
JOURNAL OF CLINICAL PATHOLOGY

EDITED FOR
THE ASSOCIATION OF CLINICAL PATHOLOGISTS

BY
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LONDON
BRITISH MEDICAL ASSOCIATION
TAVISTOCK SQUARE, W.C.1

Yearly Subscription (4 Numbers) 30s.  U.S.A. $5.00  Single Numbers 7s. 6d.

ABSTRACTS

This section of the Journal is published in collaboration with the two abstracting journals, Abstracts of World Medicine, and Abstracts of World Surgery, Obstetrics and Gynaecology, published by the British Medical Association. In this Journal some of the more important articles on subjects of interest to clinical pathologists are selected for abstract, and these are classified into four sections: bacteriology; biochemistry; haematology; and morbid anatomy and histology.

BACTERIOLOGY


Many Gram-negative bacteria have been found to be capable of coagulating citrated plasma. This they do by metabolizing the citrate and thus liberating the free calcium ions required for normal plasma clotting. In oxalated plasma and in much-diluted citrated plasma no coagulation occurs. The nature of the coagulation effected by these organisms is thus basically different from that initiated by the coagulate-positive strains of Staphylococcus aureus. The two kinds of clotting can be distinguished by the addition of heparin to the citrated plasma; this renders it no longer coagulable by the Gram-negative bacteria, though it can still be clotted by active strains of staphylococci.

G. Payling Wright.


Caronamide undoubtedly reduces the wastage of penicillin through the kidneys. It is given in a dosage of 4 g. 4-hourly, but the large size of the tablets is apt to cause nausea. A simple emulsion containing 0.5 g. of the drug per teaspoon is available and is very useful for children. Roughly, caronamide will quadruple the effective levels of penicillin in the serum; it is more generally useful in clinical practice if given in association with oral penicillin than with intramuscular injections.

G. F. Walker.


Streptomycin was given in 67 cases, consisting of: (1) 44 cases of urinary infection, chiefly by Pseudomonas aeruginosa and Bacterium coli; (2) 14 cases of wound infection, mainly by Staphylococcus pyogenes; (3) 9 miscellaneous infections. The infecting organisms were proved to be sensitive in vitro to streptomycin, but insensitive to the sulphonamides and to penicillin. The dose used in urinary infections was 3 g. daily for 4 days, usually injected intramuscularly every 3 hours; potassium citrate was also given to keep the urine alkaline. If there was much pain at the site of injection, procaine was administered. For wound infections 4 g. was usually given daily for 2 days to obtain rapidly a high concentration in the tissues. Streptomycin was also injected subconjunctivally in cases of panophthalmitis, while cases of surface infection were treated by the local insufflation of a powder containing streptomycin 1 g., penicillin 45,000 units, and sulphathiazole 9 g. Of the 44 cases of urinary infection, including 10 cases with suprapubic drainage and 9 cases after prostatectomy, 14 were cured and 12 improved. The criteria of cure were sterile urine and absence of symptoms
of infection. In the cases in which suprapubic drainage was established there was a high proportion of failures due to reinfection. No advantage was gained by continuing treatment longer than 4 days, since the sensitivity of the organisms to streptomycin was then greatly reduced. Of the 14 cases of wound infection 10 were cured and 2 improved. Among the miscellaneous cases staphylococcal infections resistant to other forms of chemotherapy responded well.

It is suggested that if no improvement occurs within a week surgical treatment should be considered with a view to eliminating inaccessible foci of infection and providing adequate drainage. Reactions were encountered in less than a third of the cases. No auditory symptoms were observed, but vestibular disturbance was pronounced in 3 cases. Less serious reactions included pain at the site of injection, headache, and nausea in about 10 to 20% of the cases.

R. Wien.


A preliminary account is given of “neomycin,” a new antibiotic active against mycobacteria. The organism producing neomycin, like that producing streptomycin, is a species of Streptomyces isolated from the soil and is related to Streptomyces fradiae isolated in 1915 by Waksman and Curtis. Neomycin is soluble in water and is bacteriostatic against numerous Gram-positive and Gram-negative bacteria, including Mycobacterium phlei and M. tuberculosis, the antibiotic spectrum of crude preparations being distinct from those of streptomycin and streptomycin. Neomycin is also highly bactericidal and has little or no toxicity to animals. Resistance to neomycin has not been found among the organisms sensitive to it, nor has more than a limited degree of resistance developed after prolonged incubation of such organisms in contact with the drug. The antibiotic has not yet been obtained in crystalline form, but preliminary chemical studies suggest a distinct difference from streptomycin and streptomycin.


