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Detailed studies were made of the chemical nature of carbon-14 activity found in acid-soluble nucleotide, ribonucleic acid, and deoxyribonucleic acid fractions isolated from kidney or liver tissue of rats rendered experimentally nephrotic with a series of 10 small daily injections of aminonucleoside-8-C\textsuperscript{14}, and, in similar fractions obtained from rats sacrificed as early as three hours after administration of a single large dose of the labeled compound. No significant differences were noted. Only the adenosine and guanosine phosphates of the acid-soluble nucleotide fractions and the adenine and guanine bases of RNA and DNA hydrolysates were labeled with carbon-14. No evidence was obtained either for conversion of the intact aminonucleoside to the corresponding nucleotide or for incorporation of the 6-dimethylamino- or 6-methylamino-purine moieties into ribonucleic acid or deoxyribonucleic acid of kidney or liver tissue.


Kinetic analysis showed that in mice treated with cholesterol and cholic acid, the decreased rate of excretion of bile acid-C\textsuperscript{14} was due to dilution of liver cholesterol-x-C\textsuperscript{14} with large amounts of accumulated unlabeled cholesterol, and a finite rate of conversion of cholesterol to bile acids. Further kinetic analysis indicated that in cholic-acid treated animals one might expect an inhibition of bile acid-C\textsuperscript{14} during the first few hours following mevalonic acid-2-C\textsuperscript{14} injection, but in subsequent periods no inhibition would be expected if both cholesterol and bile acid syntheses are blocked.


In the past six years we have employed radiation in 95 patients with intracranial neoplasms, and have completed therapy to a dose of 4,000-4,200 r in four to five weeks in 83 of these. We have used a standardized, reproducible treatment plan which is described. Our results suggest that radiation therapy is of value in the management of a variety of intracranial tumors. Postoperative irradiation improves both the quality and duration of the survival of patients with astrocytoma Grades III and IV (glioblastoma multiforme).


The vesicoureteral reflux is associated with neurogenic bladders, congenital anomalies, obstructive uropathies, and chronic or recurrent urinary tract infections. Most authors feel that vesicoureteral reflux is abnormal in any age group, and if unrecognized and untreated can lead to progressive renal damage. The diagnosis is made by delayed cystography which should be included in every complete urologic investigation in children and in every case of chronic pyuria or unexplained urologic complaint in adults. It is our belief that conservative treatment with eradication of infection by appropriate drug therapy, elimination of residual urine by multiple voiding or triple voiding techniques, and in some cases urethral and vesical neck dilatations, has been successful in a considerable number of cases.

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of vesicoureteral reflux. If the above problem is not solved by conservative methods, then vesical neck plasty and/or reimplantation of the intravesical ureter may be necessary. Hypoventilation. G. L. Brinkman. Postgrad. Med. 30:545-549, 1961.

Alveolar hypoventilation results from a marked reduction in tidal volume or a considerable increase in physiologic dead space, either of which causes decreased arterial oxygen saturation and increased carbon dioxide retention. Respiratory depressants, diseases of the central nervous system, diffuse obstructive emphysema, obesity, chest wall deformity, pleural thickening, and weakness of respiratory muscles are the chief causes of hypoventilation. The use of oxygen therapy and dichlorophenamide has proved of benefit in treating chronic hypoventilation. Treatment of acute hypoventilation is based on improving oxygenation and alveolar ventilation and decreasing acidity.


There is no valid evidence for the belief that estrogens stimulate the formation of new lamellar bone in animals or in humans. There is no compelling evidence for the belief that estrogens stimulate the formation of fibrous bone in animals. Administration of estrogen results in an increase of fibrous bone, apparently brought about by retardation of osteoclastic activity; this is quite a different process from stimulation of osteoblastic activity. Failure to distinguish histologically between fibrous and lamellar bone formation has created vast confusion about the nature of osteoporosis, its causes, and the factors governing osteoclastic activity in animals and in man. The available evidence, both direct and indirect, supports the thesis that postmenopausal osteoporosis is a disorder of osteoclastic activity. The cause of the increase in osteoclastic activity in this disease is unknown. Research on postmenopausal osteoporosis needs re-appraisal. The nature of the affected bone, and the factors that control osteoclastic activity must be identified and studied before effective therapeutic programs can be formulated.


The initial reports on the phenomenon of in vivo fixation of tetracycline antibiotics in bone have stimulated a great deal of interest and work throughout the world. Tetracycline labeling has been used in studying growing bone, growing teeth, calcifying cartilage, and bone remodelling in the adult. The tetracycline labeling phenomenon technic possesses the advantages of simplicity, effectiveness, economy, and requires very little equipment to do useful work. Tetracycline labeling is under development in several centers as a means of determining viability of bone in patients with certain types of fracture. Various radioactive atoms are being and have been placed in its structure for a number of uses, some not directly related to bone. The purpose of this article is to provide a summary of the presently known aspects of tetracycline physiology pertaining to the skeleton.


