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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


The hypothesis that production of antibodies in newborn infants is relatively inefficient has been re-examined in the light of the desirability of early immunization against whooping cough, concomitant immunization against diphtheria, and the known satisfactory response in infancy to smallpox immunization.

A group of children aged from 1 month to 14 months, of whom the majority were under 6 months of age, was treated by subcutaneous injection of combined diphtheria and tetanus toxoid after a previous titration for antibodies. A second injection was given 2 months later and after a further month a blood sample was re-titrated. Results of titrations are given.

It appears that even small amounts of antibodies may prevent immunity being produced. The percentage of passively immune children in the early months of life revealed in this study was lower than that reported by previous workers. This appears to be due to the diminished prevalence of diphtheria, and number of Schick-negative adults. It may be concluded that at the present time in the United States one-third to one-half of all infants will be passively immune in the early months of life. It would therefore appear advisable to defer diphtheria immunization until after the sixth month. Since, however, evidence of antibody production appears to be satisfactory, even in the newborn, and in view of the high mortality rate of pertussis in the first months, it is advisable that pertussis vaccination be carried out in the sixth, ninth, and twelfth weeks and diphtheria (and, if desired, tetanus) toxoid be given in the seventh and ninth months.

G. T. L. Archer.


Some 200 children (average age about 4 months) were divided into groups and immunized with diphtheria toxoid, diphtheria toxoid and pertussis prophylactic, or with diphtheria toxoid plus pertussis prophylactic plus tetanus toxoid. Two doses of material were given at intervals of 3 weeks, and the immunity response was estimated 3 weeks after the second injection: to diphtheria prophylactic by estimation of serum antitoxin by rabbit skin testing; to Haemophilus pertussis by slide or tube agglutination tests with serum; and to tetanus by serum antitoxin tests in guinea-pigs. Before immunization no child possessed agglutinins against H. pertussis; 33% had at least 0.004 unit diphtheria antitoxin; 6% had tetanus antitoxin. The results below are based on those children without detectable antitoxin.

The response to diphtheria toxoid is considerably increased when it is given in combination with pertussis prophylactic and tetanus toxoid. The response to pertussis prophylactics is substantially unaltered by addition of other prophylactics. The presence of tetanus toxoid in the mixtures led to the production of an average of 0.021 unit tetanus antitoxin (1 ml prophylactic mixture given). Reactions were not increased in severity by combination of prophylactics. On these grounds it is claimed that combined prophylactics are effective and desirable.

C. L. Oakley.


The penicillin sensitivity of 284 strains of Corynebacterium diphtheriae, isolated in different parts of Britain, was tested (technical details given), and an attempt was also made to find out whether penicillin treatment shortened the time of carriage of the organism in acute cases of faecal diphtheria or aided its elimination from persistent throat carriers. The clinical effect of penicillin on diphtheria was not considered.

The results showed that gravis strains of C. diphtheriae are rather more resistant than intermedius strains, and intermedius strains more so than mitis strains. Most of the strains tested required two or three times as much penicillin for in vitro inhibition as did the standard strain of staphylococcus, which was inhibited by 0.1 unit of penicillin per ml of medium.

In treating acute cases of diphtheria antitoxin was used as well as the following doses of penicillin: adults and children over 10 years, 60,000 units 4-hourly during the day only (240,000 units daily); children 5 to 10 years old, two-thirds of the above; children under 5 years, one-third of the above. Of 65 cases thus treated, 26 of 37 receiving a three-day course and 20 of 28 receiving a six-day course became free from the infecting organism within 4 days of the end of treatment. This compared favourably with previous rates of clearance published for cases treated with antitoxin only, and also with results in a small control group of 22 cases, noted by the present authors, in which only 3 had the first of a series of consecutively negative swabs within a fortnight of admission to hospital.

The authors consider that it may be easier to prevent the appearance of a convalescent carrier than to cure the established carrier condition, and they advocate that penicillin therapy should be begun as early in the disease as possible.


