ABSTRACTS

This section of the ANNALS is published in collaboration with the two abstracting Journals, ABSTRACTS OF WORLD MEDICINE and OPHTHALMIC LITERATURE, published by the British Medical Association.

The abstracts selected for this Journal are divided into the following sections: Acute Rheumatism; Chronic Articular Rheumatism (Rheumatoid Arthritis, Osteo-Arthritis, Spondylitis, Miscellaneous); Disk Syndrome; Gout; Pararheumatic (Collagen) Diseases; Non-Articular Rheumatism; General Pathology; ACTH, Cortisone, and other Steroids; Other General Subjects. At the end of each section is a list of titles of articles noted but not abstracted. Not all sections may be represented in any one issue.

The section “ACTH, Cortisone, and other Steroids” includes abstracts and titles of articles dealing with research into the scope and modus operandi of steroid therapy.

Acute Rheumatism


It is established that recurrences of rheumatic fever can be prevented in a high proportion of cases by anti-streptococcal prophylaxis. A preliminary investigation was carried out at Irvington House, Irvington-on-Hudson, New York, with the twofold object of determining the comparative efficacy of three different prophylactic regimens and observing the natural history of rheumatic heart disease in the presence of continuous prophylaxis over a period of 5 years. The three regimens were:

1. sulphadiazine, 1 g. a day by mouth in a single dose;
2. penicillin, 200,000 units a day by mouth in a single dose half-an-hour before breakfast;
3. benzathine benzylpenicillin, 1,200,000 units in 2 ml. by intramuscular injection every 4 weeks.

A total of 405 children, all of whom had had a definite attack of rheumatic fever within the preceding 28 months, were divided into eight groups: those without heart disease were divided into age groups 5 to 9 and 10 to 15 years and each age group was then subdivided into those who had been free from rheumatic activity for 3 to 4 months and those who had been free for 15 months or more; patients with heart disease were assigned to four similar groups. By a random allocation of patients to a prophylactic agent it was ensured that there were three treatment groups of approximately equal size in each of the eight groups. Each patient was seen once a month, throat swabs for culture being taken at each visit and blood for serological examination being obtained every other visit.

The results obtained in the first two years of the study, 1954 to 1956, showed that 1,200,000 units of benzathine penicillin administered intramuscularly every 4 weeks was more effective in preventing both streptococcal infections and recurrences of rheumatic fever than either of the other two prophylactics. The authors suggest that one reason for this superiority is that injection ensures that the drug is received, whereas there is no certainty that the patients take the drugs by mouth.

Kenneth Stone.


The relative values of the erythrocyte sedimentation rate (E.S.R.) and the serum levels of C-reactive protein (CRP) and mucoprotein (MPT) as indices of activity in rheumatic fever under conditions in which the E.S.R. is known to be fallacious were investigated at the University of Pennsylvania School of Medicine, Philadelphia. In seven children with acute rheumatic carditis and cardiac failure the E.S.R. was initially within normal limits and increased with recovery, whereas the serum CRP level was maximal in the most acute phase and fell steadily thereafter. On the other hand, the behaviour of the serum MPT level was similar to that of the E.S.R. In fourteen patients receiving hormone therapy the E.S.R. fell rapidly to normal only to show a marked "rebound" when treatment ceased. The response of the serum CRP level was similar, but the serum MPT concentration was only slightly affected by treatment. Of two patients with sickle-cell trait and acute rheumatism the E.S.R. was normal in one and slightly raised in one, but the CRP and MPT values were markedly abnormal in both. Finally, in a group of eleven adolescent children in whom the E.S.R. remained slightly raised after all other evidence of acute rheumatic fever had subsided, the serum CRP and MPT levels were within normal limits.

C. Bruce Perry.

The authors here analyse their total experience during the past 9 years at the Children’s Hospital, Sheffield, of six different forms of treatment for rheumatic fever. Altogether 200 children were studied. Of these, 145 were included in various controlled studies—55 in a comparison of the effects of bed rest alone and salicylates, seventeen in the Anglo-American co-operative comparison of salicylates in low dosage with corticoids, thirty in a comparison of cortisone plus salicylates in high dosage with salicylates alone in high and low dosage, and 45 in a comparison of cortisone plus salicylates in high dosage with cortisone plus salicylates in low dosage and with cortisone alone. The remaining 55 were extra cases which had been treated during the same period by the same methods, but had not been included in the main series.

