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1977 Publications of the Staff of Henry Ford Hospital
Selected Abstracts and Titles
Edited by George C. Bower, MD

Abstracts


Greater precision has developed in recent decades in the selection of patients for operation for thyroid nodules suspicious for malignancy and in adapting operative procedures to the extent and pathologic variety of the individual thyroid carcinoma, when present. A thyroid lobectomy is considered the minimal operative procedure usually indicated for a suspicious thyroid nodule or carcinoma involving one lobe of the thyroid gland. Factors determining the extent of operation for thyroid carcinoma include the pathologic variety, gross distribution of the malignancy, and health status of the individual patient. Total or near total thyroidectomy should be considered for all patients with thyroid carcinoma except for single occult carcinomas and unilateral low grade angioinvasive carcinomas. Removal of lymph nodes in regions adjacent to the thyroid carcinoma is advisable, lateral neck dissections being reserved for patients with palpable lymphadenopathy, demonstrated metastases to lateral cervical lymph nodes, or a poorly differentiated carcinoma likely to metastasize to these lymph nodes. A modified radical lymph node dissection is satisfactory except for those carcinomas invading muscles in the neck. Anatomic neck dissections provide a better prognosis than incomplete lymph node procedures for patients with regional lymph node metastases. Following the operation, patients should receive thyroid hormone therapy, be evaluated for possible treatment with radioactive iodine or other therapeutic measures, and be followed for evidence of recurrent disease as well as thyroid and parathyroid function. Adequate early operation is preferable to late ultraradical procedures, from standpoints of morbidity and prognosis. Unfavorable prognostic factors include extensive gross disease, poorly differentiated carcinoma present as the entire lesion or as foci in a differentiated carcinoma, and age over 40. With adequate surgical treatment, the prognosis for operable thyroid carcinoma is good.


To study the effects of beta-adrenergic blockade on the development of experimental renovascular hypertension, propranolol was administered to rats at a dose of 20 mg/Kg of body weight three times daily. The left renal artery was constricted after three days of treatment, leaving the right kidney untouched. The same procedure was performed in 20 controls. A third group of rats received propranolol after clipping when renovascular hypertension had been well established. Our results indicate that established renovascular hypertension in rats is not affected by beta-adrenergic blockade. Propranolol, however, decreases the incidence of development of hypertension in rats when administered prior to, and for four weeks after, renal artery constriction.


Urinary kallikrein excretion was studied in rats bred for susceptibility and resistance to the hypertensive effect of salt and in New Zealand genetically hypertensive rats. Urinary kallikrein excretion, when expressed per 100g of body weight per rat, is significantly lower in susceptible than in resistant rats. This could be a consequence of a genetic defect that may play a role in the development of hypertension, perhaps through alteration of renal function.


A patient with hypersomnolence, micrognathia, and respiratory insufficiency had been treated eight years for narcolepsy. Sleep apnea because of upper airway obstruction was found, and a tracheostomy was performed. Following this the hypersomnolence and respiratory insufficiency resolved. This case emphasizes the importance of carefully evaluating the condition of patients complaining of hypersomnolence to detect those with intermittent upper airway obstruction occurring during sleep.

The widespread use of hemodialysis has introduced a large group of patients who, by resting their elbows against a firm surface during dialysis, subject the olecranon bursa to sustained pressure for a prolonged time. In a dialysis population of approximately 140 patients, olecranon bursitis has developed in four during the last 18 months. These four patients have been on long-term hemodialysis for six to 54 months. A single representative case is described.


Osteonecrosis of the femoral head results in an increased uptake of 18F due to a reparative reaction in the necrotic area and its surroundings. Twenty hemodialysis and 27 posttransplant patients were studied serially. In the hemodialysis group, 9 patients had positive scintigraphs and 11 had negative studies. All were asymptomatic. In the transplant group, 12 were positive and 15 were negative. Four patients with positive scans later developed unequivocal clinical and radiographic evidence of osteonecrosis.

