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. The abstracts are divided into the following sections: acute rheumatism; articular rheumatism (rheumatoid arthritis, osteo-arthritis, spondylitis, miscellaneous); gout; non-articular rheumatism; general articles. After each subsection of abstracts follows a list of articles that have been noted but not abstracted. Not all sections may be represented in any one issue.]

Acute Rheumatism


Streptococci and staphylococci alter extracts of certain tissues so that they become antigenic to animals of the same species—that is, become auto- or iso-antigens according as they act in the same individual or in another animal of the same species. The antibodies produced by injecting simple mixtures of killed organisms and tissue extracts into animals of the same species react with the microbe and also separately and specifically with the tissue-extract. The author demonstrates the development of antibodies against iso-antigens obtained from rat muscle and connective tissue (he used the celluloid particle agglutination technique). He describes lesions in the heart values of the injected rats which he regards as due to damage by the anti-connective-tissue antibodies. They have some resemblance to rheumatic lesions, and the author considers that damage by antibodies to connective-tissue auto-antigens plays a part in the pathogenesis of rheumatic carditis in man. He also claims that glomerular nephritis produced in earlier experiments by the simultaneous injection of killed streptococci and kidney extract was due to the development of antibodies against kidney autoantigens. D. M. Pryce.


The antistreptolysin titre was investigated in 71 cases of acute sore throat, estimations being made in the acute stage and also serially during convalescence. The subjects were 67 student nurses or female hospital employees between the ages of 15 and 35, and 4 males. The antistreptolysin titres were estimated by Ipen's (Acta Path. Microbiol. Scandin., 1944, 21, 203) modification of Kalbak's method, readings being made during the acute stage and once a week in convalescence. Cultures were also made from the throat during the acute stage. A reading of 200 units or higher was considered to indicate an elevated antistreptolysin titre, and 52 cases showed such elevation at some time during the period of observation. The titre in 15 of the remaining 19 cases showed slight depression, or no alteration at all, during serial observations. In the remaining 4 cases there was a low initial titre—under 50 units—but this rose to 170 to 180 units during the course of observation. Cases with high initial titres tended to develop the highest maximum titres.

Rheumatic complications were observed in 14 cases, in 7 of which the diagnosis was based on the occurrence of transitory pains in one or more joints, while in the other 7 there were "more pronounced joint pains and rheumatic changes in the joints, as well as other symptoms which justify the diagnosis of rheumatic fever". In 12 cases there was an antistreptolysin titre of 140 units, and in 9 a titre of 200 units or more. This was considered probably to be due to previous infections with haemolytic streptococci, and it is suggested that such patients are particularly liable to develop rheumatic complications. There was an initial titre of 140 units or higher in 35 cases. Septic complications, such as tonsillar abscess, otitis, sinusitis, or lymphadenitis, occurred in 3 of the 15 cases which showed no elevation of the antistreptolysin titre, and in 20 of the cases in which the titre did rise. When the complications occurred there was often, but not always, an increase in the titre. Estimations of the erythrocyte sedimentation rate were carried out; nothing of unusual interest emerged from the results. K. B. Lucas.


Observations are recorded on the properties of toxic combinations between plasma fluids or blood serum and components of living haemolytic streptococci—called albumin-bacterioplasma conjugates, which suggest that such substances may be concerned in the pathogenesis of rheumatic fever. By a series of tests of the several serum components it is shown that the albumin of human serum is chiefly responsible for the formation of toxic conjugates. Human plasma fractions prepared by precipitation with alcohol in the cold were dissolved in normal saline.

Several observations suggest that these conjugates may be concerned in the aetiology of rheumatic fever. Thus, 47 strains of Group A Streptococcus pyogenes from various sources were used to prepare conjugates: 23 yielded lethal extracts, and of these 15 were from rheumatic fever patients; of the other 24, only 5 were of this origin. Again, a degree of protection against the lethal action of the conjugates in mice was obtained when the
conjugate was previously treated with serum from rheumatic fever convalescents; this property was found in 9 of 16 such sera. In several species of laboratory animals parenteral administration of conjugates prepared by using homologous serum or albumin fractions resulted in the development of cardiac lesions closely resembling those of rheumatic fever. Further, rheumatic fever patients and convalescents are hypersensitive to exceedingly small doses of these conjugates, reacting by slight fever, leucocytosis, and increased erythrocyte sedimentation rate, and, in 1 case, by the apparent activation of the arthritic and carditic rheumatic process.

Kenneth Stone.


Because of its effect in rickettsial diseases, p-aminobenzoic acid was tried in acute rheumatic fever. The substance appeared to have an effect on the fever and joint pains in 9 patients (ranging in age from 6 to 12 years) who were given an initial dose of 3 to 4 g. at 2- to 3-hourly intervals. R. Wien.


The author's conclusions from a study of the literature and of 207 patients with rheumatic fever, of whom 5 exhibited cerebral disturbance, are as follows. Apart from and distinct from chorea, there may occur in the course of rheumatic fever a series of manifestations of higher cerebral disturbance, including hallucinations, phobias, and sharp and intense panic; also cerebral manifestations of the peripheral embolic phenomena of bacterial endocarditis; and a group comprising delirium, restlessness, and convulsions. There is a syndrome in rheumatic fever consisting of mask-like facies, mental retardation, and sleeplessness. Lastly, the possibility of salicylate intoxication must be kept in mind.

G. F. Walker.


This study from the State University of Iowa was undertaken in order to determine whether recurrence of rheumatic fever could be prevented by maintaining an optimal environment for the patient, or whether sulphonamide prophylaxis was always indicated.

A total of 266 children whose rheumatism began between 1930 and 1946 were given instructions about diet, clothing, avoidance of infections, rest, and sleep. They were studied for an average period of 3½ years, during which 51 children had 71 rheumatic relapses. Recurrence rates at different ages were compared with those in a control series of 134 rheumatic children to whom no such instruction were given. A further comparison was made with the figures given by Wilson (J. Amer. med. Ass., 1944, 126, 477) for the expected rate of recurrences in a random sample of rheumatic children. It was found that the children of 4 to 14 years who were given this special instruction suffered significantly fewer relapses than either control series. Above the age of 14 the "treated" cases fared no better than the controls.

