Acute Rheumatism—It's Problems and Rehabilitation

By A. L. LOMEY, M.D., CH.B., D.PHYS. Med.(RAND)

Chief Specialist in Physical Medicine, General Hospital, Johannesburg, Head Sub-departments of Physiotherapy and Occupational Therapy, University of the Witwatersrand, Johannesburg, South Africa.

Acute rheumatism, the synonym of which is Rheumatic Fever, is an acute disease characterised by fever and arthritis, with a special tendency to inflammation of the heart valves and heart muscle.

CLINICAL FEATURES

Cause: The modern concept attributes the development of rheumatic fever to a reaction on the part of the patient to a preceding infection with a haemolytic streptococcus of the pharynx and the upper respiratory passages[1].

Prevalence: The disease appears to be less common and less severe than in the past, so much so that the present day medical practitioner does not often see a case[2]. The incidence of sub-acute cases without arthritis however, is probably not less than formerly.

Amongst Bantu children in South Africa the disease is by no means rare, and the impression gained is that it is as frequent if not more so than in the European, and that it occurs in a younger age group[3]. In 1956, 56 cases of rheumatic fever and chorea were admitted to the children's wards at Baragwanath Hospital, and in 1958 the figure was 51.

With regard to the older age groups amongst the Bantu[4], of 1,100 cases of Heart disease admitted to the medical wards at the same hospital in 1957, 246 were suffering from rheumatic heart disease, so that acute rheumatism can be considered a common disease in the African.

Race and Climate: All races are affected, but a temperate climate is more favourable.

Environmental Conditions: Adverse living conditions such as overcrowding, poverty, exposure to cold and wet, favour its occurrence or act as determining factors.

Age and Sex: It is essentially a disease of childhood, the first attack usually occurring before the age of 20 years, although recurrences may take place well into middle life. Males are more often affected in later years.

Heredity: It is not hereditary, although there is a hereditary pre-disposition.

Recurrences: These are common and are due to sensitization of the connective tissues of the body by a previous streptococcal infection, e.g. from an inflamed tonsil. The disease can therefore be regarded as one of the collagen diseases[5], and the characteristic pathological lesions, as allergic responses to streptococcal infection. Once this sensitization has occurred further streptococci will cause further reactions and thus account for the occurrence and frequency of the recurrent attacks.

Pathology: The essential lesion is characterized by an exudation and proliferative process affecting a number of tissues. In the heart the valves, particularly those of the mitral, suffer an acute inflammation characterized by the development at the edges of the cusps of minute pale vegetations. Beneath the skin multiple discrete nodules the size of a pea are sometimes found. These are called "Rheumatic nodules" and consist of a fibrous matrix with an infiltration of small round cells and larger mono-nuclear cells. They are located most often over bony prominences, e.g. the wrists, and knuckles, and are an indication of severe infection, accompanied almost always by cardiac involvement.

SYMPTOMS

Onset: This is usually abrupt and is ushered in with a chill and often with a sore throat and general malaise. A rise in the temperature ranging between 102° and 104°F soon occurs with an accompanying rise in the pulse rate.

Joints: Vague pains in the limbs are present at the onset, soon however, pains in the joints develop, the larger joints particularly the knees, ankles and wrists being the favourite sites, the smaller joints usually remaining unaffected. The most characteristic feature of the joint involvement is its tendency to flit from joint to joint. Another is the fact that the arthritis is always multiple. The joints themselves may exhibit remarkably little evidence of involvement even in the presence of the most acute pain, but some degree of swelling due to an effusion of fluid, flushing of the over-lying skin, and exacerbation of the pain of movement or palpation, are fairly constant accompanying features present on examination. Suppuration of the fluid inside the joints never occurs, but stiffness may ensure and may be troublesome.

Skin: Sweating is usually profuse, the sweat having a peculiar acid smell, and there may be an accompanying diffuse erythema.

Heart: The heart is almost always affected, and it is this which renders the disease so serious. In most cases some degree of myocarditis is present, which may persist for some time after the main symptoms of the disease have disappeared. In many cases signs of definite endocarditis affecting most commonly the mitral and less commonly both the mitral and aortic valves, are also present. Pericarditis too, may occur, particularly in severe cases, and in recurrent attacks.

Blood: The blood shows a raised sedimentation rate, an increased leucocyte count, and a moderate degree of hypochromic anaemia. The sedimentation rate parallels closely the severity of the disease and is therefore of considerable value in assessing progress.

Diagnosis: This is not difficult in the fully developed case, but in the absence of noticeable arthritis as may happen more especially in children, the diagnosis depends on the development of cardiac lesions. Generally the following manifestations are helpful: carditis, polyarthritis, subcutaneous nodules, fever, raised sedimentation rate, positive test for C-reactive protein, evidence of pre-existing heart disease, or a history of past rheumatic fever. In children too, the differentiation from acute osteomyelitis is important, as an error may lead to serious consequences. This can be avoided if it is remembered that rheumatic fever should never be diagnosed in a mono-articular arthritis, that the painful area in acute osteomyelitis is generally over the lower end of the femur or tibia, and that this area is the site of acute tenderness, and pitts on pressure.

