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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

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

NUTRITIONAL STUDIES IN ADOLESCENT GIRLS, AND THEIR RELATION TO TUBERCULOSIS. JOSEPH A. JOHNSTON, Springfield, Ill. C. C. THOMAS, 1953.

This book is an impressive record of a twenty year nutritional and metabolic study on adolescent girls, most of whom had tuberculosis. It gives in detail the evidence to show that the abrupt increase in the adult form of tuberculosis in adolescence is related to a failure to meet the nutritional requirements for growth peculiar to this period. Evidence is given also for the belief that a favorable course of the disease process, may be conditioned by a normal nutritional state and replenishing previous deficits. Here are brought together also the author's studies with balance data of the food requirement in the adolescent, and the various factors which influence its utilization. Among these factors are included, the effect of thyroid on nitrogen and calcium retention, the effects of rest and activity, the requirements of vitamins, the contrasting metabolic state in the pre- and post-pubertal periods, the effect of the hormones, pituitary, ACTH, estrogen, androgen and adrenal, and the effect of focalinfection.

Suggestive observations have appeared, for example, when failure to meet the food requirement resulted in inadequate retention with a presumably adverse effect on the disease process. Within limitations these studies show a state of nitrogen and calcium depletion associated with disease, positive healing associated with positive nitrogen balance, a positive calcium balance to be a protection against primary focus progression, and that a variety of factors, of which diet is one, play a role in the management of the adolescent. The material reported here has been a vital contribution in pediatric disease.

SODIUM AMYTAL NARCOSIS, WITH DELIRIUM, AS A THERAPEUTIC METHOD. EUGENE J. ALEXANDER. *Dis. Nerv. System* 14:195, 1953.

Experience is reported in the treatment of 324 cases by prolonged narcosis from Sodium Amytal, followed by delirium as a result of abrupt discontinuance of the drug. Although the psychoneurotic patients were, on the whole, persons who had been seriously disabled for a long time, and had not responded to psychotherapy, from 57 to 60 percent (of 205) gained significant improvement.

Since only 40 (34 percent) cases gained improvement out of 119 treated for conditions other than psychoneurosis, the treatment is not now recommended unless there is a significant psychoneurotic component in the patient's illness.

Six patients (of 343 begun on treatment, i.e., 1.5 percent) died, but from what we have learned we are sure this figure can be reduced. Moderately severe complications occurred in 9 percent of cases, but teamwork and experience with the method can also reduce that figure.

Several theories are examined as to the mode of action of the therapy; and the one which appeals is that the amytal-delirium treatment provides a psychological setting in which some basic neurotic fears can be faced and lived through, even without verbalization.

Many patients after Sodium Amytal therapy are more accessible to psychotherapy; and the improvement rate can probably be definitely increased by properly timed insight psychotherapy.

PRESENT STATUS OF SURGICAL PROCEDURES FOR URETERO-ENTERIC ANASTOMOSIS. A. WAITE BOHNE. J. Urol. 70:581, 1953.

Eleven basic surgical principles from the literature are enumerated and related to this highly specialized operation. All eleven principles were developed to overcome the basic hazards, leakage at the site of anastomosis, obstruction of the urinary tract, and infection of the urinary tract. Preliminary permanent colostomy would seemingly offer the most effective way to overcome the hazard of infection, the only disadvantage being the social burden of an inguinal colostomy. Obstruction of the urinary tract must be eliminated by the actual transplantation technique. Only the direct method offers such freedom. Leakage at the site of anastomosis may be controlled by proper placement of sutures, and the leaving of a strip of parietal peritoneum attached to the ureter, to allow rapid sealing of the anastomotic site. The hazard of electrolyte balance concerning which 80 percent of these patients manifest some degree of acidosis, may be controlled by detailed attention to gastro-intestinal absorption.

FINGER TIP INJURIES. ROBERT H. CLIFFORD. S. Clin. North America 33:1311, 1953.

Finger tip injuries are considered as those injuries affecting tissues distal to the distal interphalangeal joint. In treatment, local anesthesia is usually advised. For soft tissue losses exposing bone or involving most of the finger pad it is best to use a pedicle flap. Compound fractures can be reduced without difficulty. The finger nail base can often be reinserted in its normal bed. In cases of clean amputation choice of treatment lies between revision and closure, and a cross finger or cross palm flap. For the index finger, the choice of donor site for cross finger flap is the dorsal skin of the middle phalanx of the middle finger. For the thumb, the source of tissue can be either the dorsum of the proximal phalanx of the index finger or the distal portion of the palm over the second metacarpal head. Finger tip injuries are important, and treatment must consider the occupation of the patient, and be planned in detail with this in view.