The various environmental factors were then evaluated separately by means of a chi-square test, the economic status, social status—that is, degree of parental cooperation—and diet of each patient being assessed by a social worker. The recurrence rate was found to be significantly dependent on the patient's diet but not upon his economic or social status (many of the poorer children received an improved diet through outside aid). From the low rate of recurrences when a rheumatic child received a good diet it is concluded that sulphonamide prophylaxis is indicated particularly where a good diet cannot be procured.

D. Gairdner.


In a previous paper (J. Pediat., 1945, 27, 516) the authors reported their experience of the use of sulphonamides in the prevention of recurrences of rheumatic fever. None of the original group of 70 children observed for 81 patient-seasons had a recurrence. In the present paper they report the results of the continued treatment of the same 70 children together with 50 new patients. In all, 120 children were treated for a total of 177 patient-seasons. There was no control series. Patients were treated either at a convalescent home, at a school for crippled children, or at special out-patient clinics. In the last group treatment was sometimes irregular. The daily dose was 0.5 g. of sulphathiazole (101 cases) or sulphadiazine (92 cases). Treatment was stopped when toxic reactions developed; this occurred in 37 out of 193 patient-seasons. Albuminuria was the most common complication and occurred in 23 instances. In a certain proportion of the cases during the 4 summer months treatment was withheld. There were 12 recurrences, 8 after therapy had ended (after an average time of 44 months since treatment was stopped). Two patients had not been receiving treatment regularly; 2 had had regular treatment for 3 weeks and 1 month respectively.

The authors do not doubt the efficacy of the sulphonamides as prophylactic agents. They make a suggestion that children with permanent valvular damage should be maintained on prophylactic doses for 3 to 4 years, and that children over 15 with little or no cardiac damage should have this treatment for 2 years.

H. A. Burt.


Articular Rheumatism
(Rheumatoid Arthritis)


The author observed that 3 cases of severe arthritis of the rheumatoid type were much benefited by intermittent pregnancy, although the improvement ceased after parturation. He mentions that similar cases have been observed by others, and that Hench collected the records of 37 pregnancies in 20 women, in all of whom such improvement was seen temporarily. This suggested to him that there was some specific substance circulating in the blood during pregnancy which could be utilized for the treatment of cases of rheumatoid arthritis. He reports the results of transfusion of the blood of pregnant women into patients with severe rheumatoid arthritis, both male and female; 300 ml. of citrated blood was given on several occasions. There was great improvement in 64% of 28 cases subjected to this treatment. The author describes 6 cases. The major improvement occurred on the day after the first transfusion, and in several instances was preceded by a considerable rise in temperature which followed the transfusion. The method would seem to be a difficult one to apply on a large scale, and there would appear to be no reason why its effect should be lasting. According to the author, however, there are some cases "which can be promptly and permanently cured" in this way. He does not deal with the possibility that mild protein shock may explain the beneficial effect in view of the reported pyrexia after transfusion in some of the cases. There were no control cases.

W. S. C. Copeman.


Small doses of sulphonamide drugs were given over a long period of time to patients with rheumatoid arthritis. Seventy cases are discussed. Of the 51 treated with sulphonamides alone, 21 were considered cured and 17 improved. In 19 cases in which both gold and sulphonamides were given, 5 were reported cured and 10 improved. There was 1 death from pannymelophthisis in a patient who received gold and sulphonamides. Twelve patients developed a rash, those with small or moderate increase in the erythrocyte sedimentation rate (E.S.R.) being more likely to develop a rash than those whose E.S.R. was high. The criteria of cure appear to have been strict—namely, loss of symptoms, gain in weight, and return to a normal E.S.R.

H. A. Burt.


The authors produced experimental proliferative arthritis in rats by the intravenous injection of a culture of a pleuropneumonia-like organism obtained from a spontaneous joint infection in a laboratory rat. Such lesions have been employed by various workers for the experimental study of rheumatoid arthritis. The present authors compared the therapeutic value of "myocrisin" and streptomycin on such material. Streptomycin was found to be of greater value, although the effectiveness of myochrysine was also confirmed.

For clinical trials 1 male and 8 female adult patients were selected, each suffering from moderately severe rheumatoid arthritis with raised erythrocyte sedimentation rate. Five patients were given 10 g. streptomycin in 5 daily doses in 200 to 250 mg. doses intramuscularly; 1 patient was given 4 g. daily for 20 days, and 3 patients 4 g. daily for a week all in the same dosage 3-hourly, 2 of the last 3 having further small doses for 1 or 2 days later. Drug reaction limited treatment in these 2 patients. "In no case was there definite evidence of subjective improvement. As is so often true with new remedies for arthritis, subjective improvement was quite general, and 3 patients claimed definite benefit for as long as 4 or 5 months following completion of treatment. It is interesting to note that those receiving the greatest amount of streptomycin seemed to improve the least. The erythrocyte sedimentation rate was not altered significantly by streptomycin. Drug reactions were common, and included nausea, fever, rashes, and deafness with vertigo.

Two points are brought out by this paper: pleuropneumonia polyarthritis in rats does not react to all drugs in a similar manner to human rheumatoid arthritis, and streptomycin is unlikely to be of much benefit in rheumatoid arthritis in man.

G. I. C. Ingram.


Aurothioglucoside ("lauron") is a new gold salt, prepared as a suspension in sesame oil. It contains 54-3% of gold, and is not absorbed by gastric solvents. A clinical trial of its value in 91 cases of rheumatoid arthritis is described, and the author appears favourably impressed.

He states that gold salts offer the best hope of bringing about clinical improvement, but owing to the high incidence of toxic reactions there is a reluctance to employ this form of treatment. In his series of 91 cases, treated with this new salt and controlled by the usual haematological and urinary investigations, he noted marked improvement in 73% and moderate improvement in a further 11% with a follow-up period of about 1 year. The dose used was increased from 10 mg. to 100 or 150 mg. given twice weekly, with a maximum dose of 5 g. in any one course. This dosage tended to result in local joint reactions, after which clinical improvement was usually noted. Reactions were limited to mild nausea and vomiting, and in 11 cases non-progressive skin rashes occurred.