Thirty individuals received aureomycin in doses varying from 0.16 to 2.5 g. orally, 50 to 100 mg. intravenously, and 50 to 200 mg. intramuscularly. After oral administration the drug was present in the blood after 1 hour and its concentration reached a maximum after 2 to 4 hours. The peak concentrations lay between 0.6 and 2.5 µg. per ml. of serum and measurable amounts persisted for over 6 hours. Intravenous doses of 50 mg. gave serum concentrations equal to or greater than those with 1 g. orally. Intramuscular doses of 50 to 200 mg., administered in a phosphate buffer with 2% procaine, led to a concentration of greater than 0.15 µg. per ml. only one case. In urine the concentration of aureomycin varied between 5 and 50 µg. per ml. depending upon the route of administration and the time of collection.


Eleven patients with confirmed murine typhus were given 4 to 6 g. of aureomycin by mouth daily in divided doses. The clinical condition of the patients improved within 24 hours, the headache and gastro-intestinal symptoms disappearing overnight and fever in 24 to 72 hours. One patient who was afebrile, however, showed no signs of improvement.

Five young adults with brucellosis were treated by the same regimen. In all patients agglutinins for Br. abortus in titres varying from 1 in 80 to 1 in 640 were present in the serum. Febrile relapses occurred in 2 patients 14 and 42 days respectively after a course of aureomycin lasting for one week; this indicates that longer periods of therapy may be advisable.

R. Hare.
ABBREVIATIONS

BIOCHEMISTRY


The levels of serum-protein-bound radioactive iodine were measured in 10 thyrotoxic patients and 10 with normal thyroid function. A fixed dose of 150 mc. carrier-free I\textsuperscript{131} was administered 3 hours after a light breakfast, and 10 ml. of blood was withdrawn 24 hours later. The protein-bound iodine was precipitated by cold 10% trichloroacetic acid. The total serum radioactivity was also measured. Results were expressed in terms of microcuries of radioactive iodine per ml. of serum. The "total serum radioactivity" values showed considerable overlap in the two groups of patients. The "protein-bound radioactive iodine" values, on the other hand, did not overlap; the values in hyperthyroid patients ranged from 38 to 146 × 10\textsuperscript{-5} mc. per ml. (average 68 × 10\textsuperscript{-5} mc. per ml.), and in patients with normal thyroid function from 3 to 28 × 10\textsuperscript{-5} mc. per ml. (average 13 × 10\textsuperscript{-5} mc. per ml.).

[This is a comparatively simple and promising test, but the absence of overlap will require confirmation in a larger series of cases.]


Studies in 12 patients suffering from advanced Laennec's cirrhosis of the liver showed that the serum-protein concentration was influenced by an associated increase in plasma volume determined by the Gibson and Evans dye method, so that a subnormal concentration did not necessarily indicate a subnormal quantity of total circulatory protein. Total blood volume was calculated from the plasma volume and venous haematocrit values. Liver function tests—thymol turbidity, cephalin—cholesterol flocculation, hippuric-acid excretion, and bromsulphalein excretion—gave abnormal results in all the patients studied. Of the 12 patients subjected to 80 tests, the total circulatory protein, calculated from blood volume and protein concentration, was found to be within theoretical normal limits in 69 instances. The total circulatory globulin value was above the theoretical normal in every instance tested. The degree of increase in plasma volume compared to the normal predicted volume was in some cases in the order of 5,500 ml. to 2,750 ml., but this showed no correlation with the presence or absence of ascites, anaemia, or oedema. Clinical improvement in several cases appeared to be related to the ability to maintain a level of total circulatory albumin above the predicted minimal value, even though the albumin concentration in the serum—often wrongly used as a guide to prognosis—was abnormally low.