It has been shown that it is possible to obtain finely dispersed growth of tubercle bacilli by adding to the
medium certain non-ionic wetting agents. "Tween 80," a polyoxyethylene ester of sorbitan mono-oleate, has been most extensively used for this purpose.

A defect of tween 80 and of some other kindred substances is the fact that they are liable to enzymatic hydrolysis by lipases, which prohibits their use in media containing animal tissues, or fluids rich in these enzymes. This paper describes the study of another type of wetting agent—an arylalkyl polyether of phenol, known as "triton A 20"—which appears resistant to the known enzymes of animal tissues. This was demonstrated by growing strains of Mycobacterium tuberculosis, virulent and avirulent, in a basal synthetic medium containing serum, to which tween 80 and triton A 20 were added. Tween 80 lost its ability to disperse cultures in such media; triton A 20 did not.

Other differences were found between the actions of the two substances. Tween 80 increases yield of growth probably by supplying oleic acid to the bacilli. Triton A 20 does not, although it was found that growth can be enhanced in its presence when long-chain fatty acids or sphingomyelin are added to the medium. In concentration sufficient to cause dispersed growth, tween 80 (purified by removal of unesterified fatty acid) was innocuous to both virulent and avirulent strains. Triton A 20 at a concentration not affecting virulent strains in similar concentration showed a marked toxic effect on the avirulent variants tested. Triton A 20 does not produce such a finely dispersed growth, in the case of virulent strains, as does tween 80. This, according to the authors, is due to a peculiarity of the morphology of virulent strains, which produce, in addition to amorphous bacillary clumps, an end-to-end growth of bacilli resulting in serpentine strands. This formation of long bacillary strands is suppressed by tween 80, but not by triton A 20.

T. D. M. Martin.


This article is a report of the author’s experiences in treating 66 cases, mostly of very advanced pulmonary tuberculosis, with the new drug "Tb 1/698/E" (a mixture of equal parts of sulphathiazole and a semicarbazone). In this small hospital the usual mortality rate was 7 to 8% per month. Patients were chosen in whom the condition was deteriorating and was almost certain to continue to do so. Any improvement was attributed to the drug, the condition being assessed on the weight, erythrocyte sedimentation rate, and results of clinical, radiological, and sputum examinations. The drug was given in doses of 250 mg. a day for 8 days and then twice a day for 7 weeks; after a month's rest the course was repeated. No serious complications occurred, but gastro-intestinal upsets were common at the beginning of the course and diabetics were found to need much more insulin. Normal patients had rather low blood-sugar levels. The results of treatment were encouraging and the hospital's mortality rate fell to 1 to 2% per month. Of 17 cases not considered severe the majority improved; of 49 severe cases the condition improved and only in 4 did it deteriorate further; 29 patients put on weight; the sedimentation rate fell in 39 (to normal in 4 cases), but rose again in 15. There was an increase in the lymphocyte count in 37 and an eosinophilia of over 4% in 25. Sputum generally became less and changed from positive to negative in 17 cases; the reverse happened in 2 cases. In only 8 patients was there any radiological improvement, but many of those with laryngitis were much improved.


Clinical observations, extending over a period of many years, on in-patients and out-patients showed that the finding of a few tubercle bacilli in the stomach washings or the sputum (especially on examination by the flotation method) is of great significance in making a correct differential diagnosis or ascertaining the presence of concomitant tuberculosis in a primary non-specific pulmonary condition. The history and other relevant data in 108 carefully selected cases (out of 200), under observation for a long time, are presented and tabulated. The evidence showed that examination of stomach washings by the flotation method is of the utmost importance in establishing diagnosis of extrapulmonary tuberculosis. The relation between the radiological picture and allergic reaction on the one hand and scarcity of Mycobacterium tuberculosis in the sputum and stomach washings on the other is discussed in detail.