Actinospectacin, a new broad spectrum antibiotic, was compared with 12 other antibiotics in susceptibility tests against 366 strains of Staphylococcus aureus from the lesions of 366 patients. When streptomycin assay agar with yeast extract was used, the strains were more susceptible to actinospectacin than when trypticase soy agar was used in agar dilution or broth dilution tests, but with no apparent advantage. Results with disc and broth dilution tests were better correlated than the results of agar dilution tests were with the other two methods. Zones of inhibition around 300 mcg discs were larger than around 30 mcg disc but neither concentration was preferable. The minimum inhibitory concentration was higher, regardless of technique, for actinospectacin than for dihydrostreptomycin, penicillin G, phenethicillin, erythromycin, chloramphenicol, tetracycline, bacitracin, neomycin, kanamycin, vancomycin, methicillin, and 5-methyl-3-phenyl-4-isoxazolyl penicillin. By the disc tests, 11 percent of the strains were actinospectacin resistant, but 20 percent were resistant by one or more of the three techniques. Neither cross resistance to other antibiotics nor correlation with phage type was observed. Nevertheless, the emergence of an actinospectacin and erythromycin resistant strain in a patient with an erythromycin and actinospectacin sensitive strain prior to erythromycin therapy was noted.

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Clinical experience in the treatment of esophageal hiatus hernia provides abundant evidence of the importance of the position of the cardia in the prevention of esophagitis caused by the reflux of acid gastric juice. There is, however, little doubt that a sphincter mechanism is present which is intrinsic to the esophagogastric junction and independent of the structures surrounding it. Selective excisions were performed of the muscular layers of the lower esophagus and the cardiac portion of the stomach. From the resulting changes of reflux esophagitis in the esophageal mucosa, the oblique portion of the inner muscular layer of the stomach which loops around the insertion of the esophagus appears to be the most important part of the sphincteric apparatus which prevents the reflux of gastric juice into the esophagus. Preservation of this muscle in operations such as the Heller myotomy would seem indicated to avoid postoperative reflux esophagitis.


While there are hints of the possible existence of additional lactic dehydrogenases in yeast, thus far only three have been definitely isolated and characterized. Since hitherto only gross differences have been studied, the existence of different molecular forms of these, detectable only by more refined techniques, also remains a possibility. There is no compelling evidence to believe that any two of these enzymes bear a precursor-product relationship to each other; an enzyme would not be expected to change substrate specificity in a radical fashion during the adaptation process. While precursors of these enzymes may and probably do exist, they are not expected to be endowed with catalytic activity and thus would not be detected by the techniques that have been applied.


The investigation of experimental corneal infections presents several problems. The first of these is the consistent induction of keratitis. The second is the treatment of keratitis, once induced. These difficulties are common to a variety of situations involving an invading organism and the chemotherapeutic agent used against it. For the present, the most important prophylactic measure against these infections following the removal of corneal foreign bodies seems likely to be some chemotherapeutic agent routinely used. With a view to obtaining an evaluation system under statistical control for the study of corneal infections in experimental animals, methods have been developed, and are briefly described, for the consistent induction of Pseudomonas infections in rabbits and for the continuous delivery of therapeutic agents to the cornea.


Examination of the literature fails to disclose a single example of a purinyltrialkylammonium salt in the relatively wide spectrum of purine derivatives that have been synthesized and screened as potential antimetabolites. It was found, in the course of a related study, that 6-chloropurine is readily transformed (78 percent yield) to purin-6-yltrimethylammonium chloride (I), m.p. 179-180°C, on treatment with trimethylamine in N, N-dimethyl-formamide. The toxicity and the effect of I on transplantable mouse tumor is herein described. The compound had no effect against transplantable sarcoma 180 or against leukemia 1210. However, it was effective against carcinoma 755. The dose response curve is summarized in a table.


The skin window offers a dynamic approach for studying the inflammatory exudate produced by various types of antigens, irritants and trauma. The application of diphtheria toxoid under the skin window produces inflammatory reaction of a nonpyogenic nature and serves as a prototypic or baseline for comparing other types of stimulation. Within the first 24 hours a skin window, utilizing diphtheria toxoid as the test substance, will show early migration of phagocytic granulocytes which are later supplemented by migrating
lymphocytes and blood mononuclears. In still later stages these mononuclear cells have been shown to hypertrophy to form additional macrophages to supplement tissue macrophages. When Rhus oleoresin was applied under a skin window no difference in inflammatory pattern between individuals positive by patch test to Rhus and individuals negative by patch test to Rhus was evident until the 33 hour stage. The Rhus-positive, non-atopic individuals differed from the negative reactors as follows: (a) Eosinophilia, (b) larger number of lymphocytes, and (c) the presence of large multinucleated giant cells. Bacterial contamination appeared to modify the inflammatory pattern in the skin windows. Atopic subjects appeared to react somewhat differently from non-atopic, “normal” individuals.


