

9-1975

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(1975) "Publications of the Staff of the Henry Ford Hospital and the Edsel B. Ford Institute for Medical Research," *Henry Ford Hospital Medical Journal* : Vol. 23 : No. 3 , 151-156.

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## Publications of the Staff

of the Henry Ford Hospital and the  
Edsel B. Ford Institute for Medical Research

Titles and Selected Abstracts

Edited by G. B. Bluhm, MD

**Osteitis fibrosa (Brown tumor) of the maxilla.** C. H. Bedard and R. D. Nichols.  
*Laryngoscope* 12:2093-2100, 1974.

A patient is presented who was initially thought to have a malignant neoplasm of the maxillary antrum but was eventually found to have a rare manifestation of hyperparathyroidism. It is essential that the regional specialist be

aware that similar, well localized manifestations of systemic disease must be included in the differential diagnosis of abnormalities in the head and neck.

**The extent of operation for primary hyperparathyroidism.** M. A. Block, B. Frame, C. E. Jackson, and R. C. Horn, Jr. *Archives of Surgery* 109:798-801, 1974.

Of 121 patients with primary hyperparathyroidism, 20% demonstrated hyperfunction in more than one parathyroid gland. Patterns of gross enlargement and microscopic hyperplasia varied greatly in patients with multiple parathyroid gland involvement. Persistence of hypercalcemia (2.6% this series) due to failure to remove all abnormal parathyroids is a greater problem than late recurrence (less than 1% this series), which is usually due to a single hyperplastic hyperparathyroid. To minimize persistent

or recurrent hypercalcemia as well as permanent postoperative hypoparathyroidism (4% this series), a policy of selective subtotal parathyroidectomy is advocated. Subtotal parathyroidectomy is performed when multiple parathyroids are grossly enlarged or when all parathyroids are slightly enlarged and a fifth parathyroid is not evident, and is planned for conditions predisposing to multiple gland involvement (multiple endocrine adenoma syndrome, familial hyperparathyroidism, mild chronic renal insufficiency).

**Management of parathyroid glands in surgery for medullary thyroid carcinoma.**

M. A. Block, C. E. Jackson, and A. H. Tashjian, Jr. *Archives of Surgery* 110:617-624, 1975.

Of 13 patients treated surgically for familial medullary thyroid carcinoma in whom parathyroid tissue was available, the majority showed parathyroid abnormalities (hyperplasia in six, tumors in five). Two patients had had renal calculi. No correlation was evident between the presence of the parathyroid tumors and peripheral blood levels of parathyroid hormone. Hyperparathyroidism is usually mild, but occasionally it results in complications of hypercalcemia. Hyperparathyroidism has not appeared to date fol-

lowing removal of medullary thyroid carcinoma associated with normal-sized but microscopically hyperplastic parathyroids. Evidence of parathyroid abnormalities has not been recognized in eight patients with sporadic medullary carcinoma, making genetic factors dominant in explaining the association of parathyroid hyperplasia and this carcinoma. At operation, parathyroid glands should be evaluated and those that are grossly enlarged removed while preserving parathyroid function.

## Abstracts

**An evaluation of lymphangiography in staging carcinoma of the prostate.** J. C. Cerny, R. Farah, R. Rian and M. L. Weckstein. *Journal of Urology* **113**:367-370, 1975.

Pedal lymphangiography was done on 38 patients with stages 0, A and B carcinoma of the prostate. The lymphangiograms were positive in 19 cases and negative in 19. Of 18 patients who underwent lymphadenectomy (9 with positive and 9 with negative studies) operative findings confirmed the lymphangiogram in 15 (83 per cent). In the 6 patients with osseous metastases and/or enzyme elevation, the lymphangiogram

was positive. Furthermore, 13 patients with positive lymphangiograms had negative osseous and enzyme survey, emphasizing that nodal involvement may be the earliest finding in disseminated carcinoma of the prostate. The value of lymphangiography in staging carcinoma of the prostate prior to radical prostatectomy or irradiation seems well established.

**Lobular carcinoma of the breast in situ. Are we too radical in its treatment?** C. A. Dall'Olmo, J. L. Ponka, R. C. Horn, Jr. and Ramon Riu. *Archives of Surgery* **110**:537-542, 1975.