Patients with negative scans have been asymptomatic and without radiological abnormalities. Age, sex, duration of dialysis, bone mineral densitometry, total steroid dose, duration of hospitalization after transplantation, and serum chemistries were not different in positive and negative patients. All patients on alternate-day steroids had negative scans. A positive 18F scintigraph antedates the occurrence of clinical and radiological findings of osteonecrosis.


Intestinal bypass operations have been performed for many years for the treatment of morbid obesity. One of the least severe, but nevertheless troublesome, complications can be the development of acute or subacute arthritis, and tenosynovitis, in addition to a considerable degree of polymyalgia and polyarthralgia. These symptoms are usually temporary, but in several series, observers have noted persistence and considerable incapacity from the problem. In several patients persistent forms of arthritis have required prednisone therapy to control the inflammatory reactions, and the severity of the symptoms was considered incapacitating. The problem developed in a considerable number of patients on alternate-day steroids. A positive 18F scintigraph antedates the occurrence of clinical and radiological findings of osteonecrosis.


Most cases of primary hyperparathyroidism are associated with enlargement of a single gland (i.e., an “adenoma”) or with chief-cell hyperplasia, but there is controversy about the relative frequency of each of these entities. It has even been postulated that adenomas do not arise spontaneously, but result from prolonged hyperplasia in response to unknown stimuli. We studied four parathyroid adenomas from three women with heterozygosity (Gd11/GD11) for the X-chromosome-linked enzyme, glucose-6-phosphate dehydrogenase, to determine the number of cells from which the growths arise. Unicellular origin would be compatible with a rare oncogenic event, whereas multicellular origin might be seen with hyperplasia. Both B and A isoenzymes were found in each “adenoma” in proportions similar to those observed in normal tissues, indicating that the lesions have multicellular origin. Thus, parathyroid hyperplasia and adenomas, which at best are difficult to distinguish from one another pathologically, may also be similar biologically.


Seven patients with features currently considered to be associated with SVAS and IIHc are reported. Hypercalcemia was not proven in any instance. The most striking anatomic finding was shortening of the aortic segment between the coronary arterial origins and the origin of the first brachiocephalic vessel. Transient subvalvular pulmonic stenosis was found in each of four infants. Other associated cardiovascular abnormalities included aortic valvar stenosis, mitral valvar abnormality with regurgitation, and coarctation of the aorta.

The identification of absence of continuity of the inferior vena cava (IVC) with the right atrium assumes major importance at the time of right heart catheterization. The appearance of the IVC in the lateral chest radiogram is diagnostically different from the normal when discontinuity is present and two radiographic patterns have been recognized: (1) total absence of the IVC shadow; and (2) straightened and posteriorly directed IVC shadow contrasting sharply with the anteriorly directed normally continuous IVC. This latter sign is considered reproducibly accurate in the identification of the IVC which fails to have continuity with the right atrium.


A 57-year-old woman with Turner syndrome had severe recurrent gastrointestinal bleeding. Exploratory laparotomy at the age of 26 showed an extensive telangiectasia of the entire small intestine. Following death due to myocardial infarction at age 57, postmortem examination revealed only a 0.2 cm residual telangiectasia in the mucosa of the distal part of the ileum. Spontaneous regression of the intestinal telangiectasia observed in Turner syndrome may occur and account for the improved prognosis with age.


Forty-eight patients who had colonic volvulus are reviewed. Volvulus occurred in the sigmoid colon in 27 (56%) and in the right colon in 19 (40%). The clinical history is characterized by a long history of bowel dysfunction followed by an episode of acute intestinal obstruction. The patient is often aged and plagued by mental disorders and a number of degenerative diseases. Distention of the abdomen is the most significant finding, and tenderness may indicate peritonitis due to ischemic changes in the bowel. Operative treatment is necessary for volvulus of the right colon. Nonoperative reduction is effective for nonstrangulating volvulus of the sigmoid colon as an emergency procedure. Sigmoidoscopic examination and insertion of a long rubber tube will give dramatic relief to a substantial number of patients. Operative intervention is necessary when conservative measures fail. When gangrene is found at operation, exteriorization resection of the colon may be lifesaving. The mortality rate in this series of 48 cases was 12.5%. Cecal volvulus was present in each of the six patients who died, and sepsis and cardiopulmonary diseases were common also.