Heart block has long been recognized as a feature of acute posterior myocardial infarction. Despite this, many physicians stereotype their thinking on the clinical management of acute myocardial infarction, and make no special distinction for posterior infarction. The clinical importance of making such a distinction is the involvement of the A-V node which determines the special aspects of treatment for the patient with an acute posterior infarction. Since A-V block may appear at any time within the first few days following the onset of the infarction, closer observation and more frequent electrocardiograms are indicated. The availability of an external defibrillator and cardiac pacemaker are desirable in any myocardial infarction, but their necessity is more frequent in acute posterior infarction. The onset of heart block or arrhythmias is often preceded by a fall in blood pressure, the value of pressor amines in such situations is well established, and their use may terminate the rhythm of conduction disturbance by restoring the efficiency of the collateral circulation. In essence, one employs the same emergency measures as for any myocardial infarction, but their necessity is more frequent with acute posterior infarctions.


Based on a study of the dissection of over 300 human hearts, with histologic studies in 79 of these, the anatomy of the sinus node is described. The importance of its relationship to the sinus node artery and the pertinent variations of this vessel are discussed. The framework of the sinus node is collagen, which is intimately attached to the sinus node artery. Within this framework are the sinus node fibers, which are miniature Purkinje fibers, as well as some previously undescribed syncytial cells. Reasons are given for considering the possibility that the syncytial cells are the site of impulse formation within the sinus node.


Approximately 60 cases of polyendocrine adenomatosis have been reported to date and new reports are appearing in the literature with increasing frequency. The majority of the more recent communications have been concerned with the association of peptic ulcer disease with this endocrine disorder. The syndrome of polyendocrine adenomatosis is reviewed as it occurred in 10 members of one Negro family throughout a span of four generations. The predominating clinical features in the family were hyperparathyroidism and peptic ulcer. Experience with this family has led us to conclude that the Zollinger-Ellison syndrome is merely one manner of expression in polyendocrine adenomatosis and that it does not usually exist as an independent entity.


Recent studies have shown that acoustic trauma can result from the use of instruments in surgery for chronic otitis media and especially in stapes operations for otosclerosis. Movements of the footplate of the stapes can result in displacement of perilymph, either suddenly or in comparatively large volume, which damages the organ of Corti most severely in the upper basal turn and is responsible for high frequency hearing losses. Placing a 1/2 mm. bur directly on the incus resulted in injury to the organ of Corti most severe in the lower basal turn. The histopathological changes were similar to other stimulation injuries (head blow, blast, noise). These findings indicate that small bone cutting burs, when brought into contact with ossicles, are less likely to produce overstimulation cochlear injuries than the large cutting burs.

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In this article, three aspects of geriatric gynecology are considered: uterine prolapse, atrophic (senile) vaginitis, and gynecologic aspects of steroid therapy. Management of patients whose problems fall into one of these categories is described in detail. In the first category, the indications for the use of the pessary are described, as are several specific types. In the second, estrogen treatment for the complications of atrophic vaginitis is reviewed. In the third, the differential diagnosis of postmenopausal bleeding is considered, and the nature of osteoporosis is examined in some detail, with emphasis on the gynecologic aspects and side effects of its treatment.


Choledochoduodenal fistula represents an infrequent type of biliary fistula and a rare complication of peptic ulcer of the duodenum. In one series of 819 cases of biliary fistulas, approximately 19 per cent were choledochoduodenal in type, the majority of these resulting from gallstone perforation; six per cent were from perforating ulcer, a significant proportion involving the common duct. In 1956, Hutchings et al found in the American literature 23 cases of choledochoduodenal fistula complicating peptic ulcer; they added six cases of their own. The present report documents this complication of peptic ulcer in a young man with a relatively short ulcer history.


The clinical course of 32 patients with ruptured abdominal aortic aneurysms is reviewed with the aim of illuminating some diagnostic and therapeutic problems in their management. The incidence of rupture in 200 cases of abdominal aortic aneurysm treated surgically was 16 per cent. Before the event of rupture, nearly one-half of the cases (40 per cent) were entirely free from symptoms or knowledge of the presence of the aneurysm. The presence of a pulsating mass was the most common pre-rupture sign. Pain was present in seven cases before rupture. The salvage rate was 46 per cent (or, putting it conversely, the operative mortality rate was 54 per cent). Preoperative hemorrhagic shock and a history of arterial hypertension significantly increased operative mortality. Although a factor of this type is difficult to assess, delay in applying the right method of therapy, either because of failure to recognize the lesion or because of inability to deal with the surgical problem at laparotomy for the wrong diagnosis, seemed to be an important factor contributing to the high mortality rate. Once the diagnosis is made the surgeon's main task is to stop the bleeding with the greatest dispatch possible by placing a clamp on the aorta proximal to the site of rupture.