Twenty-four patients (average age, 46 years) with 29 instances of lobular carcinoma in situ of the breast have been treated from 1952 to 1971 at the Henry Ford Hospital (incidence, 1%). Six patients had bilateral lesions, one synchronous and 5 metachronous. The initial complaint in 23 of 24 patients was a mass in the breast. Diagnosis was based on permanent histologic section as mammography and frozen section analysis were inconclusive. Treatment consisted of radical mas-

tectomy in six, modified radical mastectomy in five, and simple mastectomy in 20. All lymph nodes recovered showed no metastatic disease. All patients are alive and well with no evidence of disease. Based on our experience, we recommend a simple mastectomy for treatment of lobular carcinoma in situ with contralateral biopsy examination in those instances when clinical or roentgenographic evidence suggests a pathologic process.

**Fatal air embolism during thoracotomy for gunshot injury to the lung. Report of a case.** A. T. Donato, E. Arciniegas, and C. R. Lam. *Journal of Thoracic and Cardiovascular Surgery* **69**:827-829, 1975.

Fatal coronary air embolism occurred during thoracotomy in a patient with a gunshot wound involving the hilum of the right lung. Embolism was observed during a second period of failure of heart action. Evidently, air entered the pulmonary veins from the bronchus, which was receiving positive-pressure ventilation. The literature con-

tains reports of only three similar cases, but the authors suspect that air embolism may be responsible for death and morbidity in additional cases in which accidental or iatrogenic lung trauma has produced a pathway between the bronchial tree and the pulmonary veins.

**Postoperative pulmonary complications in the geriatric age group.** C. Grodinsky, B. E. Brush, and J. L. Ponka. *Journal of the American Geriatrics Society* **22**:407-412, 1974.

Postoperative pulmonary complications are a serious danger to any patient who undergoes surgery. The increase in geriatric surgery has brought into focus certain marginal factors that can spell the difference between success and failure. In a series of 300 elderly patients who underwent major surgery at the Henry Ford Hospital, there were 34 in whom clinical and radi-

ologic evidence of atelectasis developed. In 19 others, x-ray examination of the chest showed various infiltrates suggesting pneumonitis, and sputum cultures grew coliform bacteria. Despite appropriate treatment, five patients died from postoperative pulmonary complications. Illustrative cases of hypoventilation, atelectasis, pneumonia and pneumothorax are presented. Recom-

## Abstracts

mentations are made for the care of the elderly undergoing major surgery, including the preoperative identification of chronic lung disease, determination of the respiratory reserve, preoperative exercises in deep breathing and coughing for use after operation, adequate oxygenation

during the surgical procedure, close supervision of postoperative respiratory ventilation for the first 72 hours, selective use of mechanical respiratory assistance, and emphasis on early ambulation.

### **Gaucher's disease: Observations on its clinical course.** J. Gruenberg and J. A. Penner. *Michigan Medicine* 74:323-328, 1975.

The natural history of Gaucher's disease and the clinical parameters of its management and therapy are discussed in relation to 16 patients followed at the University of Michigan Medical Center and Wayne County General Hospital. Of interest in this study were findings of normal chromosome patterns, a 100-fold increase in spleen glucocerebrosides, a decrease in acid phosphatase activity following splenectomy and

evidence of disease in an American Indian. Notwithstanding the present lack of definitive therapy, early splenectomy in a symptomatic individual seems warranted. An adult who has survived the potentially life-threatening complication of thrombocytopenia, usually with the aid of splenectomy, has a reasonably good prognosis.

### **Ultrasonic evaluation of thyroid nodules.** J. J. Karo, J. M. Miller, R. D. McCleary and S. Safar. In *Ultrasound in Medicine*, New York: Plenum Publishing Corporation, Vol. 1, pp 295-304, D. White, ed., 1975.

The authors' experience indicates that ultrasound is extremely useful in the differentiation of cystic, partly cystic, and solid nodules as others have reported. Careful scanning technique is essential. Objective criteria for evaluating the ultrasonogram must be followed. Included in the series are four cases of lymphoepithelial goiter, which have proven difficult to characterize with

ultrasound. These are extremely homogenous and can be mistaken for cystic lesions. To their knowledge this impression has not been previously reported. The microscopic pathology would suggest that the lymphocytic infiltration accounts for this, making these lesions analogous to lymphoma in other parts of the body.