H. P. Fox.


Preparation of Herrold's medium is first described in detail. Briefly, nutrient agar containing 2% of glycerin is first put up in 120-ml. lots. When the medium is to be prepared the glycerin agar is melted and cooled, and to each lot is added the requisite amount of streptomycin in 1 ml. of distilled water. Immediately after the streptomycin has been added the yolk of a fresh egg is poured directly into each lot, the bottle inverted several times to mix, and the mixture poured into tubes and slanted. Streptomycin concentrations used by the authors were 1, 10, 50, and 100 µg. per ml. of medium.

As regards the bacterial inoculum in the sensitivity test, the authors state that tests may be done by inoculating sputum or other material on the medium without making a preliminary isolation, provided that the specimen is heavily laden with tubercle bacilli and the bacilli are uniformly distributed in it. They add, however, that in their experience most specimens have too few tubercle bacilli to permit the direct test, and this is especially true of specimens from streptomycin-treated patients. In most cases, therefore, a preliminary-isolation has to be made, and sensitivity tests must be done on pure cultures. Several methods are suggested. The technique is given.

The test is usually read after 14 days' incubation, and experiments show that the streptomycin in the medium remains stable throughout this time. Of 149 cultures from patients who had received no streptomycin, all were resistant to only 1 µg. or less of streptomycin per ml. of medium. It was found that 245 strains of tubercle bacilli from clinical material had the same sensitivity to streptomycin on the egg-yolk agar as in Proskauser and Beck's liquid medium. Among advantages claimed by the authors for the method are: ease of preparation of the medium; greater ease in reading differences of growth in a solid medium; the fact that cultures,
particularly those which have been stored for a long time, which fail to grow in a liquid medium may grow on the egg-yolk agar; individual colonies may be selected from solid medium for further study.


During the routine testing of a strain of Mycobacterium tuberculosis derived from the sputum of a patient with pulmonary tuberculosis who had been receiving streptomycin for 96 days, it was noted that growth was poor in the control tube while it was abundant in all tubes containing streptomycin in concentrations of 1, 5, 10, 100, and 1,000 µg per ml. The phenomenon was noted in Dubos liquid medium and on Loewenstein-Jensen medium. After the second transfer of this strain on Dubos medium with graded amounts of streptomycin, the authors were successful in reduplicating their findings in 5 of 7 trials. The cause of the discrepancy is not understood, but two possibilities are suggested: (a) the culture is a mixture of strains, or (b) unknown variables such as differences in lots of culture media and streptomycin may have altered the finding. They conclude that this strain shows partial dependence on streptomycin for growth, and have isolated a second strain from the same patient, three months after conclusion of streptomycin treatment, which showed the same characteristic. Streptomycin-sensitivity of a culture isolated from this patient before streptomycin therapy was begun was not tested.

T. D. M. Martin.


Three cases are reported of patients suffering from tuberculosis who during treatment with streptomycin developed painful stomatitis which disappeared when the treatment was stopped. Two of the patients had pulmonary tuberculosis; in the third the disease led eventually to acid-fast infection of the lungs. Streptomycin was given in doses of either 1 or 2 g. daily, and in each case the stomatitis developed 4, 5, and 12 weeks respectively after the treatment was started. The clinical picture in the 3 cases was a painful erosive membranous stomatitis which involved the whole mucous membrane of the mouth as well as the under surface of the tongue. Treatment did not prevent the vesicles from eroding, but as soon as streptomycin was stopped an improvement took place, and the lesions disappeared within a fortnight. When treatment was started again a similar rash broke out. There were no other toxic reactions.


A comparison is made of the results of treatment by different (Netherlands) physicians of two groups of cases of *H. influenzae* meningitis, one (32 patients, including 21 under 2 years of age) with drugs other than streptomycin, and five of the other patients, containing 17 children under 2 years, a child of 4, and one adult) receiving streptomycin with or without other drugs. Of the first group 4 recovered and of the second group 14. Of the fatal cases in the second group 2 ran a fulminating course with death within 3 days; in one case necropsy revealed a subdural abscess; one patient had been ill for 27 days before treatment started, and the fifth bacteriological examination showed a Listeria to be present as well. K. Kraaijenbrink (Excerpta Medica).