Of 22 patients treated surgically for intractable pain from chronic alcoholic pancreatitis, eight did not show notable dilation of the main pancreatic duct by endoscopic retrograde cholangiopancreatography (ERCP), operative pancreatography, and/or operative and microscopic studies of the pancreas after subtotal pancreatectomy. In all patients, far advanced parenchymal pancreatitis was evident at operation and by microscopic study of the removed portion of the pancreas. These findings indicate that the basic problem in many patients with symptomatic alcoholic chronic pancreatitis is not related primarily to obstruction with dilation of the major pancreatic duct, but to intrinsic changes in the parenchymal pancreas. The preoperative use of ERCP and individualization of operative procedures with a preference for subtotal or partial pancreatectomy for symptomatic chronic alcoholic pancreatitis are supported.


Breathing high concentrations of oxygen at atmospheric pressure has been promptly effective in achieving objective and subjective relief in pneumatosis cystoides intestinalis. Two patients were treated with 70% oxygen supplied through a nonrebreathing mask. During meals, oxygen was given at 5 liter/min by nasal cannula. Under these conditions, the partial pressures of oxygen and nitrogen are altered substantially; however, the total content of oxygen in the blood is changed only slightly, particularly at the venous end of the capillary. Pneumatosis cyst deflation is believed due primarily to the gradient of the partial pressures of nitrogen. Because of the possibility of oxygen toxicity, further studies are important to evaluate the continued benefit of this therapy and to determine the minimum effective oxygen requirement.

Improved modalities to treat metastatic renal cell carcinoma will require an aggressive surgical and chemotherapeutic approach. Nephrectomy with hormonal and nonhormonal chemotherapy does improve median survival and three-year survival significantly. The use of xenogeneic specific immune ribonucleic acid and Bacillus Calmette-Guerin offers promising immunotherapeutic modalities that may be combined with surgical and chemotherapeutic regimens. Early diagnosis of metastatic disease is important to evaluate properly the results of various modalities of treatment and possibly to improve the efficiency of these modalities. The management of solitary metastatic nodules should involve aggressive resection of the primary and metastatic nodule. Adjuvant hormonal and nonhormonal chemotherapy should be considered in all stages of the disease.


Seventy-seven patients who had elective pulmonary resections were enrolled in a prospective double-blind study to assess the role of prophylactic antibiotics in preventing postoperative infections. Criteria for infection were strictly defined. A five-day course of cephalosporin (2 gm/day in divided doses) was compared to an identical placebo. There were 17 infections in the 34 patients in the placebo group (50%), compared to only eight infections in the 43 patients in the antibiotic group (19%) (P = .005). When infections unrelated to thoracotomy and minor infections were excluded, the advantage of prophylactic antibiotics proved even more evident. Fourteen thoracic infections occurred in the placebo group (41%), compared to only two thoracic infections (4.7%) in the antibiotic group (P = .0002). No relationship of infection rate to the extent of pulmonary resection was found. A history of smoking, the presence or absence of chronic bronchitis, spirometric abnormalities, and obesity were all analyzed; none was related to the development of infection. We conclude that the routine use of perioperative antibiotics is indicated to prevent postoperative infections in pulmonary resection.


A drug addict with staphylococcal endocarditis treated with methicillin, who developed massive proteinuria and acute nephritic syndrome, is described. Discontinuation of methicillin therapy and appropriate antibiotic treatment of endocarditis led to clinical improvement, emphasizing the need to promptly discontinue potential nephrotoxic agents when abnormalities in renal function appear. The clinical course and results of renal biopsy studies suggest multiple causes of the renal lesions in this patient.