On modern standards dosage was very high; most workers now limit total dosage in any one course to 1 g. of "myocrisin" or "aurocalcium"; and in such dosage results appear comparable with those in the present series, with minimal toxicity. In a larger series this new drug might well produce toxicity in such high dosage. This article does not evaluate any further the ultimate position of chrysotherapy in rheumatoid arthritis.

D. P. Nicholson.


Toxic reactions from gold given in the usual therapeutic doses for rheumatoid arthritis include a severe form of stomatitis, mild conjunctivitis, anal ulceration, and dermatitis. BAL will probably be found to be a valuable antidote, especially if given early. It has proved of value in the treatment of arsenical and mercurial
poisoning, in clinical practice, because of its power to combine with the toxic metal before the latter can be lodged in the tissues.

The present paper is a short review of the use of BAL in 5 cases of toxic reaction to gold; 0.15 g. of BAL was given intramuscularly four times daily for 2 days and thereafter twice daily. The general plan was to give 2.5 g. in equal doses over 8 days. Unpleasant soreness at the site of injection and some nausea were reported, but improvement attributable to BAL was seen in 4 of the 5 cases; it was very striking in 2 of them.

G. F. Walker.


This article on work already recorded (Presse Méd., 1946, 54, 884; see abstract p. 256 in the Annals for December, 1947) analyses results of treatment by intravenous injection of an organic salt of copper in 50 cases of chronic rheumatism, of which 36 were arthritis of rheumatoid type. All received two or more series of injections, except 1 who made a remarkably complete recovery with one series. This was a man aged 35, incapacitated by active polyarthritis with constitutional disturbance. A total of 2-5 g. of the copper compound was given in bi-weekly intravenous injections each of 0.25 g. Joint pains and effusions began to diminish after the first few injections, and in 3 weeks he was up and about. After 2 months he appeared completely restored to normal health, with no signs of joint changes; the erythrocyte sedimentation rate (E.S.R.) had fallen from 80 mm. in 1 hour to 4 mm. in 1 hour.

Details are given of the treatment in patients who had shown either resistance or intolerance to gold therapy. For example, a woman aged 42 years had suffered from chronic progressive polyarthritis for 10 years. She had received two courses of gold injections each year from 1935 to 1939, without toxic reactions but with a poor therapeutic result. She was given nine series of copper injections and a total of 26 g. of the compound. Improvement came slowly, but was marked; joint swellings diminished and walking became possible again; the E.S.R. fell from 115 to 45. In another case, a woman aged 40 years, suffering from a severe and extensive form of rheumatoid arthritis, had had toxic reactions in the skin and mucous membranes from gold therapy. She was given copper injections, at first ten injections of 0.1 g., then ten of 0.25 g. Treatment was continued for 4 years or more, nine series in all being given and a total of 17 g. of the copper compound. Improvement was only slight during the first three series, but after this she improved progressively, until she was finally free from joint swellings and leading a normal life.

Kenneth Stone.


A constant feature of rheumatoid arthritis is a moderate degree of anaemia of the hypochromic microcytic type which on careful study will nearly always be found to be singularly unresponsive to all the usual anti-anaemic agents. Folic acid in doses of 20 mg. daily will bring about a general improvement in the blood picture of most patients suffering from anaemia in rheumatoid arthritis, but no case should be regarded as unresponsive. until a very much larger dosage, say 100 g. daily, has been gradually attained, since requirements vary. Administration of iron is no advantage. The main features of rheumatoid arthritis are not in any way improved by folic acid administration, but, on the other hand, there are no deleterious or toxic effects from the drug. Its influence on haematoapoiesis, at least in rheumatoid arthritis, is clearly different from that of liver or iron.

G. F. Walker.


Muscle weakness, usually associated with atrophy, constitutes one of the most disabling features of rheumatoid arthritis. Early in the disease, motor weakness, often accompanied by numbness and paraesthesiae, may strongly suggest the diagnosis of primary neurological disorder.

In patients with rheumatoid arthritis electromyographic tracings showed some involuntary activity of muscle in relation to diseased joints which was apparent neither to patient nor to observer. In 1 patient such disordered muscle function appeared to precede any clinical evidence of articular disease in the region. This spontaneous muscular activity is not peculiar to rheumatoid arthritis; it was found in 2 out of 4 patients with arthritis due to acutie specific infections and in one with joint disability due to fixation. A closely similar pattern may be seen in anterior poliomyelitis, infective polynueuritis, and in nerve injuries. The authors have shown in cases of rheumatoid arthritis that blockage of the peripheral nerve is capable of interrupting the path of origin of these motor discharges. Electromyographic evidence of upper motor neurone involvement could not be demonstrated.

In 44 patients with rheumatoid arthritis the central nervous system showed no specific lesions post mortem, but changes in the lateral projections of the anterior horns, usually attributed to ageing, were more pronounced than in a control group of similar age distribution. In a proportion of cases non-specific inflammatory lesions, similar to those reported by other observers, were found in the peripheral nerves and in the myoneural junctions. In the peripheral nerves and in the myoneural junctions it is concluded that rheumatoid arthritis causes direct involvement of the neuromuscular system, and that spontaneous skeletal muscle activity may be caused by pathological lesions in the lower motor neurones.

T. Semple.


Since the author's first reports in 1942 on rheumatoid arthritis (for which he uses the name chronic progressive polyarthritis, C.P.P.), Kersley's book "The Rheumatic Diseases" (1945) and Costes' and Gaucher's reports on chronic progressive rheumatism of inflammatory origin (1946) have been published, and their views differ in certain points with those of the present author. The study of records of 250 cases of rheumatoid arthritis leads him to the opinion that under the collective name of C.P.P. three different diseases can be differentiated: (1) The authentic C.P.P.; (2) destructive polyarthritis; (3) exudative polyarthritis.

(1) Chronic progressive polyarthritis begins with
indefinite arthralgias accompanied by some constitutional upset. The affected joints, mainly hands, show fusiform swelling with atrophy of muscles and, later, of epiphyses; the skin over the joints is cold and clammy. It finally results in deformities of the affected joints and their ankylosis. The disease is steadily and inexorably progressive and defies all treatment. X-ray examination shows the characteristic band of decalcification across all the fingers of the affected hand and a rotation of the metacarpal heads towards the ulnar border. The erythrocyte sedimentation rate (E.S.R.) is moderately raised and the blood shows a slight anaemia (3-75–3-25 mI) with a normal colour index and some leucopenia with relative lymphocytosis.