PANCREATIC CYSTS. LAURENCE S. FALLIS and JAMES BARRON. *Am. J. Surg.* 86:255, 1953.

Pancreatic cysts, like other disorders of the pancreas, are of relatively rare occurrence; therefore, no one surgeon is in a position to consider the problem on the basis of his own personal experience. The collected experience of groups of surgeons is also meager, thus accounting for variation in treatment, and disparity in results. True pancreatic cyst may be congenital, retention, degenerative or parasitic in type. False or pseudocysts may be traumatic or inflammatory. Surgical intervention when a cyst is present is mandatory and may be of four types, aspiration, excision, external drainage marsupialization, and internal drainage—enteroanastomosis. Every cyst wall should be biopsied.

BODY POSTURE AND BLOOD PRESSURE. C. PAUL HODGKINSON and ROBERT C. ROOD. *Obst. & Gynec.* 2:399, 1953.

A detailed presentation is given here of the average ovarian vein blood pressures in three Groups of patients undergoing gynecologic operations. In Group I, the operating table was horizontal, in Group II the patient's head was raised 15° above horizontal and in Group III the patient's head was lowered from horizontal 15°. The venous pressures in Group I averaged 14.82 cm water, in Group II it averaged 19.66 cm water, and in Group III it averaged 8.18 cm water. In addition, a review is given of the influence of body posture upon arterial and venous blood pressure in gynecologic surgery.

THE INFLUENCE OF BODY POSTURE UPON ARTERIAL AND VENOUS BLOOD PRESSURE IN GYNECOLOGIC SURGERY, by C. PAUL HODGKINSON and ROBERT C. ROOD. *J. Am. Nurse Anesthetists* 21:157, 1953.

The influence of body posture on circulation should be applied to everyday surgical problems. The head-down position for acute hypotension, and the head elevated position for impaired cardiac function are recognized treatments. Clinical experience with gynecological patients suggested that alterations in body position during operation are more important than generally appreciated. Three groups of patients were studied. Group I patients were kept in 15 degree Trendelenburg position until they reacted from anesthetic, and then were returned to horizontal gradually. There was no fall in arterial blood pressure. Group II patients were abruptly placed in horizontal position from 15 degree Trendelenburg, after operation, and 2 of 10 required drug treatment and transfusion for hypotension. Group III patients, after operation in 15 degree Trendelenburg position, were abruptly changed to 15 degree head-upward position. The average blood pressures decreased from 128 mm. Hg systolic, and 65 mm Hg diastolic to 68 mm Hg systolic, and 46 mm Hg diastolic. Most patients were returned at once to the Trendelenburg position. In hypotension the head-down position favors mobilization of the blood of the lower extremities, which is normally estimated at 550cc. Upon termination of an operation tilting the patient abruptly upwards from the Trendelen-

burg position may deprive the circulation of a like amount of blood. Gradual changes in patient position, and the use of elastic bandages are important aids in maintaining circulating blood volume.

ROENTGEN STUDY OF URETHROVESICAL RELATIONSHIPS IN FEMALE URINARY STRESS INCONTINENCE. C. PAUL HODGKINSON and HOWARD P. DOUB. *Radiology* 61:335, 1953.

An abstract from the *Am. J. Obst. & Gynec.* 65:560, 1953 embodying substantially this same material was published in the *Henry Ford Hospital Medical Bulletin* 1:43 (Sept.) 1953.

QUANTITATIVE VARIATIONS IN THE RESPIRATION OF THE NEWBORN INFANT. PHILIP J. HOWARD and A. ROBERT BAUER. *Am. J. Dis. Child.* 86:284, 1953.

Additional observations have been made on the respiration of 14 sleeping newborn infants ranging in age from 8 days to 46 days in an effort to re-examine the trend and range of normal with reference to minute volume, tidal air, rate and pattern. Special attention was given to the 20th to 30th minute of sleep to establish, if possible, basal averages. It was suggested that the lowest minute volume observed, without regard to how much sleep preceded or followed it, might, in fact, be the best indication of basal condition. Respiration is of multiple patterns; its component parts rate, and tidal air have a wide range, and the minute volume is variable even within sleep. The authors compare their results with those of other observers in this field.

THE MECHANISM OF DEATH FROM INTRACARDIAC AIR AND ITS REVERSIBILITY. THOMAS GEOGHEGAN and CONRAD LAM. *Ann. Surg.* 138:351, 1953.

An abstract from the *Am. Heart J.* 46:215, 1953 embodying substantially this same material is published in this issue of *Henry Ford Hospital Medical Bulletin*.