Chronic suppurative parotitis, manifest by recurrent acute parotid enlargement and purulent sialorrhea, is usually seen with sialolithiasis, sialectasis, or duct strictures. These conditions have a common pathophysiology, the predisposition to infection associated with fluid stasis. A review of 86 consecutive parotidectomies is reported. Fourteen of the surgical specimens showed inflammatory pathology, and six of the patients had frank chronic suppurative parotitis preoperatively. The patients with chronic parotitis are asymptomatic two to seven years after parotidectomy, and there was no instance of permanent facial paresis after operations done for inflammatory disease. Parotidectomy is the treatment of choice for chronic suppurative parotitis when it is resistant to conservative measures. Operations such as tympanic neurectomy and parotid duct ligation, which approach the disease indirectly, are not founded on carefully considered basic or clinical information and are of questionable effectiveness. The risk of permanent facial nerve paresis following parotidectomy for inflammatory disease is an important question. Our review indicates that the risk is well within acceptable limits.


A basic text for instructors in audiology, speech pathology, and sensory psychology, this book covers the physics of sound as it pertains to hearing: auditory anatomy and physiology, relating the function of the basic structures of the auditory system to the way in which the system processes acoustical information; and psycho-physiology and auditory perception, which includes a discussion of discrimination and scaling, absolute sensitivity, differential sensitivity, masking, fatigue, binaural hearing, loudness, pitch, and other auditory impressions.

Thyroid function studies of 20 pediatric patients with Turner syndrome form the basis of this report. The clinical implications of our present study may be summarized as follows: (1) patients with Turner syndrome are at a higher than average risk of developing thyroid disease; (2) the incidence is age related; (3) elevated antibody titer alone does not indicate the thyroid function status of the patient; (4) since growth retardation is characteristic of the Turner syndrome, a further compromise due to hypothyroidism may not be noted. Children with Turner syndrome should be evaluated periodically for normalcy of their thyroid function.


Three patients with nephrolithiasis were found to have both medullary sponge kidney (MSK) and primary hyperparathyroidism. In all cases, urine calcium excretion returned to normal after parathyroidectomy. The passage of stones was abolished for more than 20 years in one case and for more than 12 years in another. The available data suggest that many patients with MSK are asymptomatic and that the risk of stone formation is increased by an associated metabolic abnormality such as hypercalciuria or hyperparathyroidism.


This study was performed to determine the effects of the structural configuration of prosthetic aortic valves upon coronary blood flow. A pulse-duplicating system was utilized to which a rigid model of the root of the aorta and the left artery were attached. A stented normal human valve, stented porcine valve, pivoting disc valve, tilting disc valve, and a caged ball valve were tested at simulated resting conditions. The results showed that the pulse configuration and proportions of coronary flow that were systolic and diastolic changed with various valves. There was no significant reduction of the mean simulated coronary flow with the porcine valve or disc valves. Coronary flow was augmented with the caged ball valve. These differences were interpreted as being due to several fluid dynamic phenomena. These were piston effects, inertia of reversed blood flow, torque, and the effects resulting from the unique pressure distribution on each valve.


Brain death occurs whenever there is involvement of higher centers such as cerebral cortex and thalamus (unresponsiveness and deep coma) and brainstem and basal ganglionic structures (loss of spontaneous respiration, all cranial nerve, and postural reflexes). Involvement of spinal cord is less constant. Drug intoxication should be excluded. Although an electroencephalogram may be done, the physician's clinical judgment is paramount. The medico-legal implications of brain death are less complicated than generally presumed. However, establishment of the legality of the brain death concept is crucial, because it allows the physician to use his judgment to implement the law.