(2) In destructive polyarthritis a characteristic destruction of cartilage and underlying bone occurs, followed by osseous ankylosis. The disease begins in one or two joints which do not show much atrophy. The skin of the affected parts is not cold or clammy. There is no constitutional upset and no pyrexia. Frequent remissions are followed by exacerbations, but spontaneous arrest of the disease sometimes occurs. In this form cryotherapy is most effective. On x-ray examination punched out areas of rarefaction in the affected bone with subsequent destruction of the articular cartilage is shown. The E.S.R. is very high, and flocculation of the red cells at the level of the packed cells is considered a characteristic sign. Normocytic anaemia with moderate leucocytosis completes the picture.

(3) Exudative polyarthritis is a disease of women in the fifth decade. The first joints affected are the metacarpophalangeal followed by the large joints of the body, such as knees and wrists. Exudation into the joints is followed by swelling, but there is remarkably little pain. A ground-glass appearance of the affected bones on x-ray examination is characteristic. There is no obvious general upset.

In conclusion the author disagrees with Kersley that his two forms of rheumatoid arthritis, the primary rheumatoid, atrophic type, and the secondary rheumatoid, focal type, are explained aetiologically, the former being the response of the soil to the seed, the latter representing the original focus of the disease. He was able to differentiate these three distinct diseases without attaching an aetiological significance to any of them.

J. Koszyk.


The Mester Test in the Differential Diagnosis between Scarletinal Rheumatism and Rheumatic Polyarthritis. (La prova di Mester quale elemento diagnostico differenziale tra la reumatico scarlattona e la poliartrite reumatica.) CARTAGENOVA, L. (1947). Pollicin infant., 15, 475.

This article reports unsatisfactory results of the test in the two conditions cited.


ABSTRACTS


The author describes 7 cases of brucellosis in all of which there was affection of the vertebral column. In the radiological pictures the lesions of the intervertebral disc, with or without a hernia of the nucleus pulposus, and the spondylitic changes in the lumbar vertebra, which sometimes led to a complete destruction of the vertebral body were visible. In some patients the hernia of the intervertebral disc produced a compression of the spinal cord, with the clinical features of local or root symptoms or a meningo-myelitis. Other cases showed changes in the intervertebral articulations and the spinous process causing osteo-arthritis.

[The importance of the paper lies in the fact that the author was able to show the aetiological connexion between brucellosis and pathological changes in the vertebral column, which even the most recent British textbooks fail to mention.]

Franz Heimann.


A case in which physical examination pointed to spondylitis rhizomelica, whilst x-ray examination showed almost exclusively narrowed intervertebral discs, is presumed to be due to so-called fibrosis of the intervertebral discs, a syndrome described by Schmorl and Güntz.—[Authors’ summary.]


The presence of spurs or osteophytes on the posterior aspects of the bodies of the lumbar vertebrae has not received much attention and few references are available. The author examined 910 spines radiologically, the lumbo-sacral region being examined in 629. Eighteen of the latter showed spurs arising from the posterior surfaces of the bodies of the vertebrae. The average age of these 18 patients was 33 years, range 21 to 39 years. Two-thirds of the patients recalled an acute injury to their backs which required rest in bed or cessation from work. The time between the injury and admission to hospital varied from 3 months to 25 years, with an average of 6 years. The symptoms in the lower back varied from mild discomfort to severe disabling pain. In 2 the complaints were typical of osteo-arthritis—namely, dull aching aggravated by changes in position and weather. The other 16 patients had symptoms similar to those of the herniated disc syndrome, with pain worse at night and on coughing or sneezing, with a history of partial or complete remission between attacks, and radiation of pain down the posterior part of the leg to the foot or down the lateral and medial aspects of the thigh. Twelve patients showed loss of the normal lumbar curve, spasm and tenderness of the lumbar muscles, and a positive straight leg-raising sign. The ankyle-jacks and paraspinals were present in 1. The blood count, sedimentation rate, and cerebrospinal fluid were normal, and the blood test for syphilis was negative.

Many investigators believe that degenerative changes in the spine are the result of lesions in the vertebral discs, and reference is made to experimental work in which, 3 months after posterior injury of the disc in dogs, a marked hyperostosis appeared. Unfortunately, because of the exigencies of military service, the 18 patients in the author’s series could not be followed up sufficiently to prove the relation of spurs to symptoms. They are reported so that further observations may be encouraged.

S. ORM.

Gout


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Non-Articular Rheumatism


Cases of sciatica fall into certain diagnostic groups: (a) intervertebral disc protrusions; (b) inflammation or disease of muscular or fascial structures; (c) involvement of the inferior mesenteric plexus, or sciatic nerve by gross disease of neighbouring structures; (d) cases having a functional basis.

In the patients with disc protrusion, trauma was the important factor, while in myofascial sciatica exposure to cold and rheumatic predisposition played a more important part. A single relatively severe injury, such as a fall from varying heights with the spine flexed, was common in disc injuries, while repeated minor injuries often took the form of lifting heavy weights in circumstances of mechanical disadvantage. Two cases followed lumbar puncture which had been performed with great difficulty. Congenital abnormalities of the lumbar spine, excluding spondylolisthesis, were found in approximately 12% of patients, but a similar proportion was found in a group with myofascial exposure to cold and damp does not play a prominent part in the production of the initial symptoms of a prolapsed disc, a recurrence of the symptoms is not infrequently precipitated in this way.