The sera from 89 patients with clinical and radiological appearances characteristic of primary atypical pneumonia were investigated. At least 2 serial specimens were tested in each case. Cold haemagglutination tests were considered positive when titres greater than 1 in 20 were obtained, and streptococcus MG agglutinin titres were considered significant when greater than 1 in 10. Complement-fixation tests for psittacosis and for meningoco-pneumonitis were also carried out, a four-fold rise in titre or a titre of 1 in 16 with a subsequent rise being taken as diagnostic.

The results showed that about 80% of the patients developed cold haemagglutinins and agglutinins for the MG streptococcus. Only 4 out of 79 patients showed significant titres with psittacosis and meningoco-pneumonitis antigens. Of these 4 patients, the sera of 3 were tested for cold agglutinins; only 1 was positive. Five patients with erythema multiforme associated with atypical pneumonia had positive cold agglutinin tests, while in 2 of them there was also serological evidence of infection with psittacosis virus. A history of recent close contact with birds was obtained in 10 of the patients with atypical pneumonia, though none of these had unequivocal evidence of infection with psittacosis virus. No evidence of Q fever was found in the case of 25 patients whose sera were tested for the appropriate antibodies.

R. B. Lucas.


Experiments on disinfection were made with pure cultures of *Mycobacterium tuberculosis* and with infected sputum and linen. The bactericidal power of aqueous solutions of chloramine was enhanced by adding to them an equal amount by weight of ammonium chloride, sulphate, or nitrate. Pure cultures of *Myc. tuberculosis* were killed in the activated 0.05% and 0.1% solutions of chloramine in 2 hours and 1 hour respectively; in the non-activated 1% solution the organisms survived for over 2 hours. The following solutions were suitable for effective disinfection of the collective samples of tuberculous sputum: a 2% solution of chloramine with 2% of activator (exposure for 4 hours in the ratio 2 parts of the solution to 1 part of the sputum) and 2.5% of activated chloramine (exposure for 2 hours in the same ratio). The activated solutions rapidly acted upon the homogenized sputum, thus facilitating disinfection and subsequent washing of the containers. Under practical conditions, steeping for 1 hour in a 1% activated solution of chloramine, at 18 to 20°C with 5 litres of the solution per kg. of infected linen, ensured its complete disinfection. Under the same conditions, a complete disinfection of linen was obtained. Under these conditions, if it is sterilized in 3 to 4 hours; it is recommended that handkerchiefs should be treated separately, the time of exposure being double that of the infected linen.

H. P. Fox.
BIOCHEMISTRY


Thirteen fatal cases of hyperpotassaemia occurring during serious renal insufficiency were investigated by the authors. The potassium level in serum varied between 7.7 and 10.5 millequivalents per litre and the condition was associated with diagnostic electrocardiographic changes but not with any typical clinical signs. A concomitant rise in blood urea and blood creatinine was present in all cases. The authors attribute the infrequent occurrence of potassium intoxication in their cases of uraemia to the treatment of these patients with large intravenous infusions containing glucose and whole blood. Other changes in serum electrolytes and in pH make the evaluation of the toxic effects difficult in these patients. Electrocardiographic findings are diagnostic and include T waves with a high peak and a narrow base, increased intraventricular conduction time, loss of P waves, gross intraventricular conduction defects simulating right bundle-branch block, and frequently and eventually a narrow QRS complex. The electrolyte changes are not constantly related to serum potassium levels and may return to normal after an injection of calcium, as demonstrated in two patients. In one case electrocardiographic changes started when the serum potassium level was relatively low (7.7 mEq.) and progressed without further rise in potassium level. The electrocardiographic records of six of the patients are discussed in detail. The authors emphasize the danger of giving potassium salts to patients with severe renal disease.


