and a pulsatile abdominal mass. The association of these findings with hemorrhagic shock is a virtually infallible clue to the diagnosis of a ruptured aneurysm of the abdominal aorta. Soft-tissue roentgenograms of the abdomen taken with appropriate technique almost always dispel whatever doubt may remain. Angiographic
help in expanding abdominal aortic aneurysms and resort to some simple laboratory tests in ruptured aneurysms are rarely needed. In men in the age groups in which arteriosclerosis is common, the differential diagnosis of severe, persistent, boring abdominal pain should include the consideration of an abdominal aortic aneurysm even if no pulsatile mass can be definitely palpated, especially in the presence of hypertension. In a similar patient, suspicion about a sealed rupture of a nonpalpable abdominal aortic aneurysm as the etiologic cause should be raised by the coexistence of abdominal pain, a septic course, and a refractory microcytic anemia when a source of intra-abdominal infection cannot be found. The treatment of expanding abdominal aortic aneurysms is a relative, that of ruptured abdominal aortic aneurysms an absolute, surgical emergency. In cases of ruptured abdominal aortic aneurysms manifesting severe hemorrhagic shock, operative intervention is a procedure of extreme urgency that requires a special plan of action and organized teamwork.


Strains of Pseudomonas isolated during the past year were tested for susceptibility to the commonly-used antibiotics and sulfonamides. Similar studies have been conducted during the past six years and have been discussed briefly. Polymyxin B was by far the most active agent in vitro. However, the following agents showed slight to moderate activity: neomycin, streptomycin, kanamycin, the sulfonamides, and chloramphenicol. The 312 strains of Pseudomonas were usually resistant to penicillin. It is important to consider the sulfonamides in testing for in vitro activity since a significant percentage of Pseudomonas are susceptible. The methods used for testing sulfonamide activity are more selective than those employed for antibiotic susceptibility testing. A comparison of the data obtained between 1954 and 1960 shows a significant increase in the percentage of Pseudomonas resistant to chloramphenicol, streptomycin, and tetracycline but not in those resistant to polymyxin B.