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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

A CLINICAL SURVEY OF A CROSS-SECTION OF AN INDUSTRIAL WORKER GROUP. R. E. Birk. Arch. Environmental Health 1:291, 1960.

One of the main problems concerning the value of periodic health examinations on supposedly well patients is whether or not the yield of treatable conditions will be high enough to warrant the expenditure of time and money. The present study would seem to put an end to any concern regarding this point. The average of 3.2 diagnoses per patient, 7.9% requiring surgical correction and 66.0% requiring medical therapy, alone warrants such examinations.

NEVUS SEBACEUS WITH ASSOCIATED BASAL-CELL EPITHELIOMA. M. Brannen and R. P. Fosnaugh. Arch. Dermat. 82:1007, 1960.

Nevus sebaceus is a hamartoma composed primarily of mature sebaceus glands. Apocrine glands are frequently found lying beneath the masses of sebaceus glands. Abortive hair follicles may be present. It is not uncommon to have a basal-cell epithelioma develop within a nevus sebaceus. The tumor is usually present at birth. It is commonly located on the scalp or face. However, it may occur at other sites, such as the neck. It is usually a single, linear, well-circumscribed firm lesion. The lesion is raised above the skin surface and is yellow in color. Incomplete removal will result in recurrence, or the development of nevus syringadenomatosus papilliferus. For this reason surgical excision is the treatment of choice.

MEGALOBLASTIC ANEMA ASSOCIATED WITH INHIBITION OF THYMINE SYNTHESIS (Observations during 5-fluorouracil treatment). M. J. Brennan, V. K. Vaitkevicius and J. W. Rebuck. Blood 16:1535, 1960.

Profound hematopoietic depression often occurs as a result of intensive treatment with 5-fluorouracil. Morphologic cellular studies of bone marrow before, during, and after administration of the drug have been undertaken in all but a few of 200 patients given this agent in the Oncology Division, Henry Ford Hospital, during the past 18 months. Clinical results of this chemotherapy are reported elsewhere. Megaloblastic changes in the erythrocytic series and cellular giantism in the myeloid line characterize the bone marrow response to 5-fluorouracil in man. Cytoplasmic vacuolizations occur in reticulo-endothelial cells, megakaryocytes, and myeloid elements. During development of these morphologic changes in marrow, associated cellular giantism, polynucleism, and nuclear pattern changes appear in the oral, vaginal, colonic mucosa, and in some tumors resembling those encountered in the bone marrow. The myeloid-erythroid ratio was found to be useful for the purpose of identifying dosage end-points. The physiological implications of these changes as related to nucleic acid metabolism are discussed.

DIFFERENTIAL DIAGNOSIS OF ACUTE PAIN IN THE UPPER ABDOMEN.
B. E. Brush. Canad. M. A. J. 83:925, 1960.

In the diagnosis of acute pain in the upper abdomen, one must use every available facility and, in addition, a good bit of thoughtful consideration of the symptoms

and physical findings in order to arrive at a correct diagnosis. A very careful study of the nature of the pain, its onset and its radiation and character must all be considered, since most diseases cause pain which is rather typical for them. Determination of blood cell counts, temperature, and pulse and respiratory rates and a radiograph of the abdomen may add confirmation to the diagnosis and permit the physician to determine whether the condition is a surgical emergency, or whether the patient should be kept under close observation for a time and have the progress of the disease carefully observed. It is advisable to think first of many conditions and then to narrow to a conclusion, instead of thinking about some abdominal condition and trying to fit the patient's symptoms into this picture. In many instances the old axiom that "one must think of the condition before it can be diagnosed" is true of diseases which cause pain in the upper abdomen. In our experience it has been helpful to think first of the organ involved and then to try to delineate the nature of the pathological reaction. The young physician should develop a plan for approaching these acute problems, if his diagnostic acumen is to be developed to its fullest. The ability to interpret the information available on a patient increases with knowledge and experience. If he accepts each problem as a challenge and uses his knowledge and common sense, his percentage of accurate diagnoses will be great, and his experiences gratifying.