As judged by the rate of fall of the erythrocyte sedimentation rate, treatment with cortisone plus salicylates in high dosage was the most effective method used; cortisone given alone or with salicylates in low dosage was more effective than treatment with salicylates only, which in turn gave better results than were obtained with no specific treatment; there was no difference between the effects of salicylates in high and low dosage. The duration of the arthritis was least in the groups receiving cortisone, and was less in those receiving salicylates alone than in those receiving no specific treatment. New rheumatic manifestations developed in none of the cortisone-treated cases, in six of the 77 patients receiving salicylates only, and in nine of the 42 given no specific treatment. Systolic or diastolic murmurs developed less frequently in children receiving cortisone, with or without salicylates, than in the rest, and a higher proportion of the cortisone-treated children than of the others who developed murmurs ultimately lost them. The importance of early treatment was apparent, as only two out of eight cortisone-treated children who had been admitted after 30 or more days’ illness lost their murmurs compared with twenty out of thirty so treated who had had symptoms for less than 30 days on admission.

It is concluded that cortisone combined with salicylates in high dosage is the most effective of the various methods of treatment of rheumatic fever studied. (There is a detailed statistical addendum.) C. Bruce Perry.


Observations concerning the dosage of penicillin required to prevent recurrences of rheumatic fever are reported from Johns Hopkins School of Medicine, Baltimore. The study was carried out in a children’s convalescent home, in which were 33 children who were convalescent from acute rheumatic fever, during the course of an epidemic of streptococcal pharyngitis.

Each of the rheumatic children received a single daily prophylactic dose of 200,000 units of benzathine penicillin by mouth. In spite of this, however, eleven of them developed Group-A streptococcal infections, indicating that the dosage was inadequate. It is suggested that at least double this dosage of penicillin should be given to such susceptible children in a closed community.

The infected rheumatic children were treated with penicillin in various dosages and four of them, who received a single intramuscular injection of 600,000 units of benzathine penicillin, developed a recurrence of rheumatic fever. It is therefore suggested that this dosage is inadequate for the prevention of rheumatic fever in a susceptible subject who develops a streptococcal infection. [This is an important paper.]

R. S. Illingworth.


It has been reported that in patients with rheumatic fever the serum phospholipid level is low, and one of the present authors showed (Coburn, Amer. J. Dis. Child., 1945, 70, 339) that feeding large amounts of whole egg-yolk powder prevented recurrence of rheumatic fever. At the Rheumatic Fever Research Institute, Chicago, the serum total lipid, phospholipid, and cholesterol levels were determined over a period of 2 years in a group of 34 rheumatic fever patients, and in a smaller group of the siblings of these patients who were without rheumatic disease. In addition, the rheumatic-fever group received an alcohol-soluble extract of egg-yolk, the equivalent of two to three egg-yolks a day being consumed over the period of the trial. Fasting venous blood samples were obtained from the rheumatic patients when they were receiving their usual diet and again after a period of supplementary egg-yolk.

Two methods of lipid extraction were used; in the first year the method followed required prolonged boiling, which was thought to decompose lipid; in the second year the method of Skerry and Warren was employed. The serum total lipid and cholesterol levels were significantly lower before treatment in the rheumatic fever group than in the controls. After egg-yolk was added to the diet the serum total lipid, cholesterol, and phospholipid values rose, but little increase was seen after 3 months. [These findings are difficult to evaluate because of the change in methods and because the possible effects of seasonal change are not discussed.]

E. G. L. Bywaters.


It is first pointed out that during the last 50 years the incidence of rheumatic fever in Scandinavian countries has tended to decline. A table giving the number of notified cases of the disease per 10,000 inhabitants in Helsinki, Oslo, and Copenhagen at various dates in the
ABSTRACTS

Of eighteen overweight children, only 33 per cent. had a normal E.S.R. by the 15th day of treatment, whereas among thirty underweight children the proportion was 73 per cent. and among 31 of average weight it was 55 per cent. Significant differences between overweight and underweight children were not observed in a similar study of patients treated with salicylates alone.