Intra-arterial sound was measured just distal to the aortic and pulmonary valves of 10 subjects with no apparent valve disease. At rest, during normal sinus rhythm, the intensity of intra-arterial sound was greater above the aortic than above the pulmonary valve. In all patients with an audible murmur, the murmur was of greater amplitude within the aorta than within the pulmonary artery. To examine the effects of increased flow, the six patients with inaudible murmurs were studied during the first beat immediately after a premature ventricular contraction. The intensity of murmurs in the aorta during postextrasystolic beats was in the range that occurs with grade 1 to 2 murmurs, whereas murmurs within the pulmonary artery were in the range of inaudible murmurs. These observations suggest that innocent murmurs are produced at the aortic rather than the pulmonary valve, possibly because of the greater compliance of the pulmonary artery, which may have a damping effect upon turbulence.

The second sound in aortic insufficiency has been described as accentuated, normal, or moderately diminished. A study of intracardiac phonocardiograms was performed to evaluate its intensity and to eliminate extracardiac factors. The results indicate that the presence of aortic insufficiency causes a diminished amplitude of the aortic closure sound. These results support the theory that the second heart sound is caused by diastolic vibrations of the closed aortic cusps. Diminished valvular vibrations and sound would occur in pure aortic insufficiency if the valve is unable to tense properly during diastole, or if the rate of development of the driving pressure is diminished.


Microthrombi with evidence of organization were observed in 10 of 19 calcified and stenotic aortic valves (53%). The resulting organization may contribute to the deformity of the valve. Repetitive deposits of microthrombi, followed by organization and calcification, would explain the continuous process of stenosis in previously deformed aortic valves. The formation of such thrombi may be initiated by turbulent flow and other fluid dynamic factors.


A multicenter cooperative study of almost 3,000 patients by members of the Penicillin Study Group of the American Academy of Allergy has confirmed the usefulness of skin tests to penicillin G (Pen G) and penicilloyl-polylysine (PPL) in the evaluation of penicillin hypersensitivity. Nineteen percent of 1,718 patients with a history of penicillin allergy had positive skin tests to either or both agents, versus 7% of 1,229 patients with no such history. Among patients with a history of penicillin allergy, positive skin tests were noted in 46% with a history of anaphylaxis, 17% with a history of urticaria or angioneurotic edema, and 7% with a history of a maculopapular reaction. PPL generally gave somewhat higher reaction rates than Pen G, but both skin tests were needed to elicit the maximum number of reactors. After skin tests were completed, 379 patients were challenged with penicillin. Six percent of patients with a positive history had an allergic reaction versus 2% of patients with a negative history. However, 67% of the nine challenged patients with a positive skin test had an allergic reaction, and half of these were immediate or early systemic reactions. Only 3% of the 346 challenged patients with a negative skin test had a reaction to challenge, and only one fourth of these had early reactions thought to be possibly mediated by IgE.


We reviewed the clinical courses of 14,550 patients in whom translumbar aortography was performed to determine the incidence of major and fatal complications attributable to this diagnostic study, as an index of its safety. We found that in this group, seven major (0.05%) and two fatal (0.014%) complications occurred. The corresponding incidences for transfemoral catheter aortography reported in the literature were found to be 1.34% and 0.06%, respectively. Translumbar aortography, when performed under the proper indications and appropriate conditions, has a degree of safety equal to or greater than that of transfemoral catheter aortography. Its diagnostic reliability within its technical scope is high.


The surgical technique for hindquarter amputation is described in a step-by-step manner. Since 1955 we have performed 19 such operations for eradication of malignant bone and soft tissue tumors in the pelvic, hip, and upper thigh regions. Three hindquarter amputations were performed for local recurrence following initial wide excision. The overall five-year survival rate for our 19 patients was 42.1%. Malignant soft tissue tumors appear to have a much better five-year survival rate than malignant bone tumors (60% vs. 22.2%). We feel that surgery is still the treatment of choice. However, with proper indications, chemotherapy and radiotherapy should be added to surgery in order to prolong survival time and save lives.


Titles