Other conditions from which the disease may have to be differentiated are other forms of arthritis, e.g. acute rheumatoid arthritis, mono-articular or multiple arthritis occurring in the course of many diseases such as gonorrhoea, gout, dysentry, pneumonia, etc. Pyrexia from other causes can be differentiated by the absence of an adequate response to full salicylate therapy.

Treatment: In view of the present concept that rheumatic fever is an inflammation developing as a complication of infection with Haemolytic streptococci, it is logical for treatment to be directed at eradication of this organism. The common practice therefore, is to begin treatment with a course of penicillin, employing large doses for a minimal period of 10 days.

In order to suppress the inflammatory process, such as fever, tachycardia, joint pain, etc., two anti-inflammatory

agents are employed, viz.: salicylates and steroids. The first is the drug of choice, but the second has a place particularly in patients with carditis. Sometimes both are used in combination.

There is no doubt that absolute rest in bed is of the utmost value as is careful nursing, in the warding off of the cardiac affections so common in this disease. The rest prescribed must be prolonged and thorough—several months being often required in obvious cases of cardiac involvement.

For the sweating, when profuse nursing in between blankets in preference to the usual sheets is advocated. A flannel garment of adequate length and with long sleeves is also preferred for the same reason, and must be changed as frequently as required.

The diet initially should be light, consisting largely of milk and alkaline drinks. Later more substantial foods including soup, oatmeal, jelly, fruit juice, etc. may be added. Abundant fluid is allowed from the beginning to replace that lost in the profuse sweats.

For the pain the additions of Dover powder may be necessary, and is often effective. The affected joints are supported in the position of most comfort, and the patient himself is the best judge as to when and how much movement should be instituted—active movements being preferred. Splints are often helpful in fixing the joints and giving relief from pain, but in most cases wrapping the joints in cotton wool held in place by a light bandage is sufficient for this purpose.

It is important that the patient should be given plenty of time to recover and convalescence should therefore be slow and unhurried. Various forms of occupational therapy are helpful to reconcile the child to prolonged periods of such enforced rest.

Only when the acute inflammation has completely disappeared is physical treatment indicated. A table of gentle movements for the affected joints is then instituted, this being graduated carefully to avoid fatigue and over-strain.

Later still a course of U.V.L. may prove beneficial and aid recovery.

The Problems in Acute Rheumatism: In the main these fall into two categories:

1. The prevention of the initial attack of rheumatic fever.
2. The prevention of recurrent attacks.

If both (1) and (2) above could be made more effective the development of the serious and dangerous carditis so common in the disease would cease to be a problem.

With regard to the first of these—all known or suspected cases of streptococcal infection of the pharynx should be treated by the administration of effective doses of penicillin either by the oral or intra-muscular route. Sulphadiazine is also effective, but it has been superceded by penicillin because of the development of sulpha-resistant organisms, and other disadvantages.

The prevention of recurrent attacks in patients who have suffered previously from rheumatic fever also requires the effective treatment of streptococcal infection particularly of the upper respiratory passages and pharynx[6]. Here too, penicillin is the drug of choice, and may be administered again by the oral or intra-muscular route, whichever is deemed perferable in any particular case. The dosage here however, is much higher. Such prophylactic measures with penicillin have to be continued for long periods of time, some content permanently. Sulphadiazine given orally also has a definite place in the treatment of these cases.

Rehabilitation in Acute Rheumatism: In general, such patients are best advised to live in the country. They should avoid any of the pre-disposing causes associated with the disease such as malnutrition, cold and wet, overwork and overcrowding.

As convalescence is necessarily so prolonged the establishment of special hospitals has been advocated to accommodate long term cases for prolonged periods, such hospitals to be conveniently situated, preferably also in the country.

To meet the educational requirements of young patients the provision of special schools and reasonable teaching facilities follow as a necessity.

Following recovery, a normal active life may be permitted, provided no cardiac lesion is present. In the presence of such a lesion however, activity may have to be restricted, but reasonable exercise within the patient's tolerance is of benefit.

Summary: A description of acute rheumatism is given. This includes consideration of the clinical features, diagnosis and treatment. The problems to be faced in dealing with this disease are discussed, and methods designed to alleviate them detailed. Rehabilitation processes necessary to restore these patients are briefly described.

I wish to express my sincere thanks to the following for permission to publish this paper:

Dr. K. F. Mills, Superintendent, General Hospital, Johannesburg.

Prof. J. H. Gear, Acting Head Dept. of Medicine, University of the Witwatersrand, Johannesburg, South Africa.

REFERENCES

1. TALBOT, JOHN H. and LOCKIE, MAXWELL, L. (1958), *Progress in Arthritis*, pp. 238-276, New York and London, Grane and Stratton.

2. COPEMAN, W. S. C. (1948). *Textbook of the Rheumatic Diseases*, p. 103, Edinburgh, E. and S. Livingston Ltd.

3. KAHN, DR. E., Chief Paediatrician, Baragwanath Hospital. Personal commemoration.

4. WILSON, DR. V. H., Chief Physician, Baragwanath Hospital. Personal commemoration.

5. CONYBEAR, SIR JOHN and MANN, W. N. (1957). *A Testbook of Medicine*, 12th Edition, p. 62. Edinburgh and London, E. and S. Livingstone Ltd.

6. *British Medial Journal* (1959), 5118, p. 351.