The Effect of Desoxycorticosterone Acetate and Sodium Chloride, Thyroxin, and Testosterone Propionate in a Case of Panhypopituitary Disease (Simmonds' Disease) with Special Reference to Kidney Function and Blood Pressure. [In English.] Luft, R., and Sjögren, B. (1949). Acta endocrinol., Kbh., 2, 44.

A woman with severe Simmonds' disease was treated with desoxycorticosterone acetate and sodium chloride, testosterone propionate, thyroxin, and various combinations of these. Desoxycorticosterone alone caused only slight improvement in her general condition and a restoration of blood pressure to low normal levels. Testosterone caused no hirsuties or virilism, but there was a marked improvement in her general condition with an increase in weight and recovery of strength. Treatment by thyroxin resulted in a deterioration in her general condition, rapid loss of weight, and a serious hypoglycaemic attack. When thyroxine was later given in conjunction with testosterone propionate there was a rapid reappearance of axillary and pubic hair, the skin showed increased vascularity, and the basal metabolic rate rose to normal. The patient now became strong enough to get up. When desoxycorticosterone acetate and sodium
chloride were added there was a further increase in weight and she developed hypertensive. Further slight increase in weight occurred when thyroxine was suspended.

Studies of renal function showed that some improvement in the previously low clearance values occurred when desoxycorticosterone acetate was given. The addition of thyroxine caused a decided increase in the clearance values. Hypertension did not occur with desoxycorticosterone when the renal clearances were very low, but it developed rapidly when the clearances were improved. The authors suggest that hypertension is not necessarily associated with an increase in blood volume but is dependent on renal circulation.

A. C. Crooke.


A study was made of the chloride and sodium excretion and nitrogen balance of 27 patients before and after operation, and of 4 healthy male volunteers. Of the healthy controls 2 received a diet providing 2,500 calories daily, with measured salt intake, while the caloric intake of the other 2 was restricted to 500 calories daily for 3 days, increasing thereafter with a typical patient after gastrectomy. No anaesthesia or surgery was carried out on these controls, whose daily chloride excretion was found to vary with the intake of salt and to be unrelated to the protein intake.

A group of 5 patients undergoing partial gastrectomy was treated after operation by continuous intravenous infusion of saline or glucose solution and 2-hourly gastric aspiration for periods up to 4 days; a similar group of 4 patients underwent abdominal and other operations after which intravenous infusion and gastric aspiration were not necessary. In both groups there was post-operative depression of urinary chloride excretion in spite of the intravenous administration in the former group of more than 10 g. of salt daily, the total loss of salt from gastric aspiration during the first 3 post-operative days being estimated at 5 to 15 g. A post-operative negative nitrogen balance, with striking increase in nitrogen excretion, coincided roughly with the period of diminished chloride excretion.

In the immediate post-operative period another group of 4 patients received intravenous casein hydrolysate in amounts calculated to yield an intake of approximately 11 g. of nitrogen daily, together with a higher chloride intake than in the pre-operative or later post-operative periods. Nevertheless, their chloride excretion fell after operation, returning to the pre-operative level after 5 to 8 days (at which time chloride intake was usually at its lowest owing to the transition from intravenous to oral feeding), while nitrogen excretion was increased coincidentally with the fall of chloride excretion. A mixture of whole milk, dried skimmed milk, and lactose, calculated to provide daily 90 g. protein and 1,700 calories, was given to a fourth group of 7 patients after operation, initially by double-lumen tube inserted at operation into the distal limb of the jejunum, and later by mouth. Their salt intake was never less than 4 g., and during intravenous infusion it was 10 g. or more daily. In 3 of these patients the daily urinary chloride excretion was less than 1 g., in 3 it was less than 2 g., and in one less than 3 g.

A further group of 7 patients were given a constant salt intake, and the sodium and chloride contents of their stools were measured as well as that of the urine. Excretion of sodium and chloride was reduced in 5 of these patients for the first 7 to 8 days after partial gastrectomy, the onset of the reduction being delayed until the second or third day in 2 cases. Although the retention of both ions continued for 8 days, chloride retention exceeded that of sodium from the third to the seventh days. In 2 patients who were observed for a long enough time this excess was found to be excreted later. The increase in nitrogen excretion and the coincident reduction in salt excretion was comparable in all groups and bore no relation to the amount of protein, salt, water, or calories taken, nor to the route by which they were given.