*THE ULTRASTRUCTURE OF THE TAIL OF THE CERCARIA OF HIMASTHLA QUISSETENSIS (Miller and Northup, 1926). R. R. CARDELL, JR. AND D. E. PHILPOT. Tr. Am. Microscop. Soc. 79:442, 1960.

Cercariae of *Himasthla quissetensis* were obtained in the free-swimming form, fixed in 1% osmium tetraoside, sectioned on an ultramicrotome and studied with an electron microscope. The structure and ultrastructure of the tail were observed and described in detail. The tail is enclosed by a cuticle which contained small mitochondria and vacuoles. Internal to the cuticle is a layer of smooth muscle running at right angles to the longitudinal axis of the tail. Below the smooth muscle is a layer of striated muscle with its fibers directed obliquely. Associated with the striated muscle are many large mitochondria. The center of the tail is composed of parenchyma cells.

THE "DUMPING" SYNDROME. L. S. FALLIS AND J. BARRON. Société Internat. de Chir. XVIII Congrès, 1959. Bruxelles, Imprimerie Medicale et Scientifique, 1960, p. 587.

There is general agreement that approximately 15 percent of patients submitted to subtotal gastrectomy for ulcer do not obtain maximum results from the operation. Patients in this category may be classified into three groups, viz., those who should not have been subjected to surgical intervention because of emotional instability or a pre-existing nutritional problem, those with recurrent ulceration, and those who suffer from the (dumping) syndrome. The majority of patients with this unfortunate complication of subtotal gactric resection for ulcer have their symptoms relieved by appropriate medical treatment and many of them improve with the passage of time. There is, however, a small group of patients whose symptoms do not abate and their condition deteriorates to the point that they suffer from such an advanced degree of malnutrition that they are unable to engage in any activity that requires sustained

^{*}Edsel B. Ford Institute for Medical Research.

effort. If vagotomy has not been previously done it should be the preliminary step of the operation. The technique employed in the individual case depends on whether the patient has had a Billroth I or a Billroth II gastrectomy. Our preliminary experience with a limited number of patients during the past three years has been good, but its real value will be manifested only after more time has elapsed. We attribute our good results to: Discriminatory selection of patients for operation, preoperative preparation by restoration of nutritional balance by means of forced tube feeding, and complementary vagotomy on patients with high acid values.

*THE NATURE OF THE FLUORESCENCE OF AN ENZYME-REDUCED COENZYME-REDUCED SUBSTRATE COMPLEX. H. F. FISHER AND L. L. McGregor. Biochim. Biophys. Acta 43:557, 1960.

This paper presents evidence that L-glutamate decreases the dissociation of the glutamic dehydrogenase-TPNH complex, and that the increase in the intensity of fluorescence of that complex caused by the addition of L-glutamate is due solely to the increase in the amount of TPNH bound rigidly to the enzyme surface.

HYPERTENSION DUE TO RENAL INFARCTION; REPORT OF A CASE. M. Z. Fruchtman and J. R. Caldwell. New England J. Med. 263:907, 1960.

A case of unilateral renal infarction with no apparent cause in a thirty-nine-yearold woman is presented. Acute, established diastolic hypertension developed and was not responsive to moderate drug treatment but was cured by nephrectomy. Examination of the involved kidney revealed massive but subtotal necrosis. The blood pressure has remained within the normal range for more than a year after operation.

THE DIRECT METHOD OF ANTIBIOTIC SUSCEPTIBILITY TESTING OF STAPHYLOCOCCI. J. E. Greer and R. R. Menard. Am. J. M. Technol. 26:249, 1960.

An adaptation of the procedure of *Bondi et al* has been used to test the antibiotic susceptibility of staphylococci in 596 primary cultures from the skin and nares. In the 372 skin cultures producing sufficient *S. aureus* for testing, 96% yielded the same results when the organisms were tested in pure culture. Results in the remaining 4% were unsatisfactory because of masking by resistant normal flora and spreading gram negative rods. Knowledge of the cultural characteristics of the organisms involved, however, prevented incorrect interpretation of the results. In a few cases, (7%) the procedure had the additional advantage of permitting recognition of staphylococcal strains with different antibiograms but similar morphology. Results with nasal cultures were similar.