C. Bruce Perry.


A clinical and phonocardiographic study of 100 healthy children aged 3 to 14 years and 200 children [age range not specified] with rheumatic fever. Phonocardiograms were recorded with a multi-channel cathode-ray phonocardiograph from fifty of the healthy children and 150 of those with rheumatic fever.

A systolic murmur was heard in 96 of the healthy children. In 71 it was short, soft, and loudest over the pulmonary area or left sternal edge. In twenty cases the murmur was heard over a wider area of the praecordium, but in only five was it loudest at the apex. In only five cases was the murmur even moderately loud and three of these children had considerable chest deformity. Phonocardiograms showed that these murmurs were not of a uniform frequency, that their onset was often delayed after the first sound, and that they always ended before the second sound began.

In all 200 children with rheumatic fever a systolic murmur was heard, and in most cases it was loud. In 33 of the 100 patients seen in the first attack the murmur was short and indistinguishable from the type heard in the normal children; in 31 the systolic murmur was also within the normal range, but was associated with a diastolic murmur, so that carditis was indicated; and the remainder had an apical murmur filling the whole of systole. Of the 100 children who had had more than one attack of rheumatic fever, nine had a systolic murmur indistinguishable from that heard in the normal group and 27 had a similar murmur with an associated diastolic murmur. The remaining 64 children had pansystolic murmurs as well as diastolic murmurs. In twelve cases a pansystolic murmur heard during the acute phase disappeared on recovery, leaving only a soft basal or a short apical murmur.

It is concluded that:

1. the firm diagnosis of rheumatic valvitis must depend in the discovery of a pansystolic or a diastolic murmur;
2. a soft, mid-systolic murmur in rheumatic fever is probably innocent, but only long-term observation can prove this;
3. the length of an organic systolic murmur in rheumatic fever is its principal distinguishing feature on the phonocardiogram.

C. Bruce Perry.

Problem of Fever in Patients with Valvular Heart Disease.

Indications of the Prevalence of Rheumatic Fever.

Pulmonary Involvement in Rheumatic Fever.

Frequency and Significance of Systolic Murmurs in the Pulmonary Area in the Course of Rheumatic Fever.

Chronic Articular Rheumatism
(Reumatoid Arthritis)
Rheumatoid Tenosynovitis. (La tenosinovite reumatoide.) LUCHERINI, T., and NATALE, P. (1957). Reumatismo, 9, 141. 12 figs, 27 refs.

From the Rheumatological Institute, University of Rome, the authors describe two cases of rheumatoid tenosynovitis. Both presented with chronic tenosynovitis of insidious onset and some constitutional disturbance; arthritis was absent. Tender swellings of tendon sheaths were present over the backs of the wrists, popliteal fossae, and ankles. Very full biochemical investigations were carried out, the results of which are reported. Microscopical examination of biopsy specimens of synovial sheath showed lymphocytic infiltration, with some fibrosis and hypertrophy of villi.

Treatment with prednisone by mouth in a dosage of 40 mg. daily was effective in one case after 2 weeks; the other did not respond to this treatment, but did so to local injection of prednisone triamylacetate. The literature is reviewed and the differential diagnosis of tenosynovitis discussed. The authors conclude that these two cases were rheumatoid in nature.

David Friedberg.

L.E. Phenomenon in Rheumatoid Arthritis.

The L.E. test was performed on 91 patients (46 males and 45 females) with classic rheumatoid arthritis, the Zimmer clot technique being used. In fourteen the results were strongly positive, in eight they were moderately positive, and in three weakly positive. Of these 25 patients, thirteen were males and twelve females. The authors point out that the incidence of positive results in this series is higher than in any previously reported study.

Distinguishing features in the patients giving a positive response included the absence of “pure” spondylitis and a high incidence of rheumatoid nodules, Felty’s syndrome, and increased serum gamma globulin levels. Otherwise, there was no significant difference between patients giving a positive and those giving a negative reaction.

The authors conclude that the L.E. phenomenon is not specific for systemic lupus erythematosus, and that it may also occur in rheumatoid arthritis as a non-specific reaction.

E. G. Rees.

Prednisone and Prednisolone Therapy in Rheumatoid Arthritis. Clinical Evaluation, with Emphasis on Gastrointestinal Manifestations in 156 Patients observed for Periods of 4 to 14 Months.