The author has found the hip-knee-hip triad a useful sign for prediction of dislocation or subluxation of the hips in the newborn babies. The normal hip-knee-hip triad is a relatively rare finding as shown by our statistics — four cases among 3905 newborn babies. In the author's experience the rule of the hip-knee-hip triad can be applied only on the hips of the newborn babies.


Systemic mast cell disease is characterized by infiltration of various organs, particularly the reticuloendothelial system, with mast cells. The signs and symptoms of this condition reflect the unique functions of these cells, which yield histamine, heparin (serotonin in some animals) and possibly hyaluronic acid. The past decade has seen the concept of mast cell disease enlarged from that of a mere cutaneous infiltration (the relatively common urticaria pigmentosa) to that of a systemic disease. To date, at least twenty-one cases of systemic mast cell disease have been described, chiefly in the dermatologic literature. The main reasons for lack of recognition of the disorder are the unfamiliarity of internists with the condition, coupled with the lack of structural stability of mast cells when subjected to
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ordinary fixatives and stains. The important role of the mast cell in normal and pathologic states, and the apparent rarity of the systemic disease it produces, prompted us to report our experience. Twenty-one cases of systemic mast cell disease reported in literature are reviewed. Three additional patients, one with mast cell leukemia and two with systemic mast cell disease, are described. The relationship of the signs and symptoms of systemic mast cell disease to the known products formed by the mast cell is discussed.


It is only recently that ruptured aneurysms of the sinuses of Valsalva have been treated successfully. Experience with ruptured congenital aneurysms of the sinuses of Valsalva is unusual enough to warrant documentation. We shall describe two cases in whom the diagnosis was made preoperatively and upon whom operation was performed by use of the pump oxygenator. The first case can be considered a good surgical result in an individual with a massively enlarged heart which, undoubtedly, would have rapidly and irreversibly decompensated. The heart becomes smaller with the passage of time and the patient remains asymptomatic. The postoperative course in the second case probably represents partial disruption of the temporarily closed defect. A possible explanation for this occurrence would be that congenitally defective tissue was utilized for fixation of the sutures, although at the time of operation the margins approximated appeared firm. Of interest is the duration of life, after initial rupture, which was at least five years. Previous reports stress the rapid demise (days, weeks, or months) following rupture, although exceptions exist with an extreme in survival being 17 years.


Primary rhabdomyosarcoma of the upper gastrointestinal tract is a rare tumor. The roentgenologic, radiotherapeutic, surgical and pathologic findings in two cases of rhabdomyosarcoma that involved the stomach and upper esophagus respectively form the basis of this report. Rhabdomyosarcomas tend to metastasize quite early to the lungs via the blood stream. They may, less commonly, disseminate by way of the lymphatic system. Surgery is the treatment of choice: however, the judicious use of radiation therapy has a definite place in the over-all management of the patient with this lesion.


A combination of two of the three members of the lente insulin triad was given to 65 diabetic patients who were dependent on insulin. Forty-two received a combination of lente and ultralente; 18 received semi-lente and lente; five received ultralente and semilente. These combinations were given to patients whose diabetes was uncontrolled with a single daily injection of an intermediate insulin. When greater hypoglycemic activity during the night was desirable, ultralente was combined with lente insulin. Frequently, this permitted the elimination of an evening injection of intermediate insulin. Semilente was used with lente when greater hypoglycemic activity during the day was needed. In our opinion, the use of the lente triad gave satisfactory control of the diabetes in this group of patients. Disadvantages were minor. The use of the lente triad for control of the patient with diabetes dependent on insulin is recommended. Those preparations of insulin containing added foreign protein are outdated. Illustrative cases are recorded.


Recent medical experience suggests that an awareness of the association between peptic ulcer and hyperparathyroidism may increase the yield of early diagnosis in primary hyperparathyroidism. This paper analyzes the clinical relationships in 52 patients who had both hyperparathyroidism and peptic ulcer. Fourteen cases of parathyroid adenoma were proven at Henry Ford Hospital between 1934 and 1957, and in none of these was there a history of peptic ulcer. On the other hand, between 1958 and 1960, seven of ten proven cases of hyperparathyroidism exhibited peptic ulcer either before or at the time parathyroid hyperfunction was diagnosed. Four of these cases were uncovered during an 18-month survey of 300 consecutive cases of peptic ulcer.