UNIQUE MORPHOLOGIC FEATURES OF WHIPPLE'S DISEASE. W. S. HAU-BRICH, J. H. L. WATSON AND J. C. SIERACKI. Gastroenterology 39:454, 1960.

The distinctive morphologic feature of Whipple's disease is not the accumulation of fats emphasized as "intestinal lipodystrophy," but rather it is the ubiquitous occurrence of large, sickle-form particle containing (SPC) cells which are probably derived from the recticuloendothelial system. Characteristic SPC cells are abundant in the lamina propria of the small intestine and in the mesenteric lymph nodes, but their

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identification in the tissues of all major organ systems confirms that Whipple's disease is a systemic affection. The periodic acid-Schiff (PAS)-positive sickle-form particles may constitute a phase in the cytoplasmic elaboration of an abnormal protein-carbohydrate complex by the SPC cells. It is suggested that the SPC cells of Whipple's disease may represent a widespread proliferation by a metabolically aberrant strain of mutant reticular cells.

ELECTROCARDIOGRAPHY FOR NON-ELECTROCARDIOGRAPHERS. T. N. James. M. Times 88:1455, 1960.

Not requiring meticulously detailed knowledge of electrocardiography, the majority of physicians are faced either with the task of tedious study of a book on a subject they will not employ very often, or of remaining uninformed about it. In the belief that these particular physicians might find useful a resume of what information an electrocardiogram, optimally interpreted, might be expected to provide, this brief review is presented. To be clear, this perspective discussion is not to make electrocardiographers of non-electrocardiographers. It is not to sell electrocardiograms, if there is no information to gain from them. By describing some of the infomation obtainable by careful interpretation of an electrocardiogram, it is hoped it can be made a more useful laboratory examination for those who do not have frequent recourse to it.

DIURETIC THERAPY OF CONGESTIVE HEART FAILURE. J. W. KEYES. J. Michigan M. Soc. 59:1674, 1960.

In this article are reviewed the xanthines, the cytosines (aminouracils), the carbonic anhydrase inhibitors, the organo-mercurials, the thiazides (benzothiadiazines), phthalimidine and steroids. The stepwise advancement in the treahment of congestive heart failure allows the use of various diuretic materials. One can select a drug to fit almost every stage and expect reasonable success. Combinations of these agents also may give better response under certain conditions. The natural history of the abnormal pathologic physiology involved in congestive heart failure makes possible the proper selection of a diuretic. Diuretic drugs should be continuously evaluated in order to obtain the greatest benefits from their use.

THE USE OF THE NEWER DIURETICS IN THE TREATMENT OF CARDIAC DISEASE. J. W. KEYES AND G. M. BRENEMAN. Ann. New York Acad. Sc. 88:915, 1960.

Experience with the different thiazide analogues has shown them all to be exceptionally good diuretic drugs. All diuretic drugs are adjunctive in the control of edema in cardiac failure and are never used to supplant digitalis, salt restriction, and reduced physical activities. Diuretic effectiveness may fail for various reasons; however, electrolyte depletion and failure to maintain adequate glomerular filtration rate seem to be chiefly responsible. While unusual side effects of these drugs do occur, and they may seem to have been overemphasized here, the conclusion remains that they may occur but are infrequent. They are presented to call attention to possible causes of trouble that may seem inexplicable to the practitioner unaware of their potentialities. The use of corticosteroids and aldosterone-blocking agents in refractory heart failure has been discussed for the purpose of pointing out that with the adjunctive use of thiazides or mercurials diuresis may be restored. It is felt that the thiazide drugs

approach the mercurials in potency, but do not exceed them except, because of their low toxicity and repetitive action, in controlling and stabilizing the edema state in long-term diuretic therapy.

THE BEHAVIOR OF C-REACTIVE PROTEIN IN THE CASE OF MYOCARDIAL INFARCTION. G. Laubinger and E. M. Priest. Klin. Wchnschr. 38:662, 1960.

(Translation of the summary by N. Waehneldt, M.D.)