At the St. Margaret Memorial and Montefiori Hospitals, Pittsburgh, Pennsylvania, prednisone or prednisolone was given to 156 patients (60 males and 96 females), aged 9 to 78 years, suffering from rheumatoid arthritis. In 27 per cent. of the patients the duration of the disease was more than 15 years. In most of the cases the initial dosage ranged from 10 to 40 mg. daily, the maintenance dose being 10 mg. daily. [The authors do not distinguish between the two drugs as regards dosage or the results obtained.] The patients were observed for 4 to 14 months, the majority being under observation for more than 8 months. The results were assessed on the basis of activity of the disease, functional capacity, and, in the case of adult males, employability before and at some time during treatment. It was found that as regards activity of the disease 89 (59 per cent.) of the patients improved one grade (classification of Steinbrocker) and that in functional capacity 64 (41 per cent.) improved one grade. Of the thirty males who were unfit for work before treatment, nine went back to work during the course of treatment. Side-effects, such as moon face, nuchal hump, striae, and ecchymoses were noted in almost all of the patients. The number complaining of dyspepsia doubled during treatment, and x-ray examination of the gastro-intestinal tract in 43 who had severe dyspepsia showed peptic ulcer in seven. In addition, there were five cases of gastric haemorrhage or perforation, and in three patients hyperglycaemia with glycosuria developed, insulin being required by two of them. There were three deaths during treatment—one each from bile-duct cancer, perforation of the colon and general vasculitis, and gastric haemorrhage.

William Hughes.


The remarkable circumstances has been brought to light that blood serum from patients suffering from rheumatoid arthritis may reveal the presence of a considerable amount of macroglubulins. This macroglubulin fraction has been found to contain the rheumatoid factor, i.e. that factor in rheumatoid arthritis which
is capable of inducing a certain type of haemagglutination reaction.—[Author's summary.]


The conflicting reports in the literature on the incidence of peptic ulcer occurring during adrenal steroid and phenylbutazone therapy led the authors to study the clinical records of all patients with rheumatoid arthritis attending the arthritis clinic of the General Hospital, Colorado, over a recent 10-year period, with special reference to gastro-intestinal symptoms. The records of 169 patients (66 men and 103 women) were studied, dyspeptic symptoms being collated in relation to age, sex, duration of arthritis, and type of treatment. The diagnosis of peptic ulcer was accepted only if the presence of an ulcer had been confirmed radiologically, gastroscopically, or at operation. Peptic ulcer was present in twelve males and nine females, an incidence of 12.5 per cent., but six of the males had had an ulcer before the onset of rheumatoid arthritis, so that the over-all incidence of new ulcers was 9.2 per cent. (fifteen cases). The new ulcers were equally distributed between the duodenum and stomach (the site of one was unknown), in contrast to the old ulcers, five of which were duodenal.

In assessing the effect of treatment the authors assumed that in all cases variable amounts of aspirin were taken for pain during therapy with phenylbutazone and steroids. The dosages employed were: phenylbutazone 200 to 800 mg. a day, usually 400 mg. a day; prednisone or prednisolone 5 to 40 mg. daily; cortisone 25 to 100 mg. a day; and hydrocortisone 30 to 50 mg. daily. A new ulcer developed in seven patients taking phenylbutazone and in seven taking steroids (in one it developed before treatment started). These could not be related to the duration of therapy as this varied from 4 to 37 months for phenylbutazone and from 3 to 16 months for steroids. The dosage of the steroids, however, appeared to be of great importance, the critical level being in the region of 50 mg. cortisone and 15 mg. prednisone. Of the 116 patients receiving the lower dosage schedule a new ulcer developed in one only, whereas new ulcers were found in five out of 22 on the higher dosages. The duration of arthritis also appeared to increase the risk of developing an ulcer; this tendency, the authors state was not just a function of age. They conclude that there is a definite increase in the incidence of peptic ulcer in patients with rheumatoid arthritis, compared with the general population, and that this is related to treatment with steroids and phenylbutazone.

—B. M. Ansell.