Details are given of 2 cases in which auricular standstill and widespread intraventricular block were associated with marked rises in the serum potassium level. The first was in a man, aged 72, who was admitted to hospital because of bronchopneumonia and diarhoea. To alkalinize the urine he was given 4 g. of potassium bicarbonate three times a day. Two days later, after he had had 20 g. of potassium bicarbonate, the pulse rate was 42 per minute, the pulse totally irregular, and the blood pressure 80/48 mm. Hg. An electrocardiogram showed auricular standstill with the pacemaker arising irregularly from a focus in the right ventricle; QRS was 0.15 second. The serum potassium level was 10.3 mEq. per litre., and the serum sodium level 128 mEq. per litre. The potassium bicarbonate was immediately withdrawn, and the next day the pulse was 90 per minute and regular, and the blood pressure 118/60 mm. Hg; the electrocardiogram had returned to its original configuration, and the serum potassium level was 5.9 mEq. per litre. The patient subsequently made an uneventful recovery. The second case was in a male child aged 34 years, in the nephrotic stage of subacute glomerulonephritis complicated by a respiratory infection. The serum potassium was 10.6 mEq. per litre and again the electrocardiogram showed auricular standstill with the pacemaker arising irregularly from a focus in the right ventricle. It is pointed out that some of the new salt substitutes used in the treatment of cardiac oedema contain relatively large amounts of potassium and should not be used if there is any evidence of renal failure. For the treatment of potassium intoxication, prompt intravenous administration of physiological saline and hypertonic glucose is recommended.


This is a study of the electrocardiographic changes and serum potassium concentrations in 19 patients with severe renal insufficiency and in 5 patients with low serum potassium levels and normal renal function. In 4 of the patients with impaired renal function there were abnormally high serum potassium levels, and in all these electrocardiographic changes were found which were not present in the remaining cases. These changes consisted of peaked T waves and increase in duration of QRS. There was also prolongation of the P-R interval. The peaked T wave was not necessarily abnormally high. No electrocardiographic changes were found with a serum potassium level below 6.8 mEq. per litre; they were sometimes present with values between 6.8 and 7.6 mEq. per litre, and always present when the serum potassium level was above 7.8 mEq. per litre. In the patients with low serum potassium concentrations the main electrocardiographic changes were low amplitude of T and prolongation of the Q-T interval.

HAEMATOLOGY


In this paper are described the effects of treatment with aminopterin of 43 patients with leukaemia. In only four patients (all children with acute leukaemia) was there a definite but temporary improvement in the blood picture. In 14 patients moderate or severe leucopenia developed, associated with bone marrow hypoplasia. The authors emphasize the toxicity of aminopterin and its unpredictability. The whole report is not encouraging.


Nine patients with chronic leukaemia (five of the myeloid and four of the lymphatic type) were treated with aminopterin, the maximum overall dose being 132 mg. No benefit resulted although the doses were sufficiently large to produce toxic effects.


The results are given of treatment with aminopterin and related compounds of 35 patients with acute or subacute leukaemia (31 adults). It is considered necessary to give doses large enough to cause general toxic effects. When remissions have occurred attempts have been made to continue treatment by smaller maintenance doses given orally. Amethopterin, amino-an-fol, and a-nitropterin are less toxic drugs, but less active therapeutically. A-nitropterin may, however, be slightly less toxic in effective doses than is aminopterin. Remissions occurred in nine of the 35 patients.
In this important paper are summarized the results of the treatment of children with acute leukaemia by means of aminopterin and related compounds (amethopterin and amino-an-fol). Of 60 children, rather more than 50% showed temporary clinical and haematological improvement. Two children were still alive 23 and 16 months after the onset of the disease.


This work demonstrates that the increased haemolysis in sickle cell disease is a result of the presence of abnormal erythrocytes. Normal corpuscles survive normally after transfusion into patients with sickle cell disease, but sickle cells transfused into normal subjects are destroyed relatively rapidly. The survival of blood exhibiting the sickle cell trait was normal in four cases and only slightly reduced in the fifth.