The C-reactive protein is a pathological protein structure which develops in the blood subsequent to inflammatory, necrotic and neoplastic reactions. It occurs in 88-100% of cases of acute intramural myocardial infarction (91% in our series). It can usually be demonstrated on the second, or at least on the third day after onset of the disease. During the third week it is usually not demonstrable any more in the blood stream. The C-reactive protein test is more valuable than the sedimentation rate insofar as the CRP test is earlier demonstrable than a rise of the sedimentation rate and, on the other hand, with subsiding of the inflammatory processes, the CRP test also disappears more rapidly. However, both tests are unspecific as to the myocardial infarction. Compatible observations with C-reactive protein, sedimentation rate, white blood count and serum transaminase on 59 patients with acute transmural and 43 patients with non-transmural cardiac infarctions are described.

ILLUSTRATING MEDICAL SUBJECT MATTER. W. LOECHEL AND R. M. MORRELL. Med. Ann. District of Columbia 29:498, 1960.

Medicine's spectacular advances of the last century have been marked by a concomitant evolution of the paramedical sciences. It is important that each field properly explain its mission. Seeing all, as does the camera, is often undesirable. Gross dissections of cadaver material or operating room procedures usually result in a multitude of unnecessary highlights, drapery, hands, etc. The camera cannot think or know how to superimpose two layers of related information succinctly in one picture. Also, the publishing of many photographs costs more and uses excessive space. For the greatest economy of method in the removal of excess "visual baggage" the illustrator's talents are invaluable.

INTUSSUSCEPTION FOLLOWING INTESTINAL INTUBATION. W. J. MERSCH AND M. A. BLOCK. Arch. Surg. 81:887, 1960.

The occurrence of small-bowel intussusception related to intestinal intubation with the long intestinal tube is recorded in 2 patients. Both were successfully managed. This rare complication of intestinal intubation should be kept in mind when the long tube is used. If a long intestinal tube has been inserted before surgery and appears to be intussuscepting on small bowel at the time of surgery, correction of this condition may prevent a later complication.

NEPHROGENIC POLYCYTHEMIA. R. K. NIXON, W. O'ROURKE, C. E. RUPE AND D. R. KORST. Arch. Int. Med. 106:797, 1960.

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Three aditional cases of nephrogenic polycythemia involving cystic lesions of the kidney are presented. Two of these cases are unique in that simple excision of the cysts produced remission of the polycythemia. High levels of erythropoietin activity were demonstrated in the cyst fluid and cyst wall of one case. The clinical and ex-

perimental literature pertaining to the subject of nephrogenic polycythemia is briefly reviewed, and a tentative hypothesis relating to the tubular cell in the pathogenesis of this disorder is offered. It is hoped that a more widespread knowledge of this entity will lead to the proper diagnosis and treatment of both its hematologic and renal aspects.

THE VENTILATORY RESPONSE TO CARBON DIOXIDE IN MITRAL DISEASE. H. G. Pauli, F. E. Noe and E. O. Coates. Brit. Heart J. 22:255, 1960.

The regulation of ventilation in 7 patients with pure or predominant rheumatic mitral stenosis was investigated by measuring respiratory response to increasing CO₂-content of the inspired gases. Respiratory responsiveness, as defined by increase in specific ventilation produced by a given increase in arterial CO₂-tension, was found to be significantly lowered in comparison with 11 normal subjects. On the other hand, the extrapolated central threshold value for the arterial CO₂-tension was diminished in these patients, resulting in a slight rise of ventilation at the level of resting arterial PCO₂. Two patients were studied before, and 84 and 111 days respectively after, successful mitral valvotomy. Their respiratory response was found to be increased after operation, while the central arterial PCO₂ threshold was raised. The possible mechanisms of these changes in respiratory regulation are discussed.

BEHAVIORAL CHANGES DURING HYPOTHALAMIC OR LIMBIC STIMU-LATION IN THE MONKEY. L. D. Proctor, R. D. Knight, J. Lukaszewski and J. Bebin. Am. J. Psychiat. 117:511, 1960.