The Rose-Waaler haemagglutination test is now widely employed in the serological study of rheumatoid arthritis. A modification of the test has recently been introduced by Singer and Plotz (Amer. J. Med., 1956, 21, 888; Abstr. Wild Med., 1957, 22, 50) in which the sensitized sheep erythrocytes are replaced by latex particles, the reaction of which with the rheumatoid (macro-gamma-globulin) factor requires the presence of human gamma globulin. This gamma-globulin factor is referred to in the present paper as the "antigen" which reacts with the antibody represented by the rheumatoid factor.

The antigenic properties in this latex-fixation reaction of sera from different animal species have been examined by the authors at the Ohio State University, Columbus. The whole sera were found to be ineffective, but all could be made active either by the removal of albumin by the sodium sulphate technique of Thurston or more simply by dilution. Human, rabbit, pig, guinea-pig, cat, horse, ox, and sheep sera so treated were all effective "antigens", whereas chicken serum and one specimen of dog serum produced agglutination in the saline controls. The inhibiting effect of albumin is thought to be due to its action as a non-specific protective colloid, similar inhibition being produced by the addition of gelatin. It is shown, in confirmation of the original work, that a concentration of globulin of at least 25 μg. per ml. is necessary to obtain its full reactivity as an "antigen". By suitable dilution of the whole serum the concentration of albumin can be reduced below the level at which it exerts its protective effect while that of globulin remains sufficient for "antigenic" fixation to the latex particles.

—Harry Coke.

The motor activity of eighteen patients with rheumatoid arthritis has been compared with the motor activity of their nearest siblings free of the illness. The comparison shows that the rheumatoid arthritis patients are overactive as children but inhibited later in life (before their illness), whereas their siblings who are free of the illness start life with normal or inhibited motor activity and seem to be able to use their motor apparatus successfully for instinctual discharge later on in life.

Motor overactivity early in life in the rheumatoid arthritis patients seems to serve as an outlet for aggressive drives in a socially acceptable or unacceptable form. After puberty, overactivity is progressively abandoned as an inadequate means of expression of instinctual drives as well as a psychological defence against them. Deprived of discharge of instinctual tension in movement and impulsive action, the rheumatoid arthritis patients take recourse to aggressive fantasies which give rise to feelings of guilt and anxiety. The intensification of these incompletely recognized, intolerable, aggressive fantasies (and the concomitant guilt and anxiety) by disturbing events in the patient's life history often precedes and probably precipitates the onset of rheumatoid arthritis.

The comparison of the Rorschach findings in thirteen rheumatoid arthritis patients with the findings in the thirteen nearest siblings free of the disease corroborated closely the clinical assessment. The severity of the illness seems to be proportionate to the severity of the impairment in the capacity to express aggression. The psychotherapeutic implications of these findings are discussed with clinical examples. — [Authors' summary.]


Both Still's disease and chronic deforming infantile polyarthritis cause iridocyclitis, band-shaped corneal opacity, and cataract. A case of deforming infantile chronic polyarthritis in a girl aged seven is presented with bilateral band-shaped opacities of the cornea and a long-standing iridocyclitis at the stage of pupillary occlusion and seclusion with some degree of thin, deep corneal vascularization. Still's disease was ruled out on account of the time of onset, lack of lymph gland involvement or splenomegaly, and the clinical course.

A. Gornaz B.


The report of a child with band-shaped keratitis, torpid iridocyclitis, and cataract. Although the patient had had amoebiasis from the onset of the ocular signs, the authors rule this out as the cause. There was an increased sedimentation rate and high antistreptolysin titre and the authors believe that despite the absence of other evident clinical signs of arthritis this case may be attributed to rheumatoid arthritis. — M. H. T. Yuille.


Three cases of Still-Chauffard's syndrome are described, the clinical picture and pathogenesis of the ocular signs are discussed, and the early diagnosis and treatment of children with chronic rheumatism are stressed. — M. Klima.


From the Philadelphia General Hospital and Jefferson Medical College comes this report of the results of prolonged prednisone therapy of rheumatoid arthritis. Of 132 patients (56 males and 76 females, aged 17 to 75 years), 92 had had rheumatoid arthritis for more than a year and had been treated with gold, steroids, or phenylbutazone; the disease was acute in only four patients in the series. The dosage of prednisone varied, but with experience it became usual to give 5 mg. every 6 hours day and night for a week, and thereafter to decrease the daily dose by 2.5 mg. each week so long as symptoms did not return. The final maintenance dose was 2.5 to 15 mg. daily.