Sickling of erythrocytes is dependent upon a reduction in oxygen tension. The authors recommend that a reducing agent, sodium dithionite, be added to blood in order to bring this about. Sickling takes place within a few seconds in positive cases.


In cases of iron deficiency the serum iron level was found to be low, but the total iron-binding capacity was above normal; saturation was below 10%. In cases of chronic infection both the serum iron and total iron-binding capacity were reduced and the saturation was above 10%. The results in pregnancy and in other anaemias and the effects of injections of human globulin are also discussed.


The total iron-binding capacity of serum is the sum of the serum iron content and the “unsaturated iron-binding capacity.” The “percentage saturation” is calculated by dividing the observed serum iron content by the total iron-binding capacity. In patients with chronic infections the serum iron and total iron-binding capacity were found to be reduced and the percentage saturation lowered. The values rose in patients recovering from infections.

In two patients intravenous injection of metal-combining globulin raised the total iron-binding capacity to normal but did not diminish the rate of disappearance of iron from the serum. Experimental work in dogs is also referred to.


This paper contains much valuable factual information, and is based upon a study of 74 cases, mostly treated by exchange transfusion. Five infants were born dead and 19 died later. The haemoglobin level of the cord blood was found to be of prognostic significance; no infant with a value of 14 g. % or over died. Taken in conjunction with the haemoglobin level the bilirubin content of the cord plasma also afforded some indication of the severity of the disease. The strength of the direct Coombs reaction performed on the infant's corpuscles and the amount of free antibody in the infant's serum were, however, not found to be reliable criteria of severity.

MORBID ANATOMY AND HISTOLOGY


The basement membrane of normal and diseased human glomeruli, stained by the periodic acid-Schiff technique previously described by the author, was studied. It encloses the capillary loops, and certain infrequent stromal cells which lie in the intercapillary or axial space. This axial space is prominent in diabetes mellitus, contains inflammatory cells in acute nephritis, shows vacuolation and reticulization in eclampsia, and lipid accumulation in “lipoid nephrosis.” Charles Pike.


The author describes several cases of air embolism, in which the patients survived for periods varying from several hours to several days. He describes in detail the histological findings in the cerebral vessels (dilatation of capillaries and penetration of air into perivascular spaces) as well as the changes seen in the cerebral tissue around the vessels involved (penetration of air into glia and pericellular spaces of ganglion cells, infarct-like and necrobiosis areas of cerebral matter, haemorrhages). He compares the lesions with those seen in experimental air embolism, and states that cases of definite air embolism with survival in which scarring might be expected as a result of haemorrhages and necrosis have not been reported.

R. Schade.


The material for this study of the agonal changes in the liver at Cook County Hospital and the North Western University Medical School, Chicago, consisted of: (1) 226 needle biopsy specimens from 156 cases and 108 specimens obtained by surgical excision at laparotomy, some of which were fairly normal. (2) Biopsy and necropsy material available from the same patient in 38 cases. In 4 of these the interval after death was less than 48 hours. (3) Necropsy material from 351 males in the armed Forces all under 45 years and all of whom had died by accident or illness within 24 hours: (a) 96 cases of instantaneous death; (b) 255 cases in which death had occurred within 24 hours. The material was fixed in a variety of fluids, mainly Carnoy solution. Paraffin sections were used.
Cytoplasmic changes due to the absence of glycogen were seen in necropsy material. Dissociation of the liver cell cords with isolation of individual liver cells may be the result of agonal or necropsy change, and so regeneration jaundice cannot be explained by communication between the bile capillaries and the perisinusoidal spaces, which result from this dissociation. In life the perisinusoidal spaces are almost completely obliterated, but in the agonal period these spaces open up revealing reticulin connecting the walls of the sinusoids with the parenchyma cells. Consequently in cases of instantaneous death, these perisinusoidal spaces usually remain closed. This point was confirmed by animal experiments and might be of medico-legal significance.

Peter Harvey.