Stimulation of various areas of the limbic and hypothalamic regions in the Macaca mulatta resulted in a variety of responses. These responses were compared with those obtained on stimulating areas of the mid-brain reticular formation. It would appear that "overlapping" occurs as to the function of the limbic system, the mesencephalic reticular formation and the hypothalamus, in view of the similarity of behavior patterns elicited by stimulating some areas in these three different regions. The EEG patterns from the limbic, reticular (mesencephalic) and hypothalamic systems varied significantly so as to suggest that each system may function basically as an individual component system of the brain, probably influenced by ramifications one with the other. This EEG study is a preliminary investigation.

ACOUSTIC TRAUMA OF THE COCHLEA FROM EAR SURGERY. H. F. SCHUK-NECHT AND J. TONNDORF. Laryngoscope 70:479, 1960.

It is well known that high energy acoustic signals, such as those created by a blast in air or a blow to the head, can cause cochlear damage having its maximal effect in the upper basal turn. Such lesions can also be created by manipulation of the stapes during the course of surgical procedures. The amplitudes of such maneuvers can be very large and the time constants are long. The resulting cochlear injuries are identical to those resulting from stimuli having short time constants. Animals with experimentally produced footplate fractures frequently sustain rupture of the saccule, as well as injury to the upper basal and lower middle turns of the cochlea. Saccular rupture also occurred in one of ten animals subjected to head blows. The cause for the saccular injury is not clear. A new concept is developed concerning the mechanism of acoustic trauma. The assumption is made that the ensuing tissue damage is a function of the physical stress resulting from acoustic stimulation. Experiments on cochlear of

models using transient signals indicate that the closer the stress is concentrated to the basal end of the cochlea the shorter is the time constant of the applied signal. Since the sensitivity of the model falls off for signals with very short time constants, a region of optimal stress develops close to but not directly at the extreme basal end of the cochlea. It is possible that signals of relatively long time constants, but of very large amplitudes, produce injurious stresses in the basal region of the cochlea due to non-linear distortion.

COMMENTS ON TYMPANOPLASTY. H. F. SCHUKNECHT, T. M. McGEE AND S. OLEKSIUK. Laryngoscope 70:1157, 1960.

Reconstructive middle ear surgery is usually unsuccessful in the presence of the Eustachian tube malfunction, hyalinized collagen deposits, and deficient mucous membrane; ordinarily it should not be performed for patients over 60 years of age. Skin graft failures can occur immediately, or many months after surgery. Graft failures can be decreased by the proper selection of the donor site, careful handling and approximation of the graft to the recipient site, use of cutting burrs only, and by controlling suppuration. Tympanoplasty will achieve and maintain a position of respect among otological procedures only if we, as surgeons, properly assess the underlying surgical pathology and achieve appropriate microsurgical skills.

STAPEDECTOMY. H. F. SCHUKNECHT, T. M. McGEE AND B. H. COLMAN. Ann. Otol. Rhin. & Laryng. 69:597, 1960.

The results with stapedectomy are so good that in spite of the incidence of delayed cochlear degeneration, the operation appears superior to other procedures for otosclerosis. At this time we believe there is no functional difference between various implants being used to replace the stapes, so the choice of technique is one of individual preference. A factor of great importance is that of surgical skill. The skilled surgeon, following strict rules of procedure to avoid labyrinthine trauma, will experience fewer complications than the occasional operator. Of 287 stapedectomies in which a tissue-metal implant was used, bone-air gap of 10 db or less was acquired in 74.9%. Delayed cochlear degeneration occurred in 2.4%. On the basis of earlier experiences, we predict that bony reclosure of the oval window will occur eventually in ears in which there is extensive or active otosclerotic disease. On the other hand, we believe that the operation may be permanently successful for ears with small inactive otosclerotic lesions.

BRONCHIAL ASTHMA IN ADULTS. J. H. SHAFFER, L. L. DILELLA AND J. A. MARVEL. J.A.M.A. 174:1810, 1960.

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Adults with bronchial asthma present a complex problem. Heredity, atopy, and food allergy diminish while inhalant allergy, infection, and degenerative changes increase in importance. Cystic fibrosis has been encountered with increasing frequency in adults and should be considered as a possible cause in wheezing. Treatment plans for bronchial asthma should include measures to relieve bronchospasm, reduce edema and evacuate mucus from the bronchi, control allergenic factors, treat infection when it is present, and improve the general health of the patient. Concomitant cardiovascular changes in the elderly asthmatic patient require careful selection and dosage of drugs of the sympathomimetic group. The palliative effect of steroids, through their anti-

inflammatory action on the allergic reaction, is well documented. Such preparations should, however, be used in conjunction with a well-rounded program in the treatment of bronchial asthma.