Complete remission was obtained in 39 cases, major improvement in 89, and minor improvement in four; with a few exceptions improvement could be maintained. There was no instance of sodium retention, and two patients with heart failure fared well. A transient rise in blood pressure occurred in eight patients during the first week of treatment. In three patients with peptic ulcer and one in whom acute perforation of a duodenal ulcer was treated surgically prednisone therapy was maintained satisfactorily. Of five patients with diabetes mellitus three required additional insulin, but prednisone was effective in all. Moon face occurred in seventy patients and acne in one only.

The authors conclude that the effect of prednisone is superior to that of the older steroids, and emphasize the absence of electrolyte disturbances and of hypertension. — David Friedberg.


ABSTRACTS


Temporo-Mandibular Joint in Chronic Inflammatory Rheumatism and more particularly in Rheumatoid Arthritis. (L’articulation temporo-maxillaire dans le rhumatisme inflammatoire chronique, et plus particulièrement dans la polyarthrite chronique évolutive.) ARLET, J., and CADENAT, H. (1957). Rhumatologie, No. 4, 185. 2 figs, 17 refs.


Surgery of Rheumatoid Arthritis. COZEN, L. (1958). Rheumatism, 14, 2. 5 figs, 2 refs.

(Osteo-Arthritis)


In this paper from the Long Island Jewish Hospital, New Hyde Park, New York, osteo-arthritis of the spine is discussed with special reference to pressure effects on the spinal cord and cauda equina. The radiological appearances and findings at operation are described. It is pointed out that dorsal protrusion of osteoid tissue into the spinal canal is common and is often associated with thickening of the ligamenta flava and neural arches. Such protrusions may be clinically important when disk narrowing, spurring, and lipping are minimal; they may consist of unossified tissue which cannot be seen on a plain radiograph. Myelography is of value, but should not be carried out unless all conservative methods of treatment have failed.

The effects of cord compression by cervical spondylosis are discussed. In the lumbar region the authors have observed multiple ridges crossing the spinal canal and compressing the dura; symptoms may be bilateral and pain may be aggravated rather than relieved by rest in bed. Straight leg raising is sometimes normal. Laminctomy with removal of the ridges results in improvement.

K. C. Robinson.


(Spondylitis)


The author presents from Aix-les-Bains a study of 23 cases (all in males) of ankylosing spondylitis associated with psoriasis. Of three of these cases described in detail, in two the spondylitis preceded the psoriasis by 28 and 25 years respectively and in the third the psoriasis appeared 28 years before the spondylitis. The author emphasizes, however, that these cases are not typical of the series. In fourteen the psoriasis appeared first, in only four did it follow the onset of spondylitis, and in the remaining five the onset of the two conditions was more or less simultaneous. It was reported by five patients that exacerbations of both conditions occurred simultaneously, six had found that they alternated, and the other twelve had noted no relationship. The age at onset of the spondylitis varied from 22 to 53 years; it was noteworthy that in three cases the age of onset was
over 50 years. In thirteen cases cervical symptoms developed, although these never appeared first. Peripheral joint affection was common, occurring in nineteen of the 23 cases, in none of which a peripheral joint was the site of onset. The joints most frequently affected were those of the shoulder, knees and hands.

Hereditity appeared to play an important part. A positive family history of psoriasis was obtained in six cases, of spondylitis in three, and of both conditions in one. The author points out that these cases differ sufficiently from the clinical picture of ankylosing spondylitis without psoriasis as to suggest that “psoriatic ankylosing spondylitis” may be a separate clinical entity.

B. E. W. Mace.


The authors, writing from São Paulo, Brazil, discuss the findings in 31 children (19 female and 12 male) in whom rheumatoid spondylitis was diagnosed. The age at onset ranged from 9 months to 10 years, and the duration of symptoms from 7 days to 8 years. The predominant symptom was pain, which was usually transient but showed a marked tendency to recur, and affected mainly the lower limbs; it was not accompanied by joint swelling or stiffness. The majority of the patients did not show any involvement of the spine. There were no general signs, and fever was not observed. The blood count and the erythrocyte sedimentation rate were mainly normal. In two patients there was ankylosis in the cervical spine [but no other significant radiological abnormalities are reported]. In all cases x-ray therapy (288 to 720 r.) was given to the whole spine, with relief of symptoms, but the course of treatment had to be repeated once or twice in some instances.