In view of these findings it is suggested that the retention of sodium and chloride is related to the inflammatory reaction to injury, that increased protein breakdown is another part of this reaction, and that the need for post-operative intravenous saline administration to combat a supposed state of salt depletion should be reviewed.
HAEMATOLOGY

A Case of Cyclical Agranulocytosis with Marked Improvement following Splenectomy. 


Two cases are described of cyclical agranulocytosis. In the first, a man aged 62, splenectomy was followed by a transient marked leucocytosis. The leucocyte count later fell to low levels but there was not complete agranulocytosis. The patient's general health improved considerably.

The second is of a man of 23 years. In many attacks polymorphs were absent from the blood for 3–5 days. The bone marrow was hypoplastic and there were increases in the numbers of plasma cells and reticulum cells. All medical treatment was unavailing; splenectomy produced only temporary benefit. The patient died after 5 years' observation.


The authors describe the discovery of the antibody anti-S in the serum of a woman (group A Rh negative) who had received repeated transfusions for an anaemia of obscure origin. By means of the indirect Coombs test it was shown that her serum contained an antibody active against 14 out of 17 Rh negative bloods chosen at random. When the serum was tested in parallel with a known anti-S serum the two sera reacted alike. As S negative blood was badly tolerated it was concluded that an additional antibody was present. Its presence could not, however, be demonstrated in vitro.


The patients had been treated between 1936 and 1948; 58 of them received x-ray therapy in addition to P³². Twenty-four patients were alive at the time of this study, 35% of them having survived for 6 years or more and 13% of them for 8 years or more. In many cases palliation was all that could be achieved. An absence of radiation sickness is a point in favour of P³² therapy.


The authors describe an attempt to correlate the prothrombin consumption in human plasma with quantitative estimates of clot retraction. In thrombocytopenic purpura delayed clot retraction and poor prothrombin consumption were associated with a subnormal platelet count. The prothrombin consumption test is considered to provide a measure of platelet activity.


The case history is described of a woman who developed a macrocytic megaloblastic anaemia after an anastomosis had been performed to short circuit a stricture due to regional ileitis. Intramuscular liver therapy had no effect, but oral liver extract and proteolyzed liver were effective in treatment. It is concluded that the essential causative factor was stasis of bowel contents in the by-passed loop.
MORBID ANATOMY AND HISTOLOGY


The authors found that blood serum from certain patients suffering from clinically-diagnosed sarcoidosis contains a factor capable of neutralizing “old tuberculin,” so that the latter no longer evokes a skin reaction in tuberculin-sensitive subjects, or modifying the action of the tuberculin so that only a diminished reaction results. The test is of no use for diagnosis of sarcoidosis, however, because the neutralization phenomenon occasionally occurs with normal serum or with the serum of patients suffering from other diseases; moreover, neutralization may not take place if the sarcoidosis is relatively inactive, as, for example, during a spontaneous remission of the disease or after effective radiotherapy.

A similar tuberculin-neutralizing factor has been demonstrated in the serum of some patients with leishmaniasis, and it would thus seem to be a feature of diseases which have as a pathological characteristic the mobilization of epithelioid cells. It may, therefore, be present in berylliosis.

Electrophoretic fractionation of serum from cases of sarcoidosis shows that the tuberculin-neutralizing factor is all in the γ-globulin. It is heat-labile and is unaffected by soya-bean antitrypsin, thus differing from fibrinolysin. The point is of interest because fibrinolysin can neutralize the ability of other antigens, such as pollen, to cause a skin reaction in a sensitive subject. The tuberculin-neutralizing factor in sarcoidosis, on the other hand, does not affect these antigens. The presence of the factor in the γ-globulin is noteworthy, for in many cases of sarcoidosis a proportional increase in serum globulin has been observed. It would be of great interest to know whether the tuberculin-neutralizing factor is present in other conditions associated with a rise in serum globulin.

John Forbes.