The syndrome of the typical prolapsed disc consists of three main phases: initial trauma, a history of which was present in 86%; onset of pain in the back, immediate in 76%, and later onset of pain in the leg or true sciatic pain. The initial pain is usually referred to the midsagittal line of the lumbar region, with a tendency to spread laterally or into the buttocks or thighs. It is rare for the pain to extend into the calf or foot at this time. The pain varies greatly in severity both in the same patient and from case to case. This "muscle spasm" phase is self-limiting and independent of treatment, usually lasting for 2 to 3 weeks. Attacks of this kind, perhaps after trivial trauma or exposure, may be repeated over a period of years before the appearance of pain in the leg, which was the initial symptom, however, in 40% of the patients. This pain in the leg may also be subject to remission, either spontaneously or as a result of rest. It is often of two distinct types: the pain in the buttock and thigh is a dull gnawing or aching sensation, whereas that in the leg and foot is described as a sharp stab, a painful numbing feeling, or a burning sensation, and is more subject to alteration by movement or exertion—it has in fact many of the features of true root pain.

Physical signs fall into two main categories: (1) those primarily mechanical and due to changes in ligamentous and fascial structures in the lumbar region, such as alteration in the normal lumbar curve, spasm of the erector spinae muscles, scoliosis and disturbances of active and passive spinal flexion and extension; (2) neurological signs, due to pressure on the nerve root by the disc protrusion, and consisting of local tenderness, Lasègue's sign, and motor, sensory, and reflex disturbances. In the majority of cases, Lasègue's sign was demonstrated, but a well-marked hypotonia of the calf muscles with wasting was a common finding. No constant relation between the area of sensory disturbance and the site of disc protrusion was demonstrable; a protrusion between the fifth lumbar vertebra and the sacrum was never associated with a sensory disturbance in the fifth lumbar distribution of the sciatic nerve, but ankle-jerk was present in 63% of patients, and of knee-jerk in only 2.5%. Motor, sensory, and reflex disturbances, once present, tend to persist during remissions and may do so after laminectomy. The cerebrospinal fluid is usually normal. The history and physical signs of prolapsed disc are sufficiently definite to justify a diagnosis without the use of contrast-medium radiography.

Differentiation of the early case of disc prolapse from a purely "fibrotic" condition may be very difficult and is often largely upon negative findings in the condition. The procaine injection test is of some help in this connexion: in myofascial referred pain, procaine injection into the painful area abolishes temporarily, and occasionally permanently, both symptoms and signs.

The essential treatment of sciatica is rest in bed, with graduated exercises later. There is every reason to believe that it is a self-limited condition; for this reason caution should be exercised in recommending surgery. In the present series 92 patients were submitted to operation for removal of disc protrusion, and 64 of these obtained immediate relief from symptoms. At best, operation is only a short-cut in an otherwise tediously protracted disease.

[This important article should be read in full.—Ed.]

T. Semple.


Disc lesions may be located from clinical signs only, without the help of "lipiodol". The condition of the ankle-jerk, the site of the spontaneous pain, the presence of hypoesthesia, and the radiation of the pain produced by pressure on the vertebrae have value in location. The pain provoked by pressure on the space L4-L5 or L5-S1, either between or on the true sciatic nerve, corresponds to a lesion of the corresponding intervening disc. Pressure over Valleix's points also gives useful information. When the fifth lumbar root is involved the usual painful points are in the outer part of the buttock, outer parts of the back of the thigh, popliteal space, and back of the leg (less commonly the popliteal space, and over the tendo Achillis often produces pain in the ankle and heel even when the spontaneous pain does not descend to this level. The value of these observations has been confirmed in 41 cases: the fifth lumbar root was affected in 16 and the first sacral in 25.

J. G. Reah.


This paper describes a number of variations that may occur in cases of ruptured intervertebral disc and in the associated syndromes. Low back pain is the outstanding complaint in all cases. Sciatic pain may be felt on one or both sides or not at all. A symptom of much value in indicating rupture of the disc in the higher lumbar interspaces is radicular pain. A protrusion that occurs otherwise than laterally or which is large enough will always affect several roots. Myelography is recommended in cases in which clinical location of the rupture is not possible.

A. M. A. Moore.

The results of operation for herniation of an intervertebral disk in 90 patients have been analysed. The diagnosis of a disk lesion was supported by finding an extruded loose fragment of disc tissue or a definite bulging of the disc with spontaneous protrusion of nuclear material when the annulus fibrosus was incised. Eighty cases came into one or other of these categories. In some of the patients operated upon not only was nuclear material removed from the disc but spinal fusion was performed as well. Seventy-two of these 80 patients were studied later and only 3 had continual pain or disability. The remainder were regarded as in a satisfactory condition. In 10 patients, whose disc at the time of operation did not fulfill the criteria referred to above, the results were not good. The authors conclude that simple removal of the nuclear material is satisfactory if there is an undoubted disc lesion, and that improvement in results is more likely to be obtained through a better selection of cases for operation than through the introduction of any new operative procedures.

Lambert Rogers.


This paper defines the author’s general conception of primary fibrositis. He takes the middle road between those who state that there is no such condition and those whose “liberality was recently reached . . . when herniation of fat through a tear in the fascia of the back was labelled fibrositis.” The general picture drawn of the condition conforms with that usually accepted [although there may be those who could not subscribe to the statement that “Dupuytren’s contracture is a form of primary fibrositis”].

The author mentions a previous report that creatinuria is an important and significant finding in primary non-psychogenic fibrositis. Excretion of up to 136 mg. in 24 hours in male patients and 50 mg. in 24 hours is always found in primary fibrositis, and the figure is usually between 300 and 400 mg. A similar creatinuria is seen in the experimental laboratory animal on a diet deficient in vitamin E. The creatinuria is generally relieved by an adequate vitamin-E intake. The vitamin-E level in the blood can be estimated by the method of Quaife and Harris (J. biol.


Scapulo-humeral periarthritis (S.H.P.) comprises every painful rigidity of the shoulder caused by involvement of periarthritic tissues. A marked increase of S.H.P. after the war is noted. The increase is due mainly to forms where single tendons were involved: actual partial periarthritis. The high incidence in the fifth decade is due aetiologically to progressive circulatory improvement of the connective tissue of the joint. This circulatory disturbance originates often in irritable states of the sympathetic system. The author quite frequently found a cardio-aortic source of the irritation passing through C4, C5, C6, to the shoulder. Other causes are injuries to the shoulder, action of cold, and arthritic states in the cervical spine. Treatment should be adapted to the various forms of S.H.P. Acute forms may require blocking of the stellate ganglion or radiotherapy to the cervical sympathetic ganglia.