### **Extracorporeal renal surgery.** R. C. Klugo, C. N. Rao, R. J. Krane, and C. A. Olsson. *Investigative Urology* 12:134-139, 1974.

The authors studied the applicability of two renal preservation systems in extracorporeal renal surgery. Both systems provide dependable maintenance of renal viability and allow significant improvements in intraoperative exposure, blood loss, and radiologic control. Gravity perfu-

sion of hyperosmolar solution is an effective means of achieving hypothermic conditions for short extracorporeal surgical intervals; longer intervals (24 hours) are safely obtained with pulsatile perfusion of cryoprecipitated plasma.

### **Management of urogenital anomalies in cloacal dysgenesis.** R. C. Klugo, J. H. Fisher, and Alan B. Retik. *The Journal of Urology* 112:832-835, 1974.

Evaluation of 6 patients with cloacal dysgenesis suggests that early and prompt evaluation of the potentially lethal anomalies of the respiratory and the cardiovascular systems should be done initially. Abdominal and flank masses are usually of genito-urinary tract origin. Appropriate urinary diversion should be done for severe upper tract

changes. Acute intestinal obstructive crises are seldom encountered. Fecal diversion or reconstruction helps control urinary tract infection. Decompression of vaginal obstruction is essential to control genital and urinary tract problems and to facilitate the technical aspects of anorectal reconstruction.

## Abstracts

**Renal malignant histiocytoma.** R. C. Klugo, R. N. Farah, and J. C. Cerny. *The Journal of Urology* **112**:727-729, 1974.

A fourth case is discussed of retroperitoneal malignant fibrous histiocytoma which presented as a primary renal tumor. Evidence is presented for the derivation of these lesions from facultative histiocytes. The high incidence of local recur-

rence with infiltrating lesions requires wide local excision or re-excision. Urological surgeons may encounter this tumor in the inguinal canal, scrotum or retroperitoneum.

**Recurrent ulcer of the thoracic stomach penetrating the heart. Report of a case and review of the literature.** C. R. Lam, A. E. Angulo, and R. J. Priest. *Journal of Thoracic and Cardiovascular Surgery* **69**:835-838, 1975.

Recurrent and severe gastrointestinal bleeding caused the death of a 67-year-old man who had had resection of carcinoma of the cardiac end of the stomach. The hemorrhage was eventually found to be due to perforation of the wall of the left ventricle by a benign ulcer in the region of the esophagogastric anastomosis. At first, resection of the ulcer appeared to be successful, but recur-

rence of the penetrating ulcer caused fatal hemorrhage 4½ months later. Review of the literature showed only one other instance in which an ulcer on an anastomosis perforated the heart. There were reports of 24 other cases of benign ulcers of the stomach or esophagus which penetrated the heart.

**Catamenial pneumothorax.** Chang Y. Lee, P. C. Di Loreto, and J. Beaudoin. *Obstetrics-Gynecology* **44**:407-411, 1974.

Two new cases of catamenial pneumothorax are described and the clinical features of 20 previously reported cases reviewed. In one patient catamenial pneumothorax involved the left hemi-

thorax. This is the only left-sided involvement in the 22 known cases. The pathogenesis and treatment are discussed in relation to thoracic endometriosis.

**A study of fetal heart rate acceleration patterns.** C. Y. Lee, P. C. Di Loreto and J. M. O'Lane. *Obstetrics-Gynecology* **45**:142-146, 1975

Fetal heart rate (FHR) accelerations have never been fully investigated. These accelerations are responses of the healthy fetus to various stimuli and stresses. Observations and proper evaluation of FHR acceleration patterns will give reassurance of fetal well-being. The fetal activity acceleration

determination (FAD) is a method of antepartum evaluation of fetal well-being. The FAD can be used where the oxytocin challenge test is contraindicated. The physiologic bases of FHR accelerations are discussed. An attempt has been made to classify the FHR acceleration patterns.

**Chemosurgery in the treatment of skin cancer.** G. R. Mikhail. *International Journal of Dermatology* **14**:33-38, 1975.

This is a review article describing the Mohs chemosurgery technique and its indications in the treatment of cutaneous malignancies. The management of a typical case with a repeatedly excised and recurrent basal cell carcinoma of the right

cheek and the result obtained are presented with photographs and graphic illustrations. The recent modification of the method, the "fresh tissue technique," is described and is compared with the original "fixed tissue technique."