A case is described in which symmetrical firm tumours were situated just above the olecranon processes of each elbow. The patient, a child of 10½, had had the lump in the left arm for a year, and in the right for 6 months. The tumours were attached to the deep structures, not to the skin, and there was some limitation of movement at the elbow joints.

Radiographs showed irregular, calcified masses in the region of the triceps tendons. Histologically, the “tumours” consisted of areas of necrosis in the triceps muscle and tendon, with a deposit of doubly-refracting crystals and substances taking up fat stains. These areas were surrounded by epithelial cells and foreign-body giant cells.

The concentration of lipid in the affected tendon was found to be 8 times the normal value; the author therefore claims that the condition be regarded as a special form of lipoidosis and compares the clinical and biochemical findings with those in other types.

H. K. Goadby.


A woman of 25 was delivered of a full-term infant by Caesarean section eleven months after a recurrent malignant melanoma had been excised from the thigh. The placenta and an ovary contained secondary growth on histological examination.

The woman died 3 months later; there is no report of a necropsy. The infant died at the age of 10½ months of widely disseminated neoplasm, and a post-mortem examination was carried out. The histology of the neoplasms in the various specimens was similar throughout. The malignant cells would appear to have reached the placenta by embolism along the maternal blood vessels and to have crossed the placental barrier into the foetal circulation.
Six similar cases found in the literature are reviewed, and it is pointed out that this case is the first reported in which thorough histological examination of all the relevant tissues has yielded convincing evidence of the process by which the neoplasm reaches the focus.


This is a description of 8 cases in which peripheral nerves were affected by typhoid–paratyphoid vaccination. In 3 patients there was acute neuritis of the brachial plexus; in 2 cases bilateral polyneuritis of the lumbo-sacral plexus; and the remaining 3 patients had a typical polyneuritis of the Guillain–Barré type. The author believes that these cases should be regarded as allergic manifestations similar to polyneuritic conditions seen in serum sickness or the rheumatic diseases.


The authors analyse 300 cases of sarcoidosis taken from the records of the Army Institute of Pathology, Washington. The report is based on cases diagnosed by surgical biopsy and followed up by means of a questionnaire, in addition to details of findings at necropsy in 22 of the cases. Histological criteria of diagnosis were used in selecting the material for study. The organs showing the highest incidence of involvement at necropsy were the lungs, liver, lymph nodes, and spleen.


A study of the morbid anatomy and histology of internal hydrocephalus, with illustrative cases. It is concluded that obstruction at some point of the cerebrospinal pathway is the operative factor in all, and that the term “idiopathic” may be regarded as obsolete. The different sections deal with maldevelopments, gliosis of the aqueduct, inflammations, and dural sinus-thrombosis as factors in the causation of hydrocephalus. A final chapter gives some account of the anatomical effects of hydrocephalus, both general and local.


A goitre of a new histological type, to which the name “parafollicular-cell adenoma” has been given, was found in 3 women, aged 38, 29, and 23 years respectively, at the Neurosurgical Clinic, Stockholm. By comparing the microscopical structure of the lesion in the 3 cases, the development of the adenoma could be followed. First, small follicles are formed containing a small amount of colloid and surrounded by numerous capillaries. Later, the cells and their nuclei become larger and have the appearance of parafollicular cells (but without the increased activity of the latter, as was shown by the benign clinical symptoms), the nucleus being pushed to the side of the cell opposite to the capillaries and near to the colloid. As the transformation of thyroid tissue into adenoma becomes complete, the cells enlarge and the nuclei become shrivelled, resembling the “oncocyes” described by Hamperl, which the author regards as degenerate varieties of parafollicular cells. Finally, the follicles are dissolved, the colloid disappears, and the cells become grouped round the vessels in rosette form with the pyknotic nucleus withdrawn to the end of the cell away from the lumen of the capillary. The author concludes that this type of adenoma is histologically identical with the Hürthle-cell tumour of Wilensky and Kaufmann, but differs from the large-cell goitre of Langhans.

Wilfred E. Hunt.