K. C. Robinson.


On the basis of the five cases and the data from the literature the diagnostic difficulties even in the classical course of Reiter’s syndrome are pointed out.

Treatment so far has not given lasting benefit. Antibiotics, such as aureomycin, terramycin or chloramphenicol, mostly help only individual symptoms of the syndrome. The best results were obtained with ACTH and cortisone (and intra-articular hydrocortisone) together with antibiotics. In cases combined with Bechterew’s disease x-irradiation is necessary.

W. H. Melanowski.


The innervation of the deep fasciae and aponeuroses has been studied at Stanford University, California, by gross dissection in eight human cadavers, and by intravital staining with methylene blue in seventeen monkeys and four rabbits. The fasciae are innervated by both deep and cutaneous nerves which may pass for some distance along the aponeuroses and tendons before ending in free arborizations of small-diameter fibres and encapsulate nerve endings. In most regions the endings are sparsely distributed compared with those in skin and periosteum, but in the hand and in the iliotibial tract nerve endings are particularly frequent. The functional implications of this type of innervation are fully discussed in the light of classic observations upon the sensory supply of deeper structures. Peter Ring.


Reiter’s Syndrome in Females. [In English.] Refvem, O. Acta rheum. scand., 3, 282. 14 refs.

Disk Syndrome.

Prednisolone by the Sacral Epidural Route in Sciatica. (II prednisolone per via epidutale sacrale nelle lombosciatlig.) Cappio, M., and Fragasso, V. (1957). Reumatismo, 9, 295. 7 refs.

Gout


In order to study the rate of generation of uric acid in gout radioactive glycine (glycine-1-14C) was fed to six patients with acute gouty arthritis, one with asymptomatic hyperuricaemia, and three control subjects, in doses of 2.5 to 25 μc. and the degree of its incorporation in excreted uric acid measured, the concentration of 14C in the daily output of uric acid being determined for 6 to 9 days after the dose was given.

When the cumulative incorporation of 14C over several days was studied, the gouty subjects and hyperuricaemic subject were found to differ from the controls in the greater efficiency with which they used the tracer doses of glycine-1-14C in the synthesis of uric acid. There was no overlap between the two groups, the degree of incorporation of 14C into uric acid in the former being 2 to 5 times higher than in the latter (0.29 to 0.66 per cent. of the dose of 14C compared with 0.1 to 0.2 per cent. in 6 to 8 days). When a carrier dose of unlabelled glycine was given together with the tracer dose of glycine-1-14C to two gouty patients, the incorporation of 14C into uric acid was greatly reduced. The results suggest that overproduction of uric acid from glycine and other small molecules is the fundamental defect in primary gout, and that nucleic acids are not involved in this process.

C. L. Cope.


Pararheumatic (Collagen) Diseases


An investigation carried out at the Canadian Red Cross Memorial Hospital, Taplow, Bucks., showed that serum giving a positive reaction to the L.E. test contained a globulin factor with affinity for tissue nuclei. Tissue and cell preparations were treated with anti-human-globulin serum conjugated with fluorescein isocyanate and examined microscopically under ultraviolet light. Sections of tissue when pre-treated with L.E.-positive serum showed apple-green fluorescence where the conjugate had reacted with fixed globulin derived from the L.E.-positive serum. The L.E.-positive serum was obtained from two patients with systemic lupus erythematosus and one with severe and ultimately fatal pararheumatic arthritis. Fluorescence of cell nuclei following the treatment was observed in sections of skin, myocardium, kidney, thyroid, and spleen. This was not seen, however, when normal sera was used for treating the sections. Similar results were obtained when smears of leucocytes were examined in the same way.