THE CONTRIBUTION OF ANGIOPLASTIC SURGERY TO THE THERAPY OF PERIPHERAL OCCLUSIVE ARTERIOPATHY: A CRITICAL EVALUATION OF EIGHT YEARS' EXPERIENCE. D. E. SZILAGYI, R. F. SMITH AND J. G. WHITCOMB. Ann. Surg. 152:660, 1960.

An attempt has been made to evaluate the record of performance of 485 angioplastic operations (mainly grafting) in 385 patients followed clinically and angiographically for periods up to eight years. The immediate postoperative patency rate was best in the treatment of aortoiliac lesions and, in general, in the less-advanced forms of disease. The patency rates declined in time in all categories but most markedly in the femoro-popliteal operations, where the patency fell to 17 per cent in five years. The deterioration in the aorto-iliac group was much less marked and never fell below 60 per cent. The ratio of limb loss to limb salvage was satisfactory. The mortality rate was acceptable. An excellent rate of work rehabilitation was achieved. The good results of aorto-iliac operations encourage their continued widespread use. The disquieting fact must be kept in mind, however, that in the most advanced forms of disease these procedures have an appreciable rate of mortality. Since calf claudication due to segmental femoral occlusive lesions is essentially a benign disease, and since the operative morbidity for its surgical treatment is not negligible, in view of the poor late results the use of grafting procedures in its treatment should be restricted to a small group of cases in which the symptoms are truly disabling or which show rapid progression.

DIAGNOSIS AND SURGICAL TREATMENT OF INTRACARDIAC MYXOMA AND RHABDOMYOMA. R. E. Taber and C. R. Lam. J. Thor. Cardiov. Surg. 40:337, 1960.

Primary cardiac tumors were considered a pathologic curiosity until the development of open-heart surgical techniques. The most frequently encountered tumor is the myxoma which arises in approximately three fourths of the cases from the left side of the atrial septum. Symptoms and findings of mitral stenosis or insufficiency may be produced by a left-sided tumor and closely resemble those of rheumatic valvular disease. Changing murmurs, positional aggravation of symptoms, refractory heart failure, and history of arterial embolization in the presence of minor cardiac findings are clinical features which may assist in the differentiation. Chest roentgenograms, the electrocardiogram, and cardiac catheterization support a diagnosis of disease at the mitral valve but positive identification depends upon angiocardiography. Right-sided atrial myxoma is most likely to be confused with lesions producing a high right atrial pressure, such as rheumatic tricuspid stenosis, intractable arteriosclerosis heart failure, constrictive pericarditis, or Ebstein's malformation of the tricuspid valve. Here again, positive diagnosis depends upon use of angiocardiography. Two patients are presented who had successful removal of right atrial myxomas using cardiopulmonary bypass. One patient demonstrated a right-to-left shunt preoperatively which was most pronounced in the left lateral position. Shunting occurred through an interatrial septal defect. Approximately 30 minutes of extracorporeal perfusion were required in both

cases to remove the tumor, excise the site of septal attachment, and repair the resulting defect. The myxoma characteristically has a superficial attachment without invasion of the underlying myocardium and most likely is a neoplasm rather than a thrombus. Primary rhabdomyoma of the heart has heretofore been described as a rare incidental necropsy finding in infants. The tumors are unencapsulated and may be multiple or solitary. They have been found in association with tuberous sclerosis, adenoma sebaceum, and visceral hamartomas and are regarded as a developmental abnormality rather than a true neoplasm. A case is reported in which a ventricular septal rhabdomyoma produced outflow tract obstruction in the right ventricle. The obstructing portion of the tumor was successfully excised during cardiopulmonary bypass. The patient, a child 7 years of age, exhibited some of the signs of tuberous sclerosis. Preoperative diagnosis and surgical treatment of primary cardiac rhabdomyoma have not previously been reported.

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