## Abstracts

### **Serial hemodynamic observations in congenital valvular and subvalvular aortic stenosis.** M. R. Mody and G. T. Mody. *American Heart Journal* **89**:137-143, 1975.

The purpose of this study was to try to understand the natural history of valvular and subvalvular aortic stenosis. Serial hemodynamic observations were made in 28 cases of isolated, uncomplicated congenital aortic stenosis, 22 of which were valvular and 6 were subvalvular. Each of the 28 patients had an initial and a repeat cardiac catheterization, without intervening surgery. They were divided into three groups according to the peak systolic pressure gradient across the aortic valve or the subvalvular area. Those with a gradient of less than 50 mmHg were considered mild, 50-100 mmHg as moderate and above 100 mmHg were considered as severe. Of these 28 cases, 16 were mild, 11 moderate and one severe at initial

study. At repeat study, there were only 9 patients with mild stenosis, 12 with moderate and 7 with severe stenosis. The cardiac index and right sided hemodynamics were normal at both studies. Electrocardiographic and radiologic findings were obtained in all cases. Post stenotic dilatation of ascending aorta was seen radiologically at followup study mainly in older children, suggesting that this was an acquired manifestation. Eighteen of the 28 patients had surgery, following second study. The authors conclude that both valvular and subvalvular stenosis are progressive lesions, the subvalvular being more so than valvular. Even apparently mild lesions in early life can become surgically important in the future.

### **Thorotrast (thorium dioxide) granuloma of the neck: surgical considerations.** K. Muzaffar and R. D. Nichols. *Annals Otology, Rhinology and Laryngology* **84**:245-48, 1975.

Thorotrast (thorium dioxide) is a contrast material which was first used for angiography about 40 years ago. Its use was discontinued because of the reported incidences of malignancy following injection. Its long-term effects are related to its long half-life and slow excretion rate. Following extravasation into the soft tissues of the neck, the prolonged radiation effect results in tissue break-

down with formation of granulomas. There can also be cranial nerve palsies, occlusion of the major blood channels, laryngeal edema, pharyngeal and esophageal ulceration, and fistula formation. To avoid these late consequences, it is suggested that Thorotrast granuloma in the neck be excised radically. Partial or limited resections are inadequate.

### **Bone mineral (apatite) assay by photon scattering. A survey of sources and experimental evaluation.** L. E. Preuss, D. G. Piper and C. Bugenis. In *Advances in X-Ray Analysis*, New York: Plenum Publishing Corporation, Vol. 18, pp 545-556, C. S. Barrett, J. B. Newkirk and C. O. Ruud, eds., 1975.

Current methods of measuring bone mineral content in vivo are either inaccurate or measure density in nonintuitive units. A recently developed system overcomes these difficulties by utilizing the Compton scattering of photons from bone. Two sources of monoenergetic photons with related properties are required. The range includes

energetic x-rays and low energy gamma rays. This study analyzes a number of the possible nuclide source combinations, and reports experimental results accomplished with a  $^{153}\text{Gd}$ - $^{170}\text{Tm}$  combination. In vitro measurement of the density of ox bones by this method agreed with Archimedean measurements within 3%.

### **Clinical fate of the patient with asymptomatic abdominal aortic aneurysm and unfit for surgical treatment.** D. E. Szilagyi, J. P. Elliott, Jr. and R. F. Smith. *Archives of Surgery* **104**:600-606, 1972.

Previous statistical studies by the authors lent strong support to an aggressive policy of case selection in the surgical treatment of asymptomatic abdominal aortic aneurysms. To

test further the value of narrow operative contraindications, the authors surveyed the clinical course of 156 patients with such lesions, who between the years of 1952 and 1971 had been deemed

## Abstracts

unfit for surgical treatment. Among the 127 patients who never came to operation, 90 died during the 20-year followup period. Although organ-fixed atherosclerosis (mostly coronary) was the leading cause of death (55.0%), rupture of the aneurysm continued to be an important source of

loss of life (27.8%). Upon the whole, the findings corroborated the validity of an aggressive surgical approach and emphasized the prognostic threat of aneurysmal size and arterial hypertension in the patient treated nonsurgically.