ELECTROCARDIOGRAPHIC MANIFESTATIONS OF AIR IN THE CORONARY ARTERIES OF DYING AND RESUSCITATED HEARTS. THOMAS N. JAMES, THOMAS GEOGHEGAN and CONRAD R. LAM. *Am. Heart J.* 46:215, 1953.

The fate and consequences of intravascular air form a subject which has attracted medical attention and investigation since before 1830, when Cormack blew "the contents of his chest, twice filled" into the veins of a horse. Within the last three decades the vast difference in the effect of air in the right side of the heart as compared to that in the left side has become apparent. Excepting the presence of shunts, venous air in small amounts is relatively innocuous. Although this is not true when a gas enters the left side of the heart, until recently the reason has been controversial. Present evidence favors occlusion of the coronary arteries as the mechanism by which death occurs in the latter example.

Electrocardiograms taken during coronary artery occlusion by air are rare. Nine adult dogs were used in this investigation and 1.5cc of air per kilogram was injected rapidly near the mid portion of the left ventricle. Observations were made of the electrical and mechanical dissociation in the dying heart; of the electrocardiogram of the resuscitated heart; of the auricular complexes; of conduction disturbances; and of aortic pressure.

Injection of lethal amounts of air into the left ventricular cavity is followed by occlusion of the coronary arteries by this air. The electrocardiogram initially manifests an injury current following this occlusion but soon reverts to a non-pathologic contour. During this phase there is gross dissociation between the mechanical and electrical activity of the heart. As the anoxia progresses, various conduction disturbances appear. Ventricular fibrillation is uncommon.

The changes produced by air in the coronary arteries are entirely reversible, with the recovered animal exhibiting no electrocardiographic evidence of residual injury to the heart.

CRYOGLOBULINS IN CORONARY-ARTERY DISEASE. THOMAS N. JAMES and ELLET H. DRAKE. *New England J. Med.* 249:601, 1953.

Cold-precipitable substances in serum have been termed "cryoglobulins." This substance when present in the blood serum in large amounts produces a clinical syndrome similar to Raynauds disease. Since large amounts of cryoglobulin cause the blood to gel, the present speculation is the question: "Do small amounts increase blood viscosity to a lesser degree, but prove hazardous to patients with narrowed blood vessels?" Tests were devised for assaying the traces of cryoglobulin in blood specimens at 5° C. and 37° C. The viscosity of serum, from negative and positive patients, the former showing no cryoglobulin, the latter showing cryoglobulin present, was unchanged at 5° C. and 37° C. The serum viscosity, therefor, was unaffected by this amount of cryoglobulin. In view of the normal viscosity, the significance of the small amounts of cold precipitable substances present in 40.6 percent of 69 patients, is left open to speculation. No correlation was found between cryoglobulinemia and myocardial infarction in 65 cases.

CARCINOMA OF THE CERVICAL ESOPHAGUS AND LARYNX; TREATMENT OF AN ELDERLY PATIENT BY ESOPHAGOLARYNGECTOMY (Wookey Operation). CONRAD R. LAM and E. J. GORDON. *J. A. M. A.* 153:552, 1953.

It is well known that some malignant tumors, especially in elderly persons, grow slowly, and, if they are excised, the prospects for cure are excellent. This case is reported because it illustrates the difficulty in the early diagnosis of lesions that produce dysphagia and the possibilities of cure by operation in carcinoma of the cervical esophagus even after the symptoms have been present for many months and after the larynx has become involved. A woman of 78 years with a history of difficulty in swallowing over a period of more than two years was found to have

carcinoma of the cervical esophagus with involvement of the larynx. Surgical treatment by the method of Wookey (cervical exophagolaryngectomy with cutaneous esophagoplasty and permanent tracheostomy) gave gratifying results. The more frequent and early use of the esophagoscope in the diagnosis of lesions that produce dysphagia is suggested.

COMBINED MITRAL AND PULMONARY ATRESIA. CONRAD R. LAM, E. M. KNIGHTS and R. F. ZIEGLER. *Am. Heart J.* 46:314, 1953.

Congenital mitral atresia is itself a rare anomaly and its combination with pulmonary atresia has not been reported previously. The possibility of an infant surviving the neonatal period with no clear-cut way of blood reaching the lungs or leaving them would have seemed extremely remote. Nevertheless, this child was able to exist for three months, at which time operative intervention to relieve the cyanosis was attempted. This infant of three months, a complete description of whom is included, died following a Potts operation (anastomosis between the aorta and the left pulmonary artery). Autopsy showed a hitherto undescribed anomalous structure of the heart. There was atresia of both the mitral and pulmonary valves, together with a questionably patent ductus arteriosus, intact interatrial septum, and an interventricular septal defect.