From each of 50 lungs removed surgically for bronchiectasis an average of three blocks was examined histologically—a small dilated bronchus, a portion of subpleural lung parenchyma, and, where possible, a uniformly atelectatic area. In the sections two relatively distinct types of alveolar cell lining were found: (a) square-cuboidal, or columnar, cells with dark-staining nuclei and acidophilic cytoplasm, non-phagocytic and present in an uninterrupted layer; when found (17 cases) this type of epithelium was invariably in the peri-bronchial parenchyma, and in four instances continuity with bronchial epithelium was traceable (however, use was not made in this study of serial sections); (b) rounded-cuboidal, paler cells with vacuolated cytoplasm, often phagocytic and frequently scattered or in isolation. This second type of cell lining was found in subpleural parenchyma, in thickened interalveolar septa, and in the neighbourhood of scars, that is, distal to the terminal bronchi, in 43 of the cases.

W. S. Killpack.

Nitrogen-mustard Therapy for Hodgkin's Disease, Lymphosarcoma, the Leukemias, and Other Disorders. WINTROBE, M. M., and HUGLEY, C. M. (1948). Cancer, 1, 357.

The results of the treatment of 32 patients with Hodgkin's disease were good in 17, but poor in 10. Only 3 of 11 patients with lymphosarcoma responded well and all 5 patients with reticulum-cell sarcoma died. Seven out of 11 patients with chronic myeloid leukaemia and 5 out of 14 patients with chronic lymphatic leukaemia responded well.

Leukopenia occurred in 51% of the patients, the earliest sign being a fall in the lymphocyte count during the first week.

It is concluded that nitrogen mustard therapy is most useful in Hodgkin's disease with generalized involvement and constitutional symptoms, but that nitrogen mustard usually fails in cases which have become refractory to x-ray therapy.

E. Neumark.


The author describes 2 cases of relatively benign tumours with a structure similar to that of basal-cell carcinomata of the skin. In 1 case, that of a man of 64, there was a circumscribed nodular mass 2.5 cm. in diameter in the wall of the anal canal. In the other, a woman of 45, there was a large encircling growth causing stenosis of the canal and lower part of the rectum, with nodular extensions beneath the perianal skin. (The author refers to the paper on the same subject by Lawrence and Knowles, Arch. Surg., Chicago, 1941, 43, 88.)

R. A. Willis.


The clinical and pathological data are given of 4 cases in which there was a solid teratoma of the ovary which was malignant; the cases ended fatally. In a fifth case there was a dermoid cyst containing a large solid area which was benign. It is proposed that the terminology should be simplified as follows: (a) solid teratoma, which is considered to be malignant by definition, and (b) simple dermoid cyst. Dermoids may have a malignant phase.

Magnus Haines.


The anaplasia characteristic of tumour cells is thought to be brought about by persistent disorganization of living protoplasm, especially by the incoordination of its ultrastructural protein fibrils. Many distinctive characteristics of tumour cells are explicable on the basis of this hypothesis, even though they were not used in its formulation.

[This important contribution provides a new view of neoplastic growth and should be read by all those interested.]

G. M. Findlay.


The author describes a study of the cytology of precancerous and cancerous cervical epithelium by phase-contrast microscopy of tissue cultures. In cultures from doubtfully precancerous abnormal epithelium no pathological cells appear, but cultures of genuinely precancerous lesions produce atypical cells resembling those in cultures from established carcinomata. The quantity of atypical cells in cultures is roughly proportional to the degree of anaplasia observed in histological preparations. Cultures from superficial and invasive carcinomata are indistinguishable. The cancerous transformation of the epithelium is evidently already established and irreversible before invasion begins.

R. A. Willis.


The development of the phase-contrast microscope is reviewed from its first applications by Zernike (1935). The theory and methods of using the microscope are succinctly described.

[All those who use the microscope, whether for work or pleasure, should read this communication, which is as near as possible to an account of phase-contrast microscopy without tears. The paper is illustrated by magnificent photomicrographs.]

G. M. Findlay.