Of 29 cases of periarteritis nodosa studied there were clinical signs of peripheral neuritis in 15. This neuritis tended to appear early, to be widespread and severe, and to affect the lower limbs and the motor rather than the sensory neurones. A clinical regression occurred in 4 cases. Comparison of this group of 15 cases with the remainder did not reveal any significant difference in the incidence of hypertension, fever, leucocytosis, or eosinophilia. Necropsy in 25 of the cases revealed involvement of the nutrient arteries in 19 and in all of the cases with clinical signs of peripheral neuritis. The nerve degeneration was Wallerian in nature and there was no sign of an inflammatory neuritis.

R. N. Johnston.


Sternal puncture in 40 cases of pernicious anaemia, in some repeated, indicated that the administration of liver extract or of folic acid caused the new formation of normoblasts from their precursors, while pre-existing megaloblasts degenerate in situ.

The authors conclude that: (1) megaloblasts cannot be transformed into normoblasts; (2) megaloblasts are cells suffering from simultaneous disorders of development and maturation; and (3) "intermediate" megaloblasts are megaloblasts suffering from a minor degree of disordered development; they are not transitional stages between megaloblast and normoblast.


Cases of primary amyloidosis have no history of tuberculosis or chronic suppuration. The organs most commonly affected are the heart, lungs, striped muscle, and other non-abdominal structures, the abdominal viscera are involved less commonly, and there are occasional amyloid tumours. The staining reactions of the amyloid substance are atypical.

Of 57 cases reported in the literature the necropsy findings were given in 54, amyloid change being present in the various organs as follows: heart 46, gastrointestinal tract 33, tongue 26, lungs, 24, striped muscle 19, liver and kidneys 21, spleen 20. Bones, joints, brain, peripheral nerves, and other organs were also involved on occasion. In some cases the intravenous Congo red test had been negative.

The clinical histories, necropsy findings, and histological appearances in 6 new cases are reported. The author comments on the remarkably diffuse involvement of mesodermal structures and points out that the characteristic distribution patterns of primary and secondary amyloidosis overlap. In the primary form the cardiac lesions are clinically the most important and macroglossia less important than has previously been maintained. When the amyloid substance does not take up intravenous Congo red, then biopsy is necessary before a diagnosis can be made. No clue to the pathogenesis of primary amyloidosis has been found.

R. R. Wilson.


This is a detailed analysis of 93 cases of biliary cirrhosis discovered during 3,922 post-mortem examinations over a period of 18 years. The main causes were as follows: carcinoma of the pancreas, 28.9%; stones in the common bile duct, 21.5%; carcinoma of the bile duct, 17.4%; and carcinoma of the gall-bladder, 12.9%.

[For detailed statistical data concerning the incidence of the various signs, symptoms, and pathological changes encountered the paper should be consulted in the original.]

R. Schneider.

Recent work on kwashiorkor and fatty liver disease has demonstrated the presence of pancreatic atrophy, which has been attributed to dietary deficiency and is considered to precede the hepatic changes. In the present investigation the pancreas was studied in 14 infants in whom advanced fatty infiltration of the liver was found at necropsy. In only one of these had the fatty liver syndrome been observed during life. In all of them advanced acinar atrophy was found, with a preponderance of intercalated ducts. The islets were normal. Advanced atrophy was not found in control cases; but slight and moderate changes occurred in some. The absence of the syndrome of fatty liver disease in cases in which advanced pancreatic changes were seen suggests that the initial lesion of the syndrome is in the pancreas and that the infiltration of the liver takes place because of pancreatic dysfunction. J. L. Markson.


A useful review is given of 104 recorded cases (including 9 personally studied) of primary plasma-cell tumours of the mucous membranes of the head and neck. These are four times as frequent in men as in women, and three-quarters of them develop in the fifth, sixth, and seventh decades. They occur rather more frequently in the nasal cavity, sinuses, or nasopharynx than in the oral cavity and oropharynx. In two-thirds of cases there are no metastases; in the remaining one-third, metastasis occurs to the cervical lymph nodes or infrequently to bones or other sites. When metastases occur in bones, it is difficult or impossible to decide whether the case is indeed one of primary plasmocytoma in the oral or nasal mucosa or one of myelomatosis. R. A. Willis.


The authors report 8 cases of synovial sarcoma, 4 cases of relatively benign synovioma, and 5 sarcomata of "questionable" synovial origin. W. E. Tucker.