E. G. Rees.


This report from the Rockefeller Institute for Medical Research, New York, presents evidence suggesting that the lupus erythematosus (L.E.) factor combines directly with cell nuclei and nucleoprotein. In these studies nuclei from calf thymocytes, rabbit polymorphonuclear leucocytes, and human monocytes were incubated for 30 minutes at 18° to 38° C. with samples of highly positive L.E. serum. After removal of the nuclei by centrifugation the sera were found to have lost the ability to induce L.E.-cell formation. That the factor adheres to the nuclei was shown by the fact that nuclei which had been removed from L.E. serum and washed in saline until free of protein were still capable, when incubated with fresh human leucocytes, of being phagocytosed to form typical L.E. cells. Nuclei exposed to normal serum were not phagocytosed. The L.E. factor absorbed into the nuclei could be partially eluted by incubating the nuclei in isotonic saline at 45° to 65° C.

Similar experiments were conducted with isolated nucleolar nucleoprotein. Removal of deoxyribonucleic acid (DNA) with deoxyribonuclease destroyed these properties, but treatment with ribonuclease did not impair absorptive capacity. Pre-treatment of nuclei with protamine or with "atabrine" (mepacrine) interfered with their ability to absorb the L.E. factor. Studies by the fluorescent antibody technique showed localization of γ globulin—presumably L.E. factor—on the affected nuclei in L.E. preparations. The possibility of the L.E. factor being an auto-antibody to nucleoprotein or deoxyribonucleic acid is considered.

E. G. Rees.


For a comparative investigation of the merits of the various methods of performing the L.E. test the authors, at the University of Southern California and the County...
General Hospital, Los Angeles, carried out simultaneously a battery of these tests on peripheral blood from one venepuncture: at the same time they studied the effects of anticoagulants, coagulation, and leucocyte trauma on the L.E. phenomenon. A modification of the rotary glass bead technique of Zinkham and Conley was found to be the most sensitive, the sieved clot method and the ring technique of Snapper and Nathan being somewhat less sensitive. Heparin in concentrations greater than the minimum necessary to prevent coagulation exerted an inhibitory effect on the L.E. phenomenon.

E. G. Rees.


The authors describe cytochemical investigations carried out at Columbia University and the Presbyterian Hospital, New York, on L.E. bodies and cells and also on blood lymphocytes for comparison. In methanol-fixed smears stained with Wright's stain suitable cells were mapped to permit re-location during subsequent manipulations. The experimental methods are fully described. The ability of the basic dye methyl green to combine with deoxyribonucleic acid (DNA) can be inhibited in varying degree by blocking the stainable groups of the nucleic acid with protein, and also by depolymerization. The effect of acetylation (which covers basic groups of proteins) on methyl-green binding by DNA in L.E. bodies has shown that over one-half of their stainable groups are masked by protein, whereas in normal lymphocyte nuclei less than one-tenth of the groups are pre-empted in this way. The intensity of staining by the Feulgen reaction is independent of changes in configuration of the DNA molecule or its relation to protein.

In untreated smears the ratio of methyl-green staining to the Feulgen reaction in L.E. bodies was found to be greatly decreased as compared with the lymphocyte nuclei, whereas after acetylation this ratio approached unity. This finding is interpreted as meaning that there is no decrease in methyl-green staining of L.E. bodies which cannot be accounted for by protein, and thus there is no need to invoke depolymerization of DNA to explain this phenomenon. These remarks apply particularly to free L.E. bodies, and not to L.E. bodies that have been phagocytosed for a long period. Incubation with ribonuclease was shown to cause a reduction in methyl-green staining which was much greater than that to be expected from loss of stainable DNA alone. The significance of this finding is not yet apparent. E. G. Rees.


In this further communication from Columbia University, the authors describe investigations designed to determine the nature of the protein in the L.E. body. The total protein in free L.E. bodies and in lymphocyte nuclei was estimated by noting the capacity to bind the anionic dye naphthol yellow S (flavionic acid) and the results compared with the intensity of staining by the Feulgen reaction. When lymphocytes were incubated with serum from cases of lupus erythematosus it was shown that during their conversion to L.E. bodies there was a more than twofold increase in protein with no loss of deoxyribonucleic acid (DNA), as revealed by the Feulgen reaction. This was so despite the fact that there is early loss of histones in L.E. transformation, as revealed by the alkaline-fast methyl-green technique.

It is therefore postulated that the L.E. transformation entails an influx of protein normally foreign to the nucleus, displacement of histones from combination with DNA, and the association of DNA with the new protein.

E. G. Rees.