**Infection in arterial reconstruction with synthetic grafts.** D. E. Szilagyi, R. F. Smith, J. P. Elliott, Jr., and M. P. Vrandecic. *Annals of Surgery* **176**:321-333, 1972.

A survey was made of 2,145 cases of reconstructive vascular operations performed utilizing synthetic (Dacron) prostheses from 1952 to 1971. The purpose was to determine certain factors important in the epidemiology, natural history and treatment of wound infections affecting arterial implants. The incidence of infection during the time of observation was 0.7% in aortoiliac, 1.6% in aorto-femoral, and 2.5% in femoro-popliteal operations. The overall incidence of infection during the last six years was 1.1%. In ileofemoro-popliteal operations, the mortality was low (7.0%), but in the entire group it was 37.5%. The single most common source of infection was the inguinal skin; the second most common source was the perforation (erosion) of a hollow viscus. Success of treatment depended on a highly aggres-

sive surgical philosophy. Effective surgical technique was available for all types of involvement but one: Infection of an entire aorto-bifemoral bypass in the absence of a suitable uninfected segment in the upper femoral area. The indications for removal of the graft and various surgical techniques are discussed. Proper antibiotic therapy was an indispensable part of surgical management. Antibiotic prophylaxis against wound infection was not used in these cases but, based on the findings, would appear justified and aimed at a specific microorganism (*Staphylococcus aureus*) in cases in which an inguinal incision is made. The speculative reasons for other uses of antibiotic agents to prevent wound infection are briefly discussed. Unconditional prophylactic antibiotic usage is not recommended.

**A technique for determining the interior topography of single cells (Colcemid-blocked HeLa cells).** J. H. L. Watson, R. H. Page and J. L. Swedo. *Scanning Electron Microscopy*, Proceedings of the eighth annual SEM symposium, IIT Research Institute, Chicago IL, April 1975.

Intact HeLa cells were grown in a monolayer culture on coverslips. They were taken at the time of their release from colcemid block for study by a specimen technique called 'stripping'. A piece of adhesive tape was pressed firmly upon the surface of the critical point dried (CPD) culture. The tape was stripped off to take a part of each cell with it and to leave a part of each still firmly fastened to the coverslip. The tape and the stripped coverslip were coated and reexamined by SEM. Stripping has revealed structures which populate the undersurfaces of the cells. It has also provided a new view of cellular interior topography. Interpretation of the cellular microanatomy is in a preliminary

stage, but concurrent comparative TEM has indicated from considerations of size, shape, location and morphology that cellular organelles, including the Golgi, groups of ribosomes and bundles of microfilaments within junctional complexes may have been visualized. The technique has also revealed information on the manner in which the fibrous content of junctional complexes penetrates the cytoplasm, how the nuclear volume may be pulled out of the cell with organelles still attached to it, and the presence of small unexplained tubes or elongations in a variety of locations within the cytoplasm.





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<b>The Effects of Immobility on Long Bone Remodelling in the Rhesus Monkey</b>	<b>107</b>
<i>Charles C. Schock, MD; Frank R. Noyes, MD; Michael M. Crouch, BA, and Catharina H. E. Mathews, BA</i>	
<b>Supportive Care of the Leukemic Patient</b>	<b>117</b>
<i>Ellis J. Van Slyck, MD</i>	
<b>Spontaneous Asymptomatic Pneumoperitoneum</b>	<b>129</b>
<i>Fernando Canavati, MD, and Thomas A. Fox, Jr, MD</i>	
<b>Bacterial Endocarditis and Incarceration of a Transvenous Pacemaker</b>	<b>135</b>
<i>Remigio Garcia, MD, and Mehdi Hakimi-Naini, MD</i>	
<b>Congestive Cardiomyopathy as an End Stage of Toxoplasma Myocarditis</b>	<b>141</b>
<i>Mohsin Alam, MD; Wolf F. C. Duvernoy, MD; Edward L. Quinn, MD, and Evelyn J. Fisher, MD</i>	
<b>Sjogren's Syndrome: Relationship Between Ocular Findings and Parotid Sialograms</b>	<b>145</b>
<i>A. O. Carbone, MD, C. F. Petrozzi, MD; J. DelCarpio, MD, and J. A. Zegarra, MD</i>	
<b>Publications of the Staff—Titles and Selected Abstracts</b>	<b>151</b>