RESPIRATORY TRACT ABSORPTION OF CRYSTALLINE B₁₂ IN MAN DEMONSTRATED BY URINARY BIOASSAY AND HEMATOPOIETIC STUDIES. R. W. MONTGOMERY. *Fed. Proc.* 12:396, 1953.

An article embodying substantially this material was published in the Henry Ford Hospital Medical Bulletin 1:15 (March) 1953.

MEGALO-URETER AND RELATED CONDITIONS IN CHILDREN: REPORT OF SIX CASES. JOHN K. ORMOND. *J. Urol.* 70:171, 1953.

Six cases of ureteral dilatation in children are reported in detail and their operative treatment. Some conclusions seem justified. Reflux of the ureters is not amenable to operative treatment. It seems probable that removal of part of the ureter to remedy tortuosity and kinking resulting from long continued reflux may be useful. Excision of both ends of the ureter with re-establishment of continuity does not result in harm. The work of Svenson and his associates makes it very probable that in the past efforts to remedy or palliate megaloureter have been misdirected; that the bladder is the seat of the trouble and not the ureter. Up to date no means of permanently remedying the condition known as megaloureter has been devised.

ZINC PHOSPHATE IDENTIFIED AS A CONSTITUENT OF URINARY CALCULI. JONATHAN PARSONS. *Science* 118:217, 1953.*

For several years x-ray diffraction has been used in the physics department of this institute for the analysis of urinary calculi. During this time 192 stones have

*From Edsel B. Ford Institute for Medical Research.

been studied. In March 1951 a calculus was received 39 mm long, which analyzed as principally carbonate and magnesium ammonium phosphate, but contained yellowish layers of material of different pattern. Spectrographic analysis of this indicated zinc and phosphorus as the major elements. Diffraction spacings for $\text{Zn}_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ agreed closely with the pattern lines. Zinc is known to be a constituent of most foods, and although small traces occur in the urine, most is excreted through the intestinal tract.

METALLIC GRATING REPLICAS AS INTERNAL STANDARDS FOR CALIBRATING ELECTRON MICROSCOPES. S. R. ROUZE and JOHN H. L. WATSON, *J. App. Physics* 24:1106, 1953.*

It was shown earlier that plastic grating-replicas mounted upon eighth-inch specimen screens were practical internal standards and that they could be accurately calibrated independently by spectroscopic means. Metallic replicas of diffraction gratings have been made by a direct-stripped method. These can still be direct-stripped easily and without damage to the original grating, and the optical quality of these pre-shadowed all-metal replicas is better than that of the plastic replicas. Because of their superior optical properties, the spacing can be determined spectroscopically more conveniently and with greater accuracy. In addition, the metal-gratings are more stable than the plastic ones. The electron microscopy of the metallic replicas and the accuracy and constancy of their magnification measurement is discussed.

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GOUTY ARTHRITIS. JOHN W. SIGLER and DWIGHT C. ENSIGN. *J. Michigan M. Soc.* 52:959, 1953.

Gout is still a relatively common though frequently overlooked cause of acute and chronic joint disease. Although the fundamental metabolic disturbance is poorly understood and so far cannot be corrected, there are effective methods of controlling acute symptoms. These methods are rest, local protection, and moist compresses, a purine-free diet, acetylsalicylic acid, and colchicine, with attention to detail and with persistence. A patient with chronic tophaceous gout needs careful renal function evaluation. Refractory chronic patients may prove to need corticotropin, hydrocortisone intraarticularly, cortisone orally, or the more toxic phenylbutazone. By simple but prolonged and faithfully followed treatment, the incidence of acute attacks can be diminished, and chronic attacks delayed or prevented.

THE USE OF NEBULIZED TRYPSIN; A PRELIMINARY REPORT. J. LEWIS YATES and BEN E. GOODRICH. *Dis. Chest* 24:320, 1953.

Viscid bronchial secretions and exudates are important causes of disability in respiratory disease. Liquefaction by nebulised proteolytic enzymes seemed a

logical approach to this problem. A solution containing 40,000 to 50,000 Armour Units of crystalline trypsin in 1cc. of Sorensen's phosphate buffer solution was nebulised by 100 percent oxygen, and inhaled three to six times daily, an average course being 5 inhalations of 1cc. each. The viscosity of the sputum was decreased. The volume of sputum increased at first, and later decreased. Thirteen of seventeen patients improved as noted by decreased dyspnoea, wheezing and rales. The only untoward reactions were mild local irritation of the pharyngeal mucosa. Suggested indications are bronchiectasis, bronchitis, post operative atelectasis, and as an adjunct to local examination of the bronchi.