J. Koszyk.


An account of manifestations of non-articular rheumatism of the neck, shoulders, and upper limb is given. The periarthritic tissues can be affected by rheumatic processes as well as the articulations themselves. Cervico-brachial neuralgias and neuro-myalgias, torticolis, subacromial and subdeltoid bursitis, epicondyilitis of the elbow, various tendo-synovitides of the wrist, and Dupuytren's contracture of the hands are all discussed. Frequently a mated spondylosis of the cervical spine is the source of the symptoms, and lesions of the spine are at the root of one third of cases, mainly of C5 and C6. Other aetiological factors, like trauma, infection, and neurotrophic troubles, are also discussed. Leriche's view of the paramount importance of minor trauma to the sympathetic system which cause vasomotor disturbances in rheumatic conditions of the affected tissues is supported. Full investigation of the sympathetic system should be carried out in all such cases. The treatment of every manifestation is described, and its specific indications given. In the treatment of Dupuytren's contracture no convincing results were obtained with parathyroid extract, and surgical treatment is advocated. [The author is obviously unaware of the newest views on this subject.]

J. Koszyk.


**ANNALS OF THE RHEUMATIC DISEASES**

**General Articles**


The presence of acute phase protein was investigated in about 2,000 general medical cases. The technique was that of the Neufeld reaction: one drop each of pneumococcus type 27 suspension, patient's serum, and methylene blue was mixed on a slide, the reaction being read after a few minutes. Pneumococcus suspensions of varying densities were used. The least dense suspension—No. 1—had 2 to 4 organisms per microscopic field, and sera were tested for suspension that was said to have acute-phase protein in titre +1. Sera of titre +2 reacted with a suspension containing twice as many organisms as in suspension No. 1, while suspension No. 4 had double the number of organisms as suspension No. 2, No. 8 double that of No. 4, and so on. Suspension No. 16 had a density of about 1,000 million organisms per ml.

Moreover, all of 21 cases investigated had acute-phase protein. In rheumatoid arthritis, 94 out of 128 cases gave positive results. These cases were in the acute stage. R. B. Lucas.


A review of the literature reveals that, although there is general agreement on their morphology, a difference of opinion exists regarding the precise pathogenesis and the specific causative agents in the acute forms of pneumonitis. The causative agent in many of these cases is probably an acute-phase protein reacting with the patients' serum, which is not present in the acute forms of pneumonitis. The acute-phase protein reaction is observed in the presence of a firm, rubbery, and filled with frothy fluid; and in the lower lobes to abundant connective tissue.

In general, the pulmonary lesions conformed with those described by previous observers, but the authors point out the lack of chronic changes, young connective tissue, proliferating fibroblasts, and cellular exudate found in the upper lobes suggested the presence of an active exudative phase of the rheumatic process in those lobes co-existent with a healed proliferative phase, with extensive fibrosis, in the lower lobes. W. E. Hunt.


In a series of 560 cases of scarlet fever, there were 21 cases of early rheumatism (first or second week) and 7 of late rheumatism (fifth or sixth week). The cases of early rheumatism were benign, without cardiac involvement or radiological signs and chiefly involving small joints. The E.S.R. was only slightly raised. The late cases on the other hand, were severe, involved large joints, and in 5 cases led to chronic cardiac disability. The E.S.R. was invariably much higher in early cases. Malarial test was always positive, except in 4 cases, which are regarded as sciaratal and the late as manifestations of acute rheumatism.

S. S. B. Gilder.


Bornholm disease has a number of synonyms, mostly descriptive, such as "epidemic myalgia," "devil's grip," "epidemic myositis," and "acute benign dry pleurisy." Outbreaks have been reported from Northern Europe, U.S.A., Britain, Southern Australia, and Egypt: 35 cases were seen in Aden between Aug. 17, and Oct. 25, 1946, and with 1 exception, were confined to Service personnel and their families.

The onset was abrupt, with pain, headache, and some fever as the three commonest features. The pain was either sharp or of a constrictive nature, always made worse by respiratory effort; there was no position in which all patients felt most comfortable. Pain started in the epigastrium in 8 cases, along the right costal margin in 4 cases. A diagnosis of rheumatic fever was made in 11 cases to shoulder-tip, interscapular region, or umbilicus to groin. It lasted usually from 3 to 7 days, once for as long as 23 days. Headache was present in 18 cases; often excruciating, it lasted up to 4 days, leaving the patient with a dull ache for several more days. There was fever at the onset in all cases except 1: the temperature was not usually above 100° F., but the highest recorded was 105° F. Other symptoms complained of were sore throat, anorexia, nausea, vomiting, giddiness, and diarrhoea (the last being very common in Aden).

Examination of the chest revealed abnormality in 1 case only—a pleural rub lasting for 8 days. Tenderness was found in half the cases, mainly subcostal but in 3 cases it was epigastric. Radiographs taken in 25 cases showed the diaphragm to be freely mobile in all. Red-cell counts were normal, but white-cell counts varied from 8,000 to 13,000 per c.mm.; the erythrocyte sedimentation rate was also raised. Twelve out of 30 male patients had orchitis, which was the outstanding complication, starting after the eighth day and lasting from 2 to 6 days. Treatment was symptomatic: codeine, aspirin, and the barbiturates were useful, although morphine was sometimes necessary to relieve the severe headache.

Sporadic case of Bornholm disease need to be carefully distinguished from pleurisy, an upper abdominal surgical condition, and early infective hepatitis. Malaria gave rise to occasional difficulties. The causal agent is not known, though evidence points to a virus infection spread by droplets. Thus, Aden is within 24 hours by air from Egypt, which makes the introduction of infection easy, even when the incubation period is short. Moreover, an R.A.F. officer, his wife, and their 2
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Children all developed the disease within a period of 11 days, and there were several cases among the hospital staff. The authors do not think that infected water, milk, or food could be incriminated, or that insects were likely to have carried the organism. T. E. C. Early.


In acute and chronic rheumatic disease little attention is being paid to the state of calcium impregnation of the bones as shown by x-ray examination. A decalcification is very constant, but the underlying biochemical disturbances are unknown. Food restrictions in Belgium in the last war produced considerable decalcification of the bones and joints in individuals suffering from rheumatic disease. The response to treatment of the so-called great osteomalacias of famine was a striking feature; but in cases of chronic rheumatism treatment produced very little improvement of the Ca impregnation of the decalcified bone, although calcium blood levels were restored to normal. Radiographs showed very little improvement for long periods. Only further investigations of the biochemical processes of the tissues affected by disease can throw more light on this question.

J. Koszyk.


This is a clinical study of deficiency diseases of bone seen in France during enemy occupation and the role of privation in the causation of certain rheumatic diseases. Although rationing began in October, 1940, it was not until 1942 that some grave cases of famine osteomalacia appeared. In 1943 deficiency diseases of bone affected all classes of society and all ages, but predominantly females.

The diagnosis of famine osteomalacia in its severe form is simple, but recognition of the disease during the insidious onset is difficult and rests on a few clinical and radiological data. The therapeutic test is often the best criterion, for, while the disease shows no tendency to remission so long as privation lasts, it responds within some 3 weeks to calcium, phosphorus, and vitamin treatment. The presenting symptom is pain, deep, dull, and aching at first, in the interscapular or lumbar regions, pelvis, or lower limbs; later it is more violent and paroxysmal. Associated is an increasing muscular wasting and weakness, with some joint stiffness from muscular spasm. Radiological diagnosis, simple in the late stages when there are excessive bone transparency and thinning of the corticalis, must at the beginning often rest on a disappearance of the fine trabeculae of the spongiosa, which has a bit of washed-out appearance. Laboratory tests such as can be carried out with the simpler facilities for investigation are not very helpful. Calcium and phosphorus levels in the blood may be within normal limits; there is a raised erythrocytes sedimentation rate; a slight elevation of plasma phosphatase offers suggestive evidence. Although the whole skeleton is affected, decalcification is often most marked in the spine or pelvis. Two groups are described: (1) generalized, with severe pain, cachexia, and muscular weakness; (2) localized. Most commonly the spine was affected, a condition often manifested by severe interscapular pain. Kyphoscoliosis may develop, and in severe cases there may be collapse of vertebral bodies. These cases were much more common in women than in men. Another form mainly affects the pelvis, and tends to be associated with pseudo-fractures (Milkman’s syndrome).

Rations in France in 1941 provided only 10 and 25% of the normal daily requirements respectively of phosphorus and calcium; the diet was also deficient in vitamin D, estimated at 10 i.u. daily (whereas the daily need may be regarded as from 200 to 1,000 i.u.). Even now prophylactic measures in France would appear to be needed; it is suggested that milk consumption should be doubled, and a calcium bread like the English national loaf adopted.

Scapulo-humeral periartthritis became much more frequent during the occupation. The incidence of rhizemolic spondylitis also increased, being estimated to be in 1942 almost double that of pre-war years. The association of vitamin deficiency in these and other rheumatic disorders is discussed; but no clear evidence of causal relation is established.

Kenneth Stone.


The author briefly discusses the main principles of the high-frequency sound vibration apparatus used in medical practice. The wave-length is an important factor regulating the quality and intensity of the high-frequency sound effect. This, again, depends on the nature and cutting of the crystal and also on the frequency, which itself depends on the connected oscillation cycle. No less important are the adjustment, and the intensity of the vibrations measured in watts.

Among the biological effects of high-frequency sound vibrations discussed are the mechanical twitching effect, cavitation, micromassage, and the thermal effect. The latter arises partly from the apparatus and partly in the body, depending on the resistance of the tissue concerned to the penetration of the vibrations. The liberated gases in the tissue are carbon dioxide and oxygen, but the amounts produced are insignificant. More important is the liberation of the cell contents into the intercellular tissue spaces, where they act like a hormone with a local effect similar to that of protein shock therapy.

The author uses an apparatus with a vibration of 1,750 kHz, wave-length 7 mm., and a performance of 500 watts. The method is used is a point application from various surfaces in order to obtain a maximal effect in the deeper layers of diseased tissue. Treatment consists of a total of 6 to 12 applications, combined with balneotherapy, and also some 20 applications without balneo-therapy. Each session lasts 5, 10, 15, or 20 minutes, according to the response.

Treatment of 70 cases of diverse rheumatic conditions is reported. There was improvement in 46 and slight improvement in 20, but 4 cases of chronic sciatica became worse. The best results were obtained in tenosynovitis, arthritic ankylosis and fibrosis, chronic rheumatic swellings, and osteo-arthritis. Acute conditions of joints and nerves were made worse. No general reactions were seen. During the treatment the patient feels slight local irritation. Six hours later there is a feeling of fatigue at the site of the application. The reaction usually lasts for 24 hours. No skin manifestations were seen with the adopted dosage. After very long applications and with high intensity, however, vesicles similar to those seen in pemphigus may appear.

This paper indicates that high-frequency sound
vibration fills a gap in the physiotherapy of rheumatic diseases. Its main use is for resistant swellings, early arthropathy, and chronic osteo-arthritis. It remains to be seen, however, whether the improvement will last, and what the permanent results will be.)

D. Gutmann.


The authors chose cases of rheumatic disease in which stasis of the liver and liver damage caused by the disease may both occur. They selected cases of acute rheumatic fever or circulatory failure of rheumatic origin, and compared them with cases where a rheumatic origin could be practically excluded. They investigated altogether 19 cases. The clinical facts were collected and anatomical and histological examinations carried out. Haematoxylin-eosin, Van Gieson, and Bielschowsky staining were used, with Weigert staining for fibrin if it was considered necessary.

It was found that in cases of rheumatic fever all components of the hepatic tissues were involved. Degenerative necrotic areas formed a map-like pattern independent of stasis. The necrotic parts had well-defined borders, within which a pattern of karyorrhexis could be observed. The haemorrhages were intense and the destruction of the parenchyma severe. The authors did not find the central fatty degeneration described by Heinrichsdorf, but they could not exclude the possibility that such degeneration had preceded the necrotic haemorrhagic stage. Diphtheria, acute endocarditis, pneumonia, streptococcal infections, peritonitis, aspergamine, and toxæmia of pregnancy may produce the same histological picture. The authors believe that these changes are not the consequences of congestion, since they never observed in any of the non-rheumatic congestive cases this particular pattern of necrosis, and they believe that the lesions are caused by the specific rheumatic "noxa".

E. Forrai.


In order to retard the rate of absorption of procaine ("novocain") it has been combined with polyvinylpyrrolidone, and the authors have used 5-ml. ampoules containing a 2% solution of the former in a 20% solution of the latter. There was no reaction in a patient who previously had been intolerant of procaine.

T. G. Reah.


Inflammation and swelling of various joints, accompanied by fever and increased erythrocyte sedimentation rate, were observed in 2 cases of Addison’s disease. The picture was that of typical subacute rheumatic fever, which recurred when new or higher doses of desoxy corticosterone were given or implanted. In one of the patients the fever responded to intravenous salicylate but recurred afterwards. These observations are discussed in conjunction with experimental results of Selley, who produced inflammatory changes in the joints of rats with high doses of desoxy corticosterone. H. Herxheimer.


Samples of citrated blood from rheumatic patients were divided into four portions and enough sodium salicylate was added to each portion to give concentrations of 0, 0-02, 0-05, and 0-1% respectively. The erythrocyte sedimentation rate for each sample was determined by Homburger’s method (Amer. J. med. Sci., 1945, 210, 168). The added salicylate tended to increase the sedimentation rate for blood from patients who were likely to benefit from salicylate therapy, and decrease it for those who were not. Nevertheless, if after addition of sodium salicylate the sedimentation rate invariably remains above normal and does not tend to fall, salicylate treatment is contraindicated.

It is suggested that the therapeutic action of salicylate in rheumatism is not due to antagonism of the sedimentation-rate-increasing activity of fibrinogen, since at the moment when the therapeutic activity of the salicylate was greatest an increase in the sedimentation rate was observed.

J. E. Page.


Aseptic necrosis of bones due to caisson disease is among the rarer non-malignant conditions affecting the skeletal system. The bones most frequently affected are long bones, such as the femur, tibia, and humerus, and 70% of the lesions are found in the lower limbs. Flat bones are not so frequently affected, possibly because of their relatively higher content of red marrow.

The pathogenesis is not fully understood, and it has not been possible to produce the condition experimentally, but it is considered that gas embolism or local liberation of nitrogen is followed by interference with nutrition, infarction proceeding to aseptic necrosis. The local reaction is one of resorption and recalcification, but incomplete resolution is shown by cystic areas bounded by a fibrous wall, which later becomes calcified. If near a joint the neighbouring cartilage becomes devitalized and arthritic changes develop.

The condition usually occurs in subjects over 40 years old who have worked under raised pressures for some years and who have on occasion been subjected to rapid decompression. Symptoms are usually referred to joints, and changes in the diaphysis of the bones are found on radiography. The picture is usually one of chronic osteo-arthritis of a joint with areas of necrosis and calcification in the adjoining bone. A typical case is described in a diver aged 40. Treatment is largely prophylactic. Early symptoms should be noted; recurrent symptoms mean that the individual affected should abandon that type of work. The fully developed condition may need orthopaedic treatment. The affection should be recognized from the medico-legal aspect and is of importance from the point of view of workman’s compensation.

J. W. S. Lindahl.

The author prefixes his article with notes on the anatomy, physiology, and pathology of the knee joint. The different aetiological factors are discussed. Operative treatment should be attempted only after exhaustion of all the available conservative methods. Three operative procedures are described: (a) Manipulation of the knee under general anaesthesia followed by a plaster dressing for three weeks, and bivalved later, with physiotherapy. A one-stage manipulation is preferable. Posterior capsulotomy or division of the hamstrings is sometimes added. (b) De-inervation of the knee, which the author has practised since 1943, mainly in cases with much pain. The technique of Tavernier is used by dividing the sensory branches at 1 or 2 mm. from the nerve. A diminution of the decalcification of bones was observed after this operation. (c) Femoropatellar arthroplasty. This operation was performed in 15 cases. Indications were (1) considerable formation of marginal exostoses of the patella, (2) the presence of articular loose bodies, and (3) tendency to ankylosis. The purpose of this operation is to diminish friction between the diseased cartilaginous surfaces. The joint is freely exposed from an incision 20 cm. above the knee joint. A pedicle fascial strip of the fascia lata is introduced into the joint from a lateral incision, interposed between the patella and the femoral condyles, and stitched in position. Immobilization for 6 or 7 days is followed by active physiotherapy. In all but one of his cases a range of movements of 110 to 130 degrees was restored, and all the patients had no difficulty in climbing stairs.

J. Koszyk.


The author describes the investigation at a military general hospital in Italy in 1944 of 25 cases of low back pain in which no organic disease was found. The patients all exhibited psychoneurosis or personality defect. No relationship was established between the pain and fibrous or nodular rhematoid tissue. It is suggested that these nodules are commonly found in normal muscle tissue. The artificial production of low back pain by injection of 0·2 ml. of 10% silver nitrate solution proved that these psycho-neurotic subjects were not hypersensitive to painful stimuli, that their spontaneous backache was not due to painful muscle spasm, and that the backache was not perpetuated by conversion hysteria. The author comments on the similarity between this functional low backache and the inframammary pain of Da Costa's syndrome, and observes that both occur in the same type of patient. The mechanism of the backache is unknown.

Geoffrey McComas.


The importance of rheumatic fever is shown by the fact that between the ages of 10 and 14 it is the leading cause of death, and from 15 to 25 is second only to tuberculosis. The incidence varies from country to country; thus, in Scandinavia (where it is no longer a problem) it is about 1 in 1,000, in London about 1-8. In the U.S.A. there are more cases (3·5 to 7 per 1,000).

In the discussion Dr. J. G. Fred Hiss (Syracuse, N.Y.) puts forward the view that there is no difference in the incidence of rheumatic fever as between urban and rural areas; though, with the coming of the automobile, the hard-surfaced roads, and the central schools, there are few rural districts left in his State. He also emphasizes the importance of familiarizing both the layman and doctor with the earliest symptoms, particularly in children.

T. E. C. Early.


