4. Dr. W. H. Jopling of the Jordan Hospital, Earlswood, Surrey, has written on *Reactional Leprosy* or *Leprosy in Reaction.*

"I have been prompted to write this letter on reactional leprosy in the hope that it will stimulate clinicians and pathologists to get together and clarify this subject about which there exists much confusion of thought and of terminology. As a clinician I would point out that it is impossible to have a rational approach to therapy, or to expect clinicians in different parts of the world to agree on therapy, until the different types of reactions are better understood and more clearly defined; and as a teacher I have found it necessary to make my own approach to the subject in order to present it in a manner which can be understood by those who have had little or no first-hand experience of leprosy.

I would like to put forward the following outline of reactional states in leprosy as a possible basis for discussion on the subject:

"*Tuberculoid Reaction.*" This is a reaction in tuberculoid leprosy in which one or more skin lesions (not all) become rapidly swollen and erythematous, giving an impression of erysipelas. Desquamation follows, and sometimes ulceration takes place in the reacting lesions or lesions. An aggravation of existing nerve damage may occur, with or without nerve pain and tenderness, leading to functional disturbance. Caseation may sometimes occur in affected nerves, and in the case of cutaneous nerves there may be discharge of caseous material through the skin. The patient remains afebrile and free from constitutional symptoms. In my experience "tuberculoid reaction" has been defensive in character and has resulted in healing of the affected skin lesions, with scarring if ulceration has taken place, but some leprologists consider that it may not always be associated with a good prognosis as bacilli may appear in the reacting lesions and there may be an evolution to a borderline type of leprosy. The only comment I would like to make on this concept is to say that everything depends on establishing that the lesions were truly tuberculoid in the first place and were not those of near-tuberculoid leprosy, i.e., borderline leprosy close to tuberculoid.

"*Borderline Reaction.*" This is a reaction in borderline (dimorphous) leprosy, a type of leprosy which is universally recognized as being immunologically unstable. All the skin lesions become rapidly swollen and erysipeloid, followed by desquamation. In some cases the reaction is defensive in character, the lesions becoming infiltrated with epithelioid and giant cells, acid-fast bacilli (if present previously) disappearing, and the prognosis being good. Some of the lesions may

break down with subsequent scarring. Nerve pain and tenderness may or may not occur; if it does occur, functional disturbance may follow. This type of reaction corresponds to Cochrane's 'reactional tuberculoid'[1]. In other cases the reaction is invasive, rather than defensive in character, with an increase of acid-fast bacilli in the lesions and constitutional disturbance such as fever, malaise and oedema. I have not seen ulceration in this type of reaction, but I have no doubt it may occur. Nerve pain and tenderness are invariably present, followed by functional disturbance, and there is tenderness of the palms and soles.

"*Lepromatous Reaction.*" There are two distinct types of reaction in lepromatous leprosy. In one type, which I would call "Lepromatous Reaction Type I" the reaction occurs early in the course of treatment, when the bacilli are solid rods, and changes take place in some or all of the actual leprosy skin lesions characterized by swelling and erythema. Nodules break down and ulcerate. The other type of reaction, which I would call "Lepromatous Reaction Type 2" is quite distinct as it occurs later in the course of treatment when the bacilli are fragmented and granular, and it does *not* affect the actual leprosy skin lesions which show no changes clinically or histologically. This type of reaction was given the name *erythema nodosum leprosum* by Murata in 1912[2], a name which is disliked by some[3] on histological grounds, and is opposed by others because erythema nodosum is only one aspect of the reaction. It is an allergic reaction which is probably due to the fact that the patient has become sensitized to breakdown products of his bacilli. When erythema nodosum does occur as part of the reaction, it is characterized by crops of brightly erythematous nodules and raised patches varying in size from a few millimetres to 4-5 centimetres in diameter; these may be few or multiple, occur on any part of the body apart from the scalp, palms and soles, and often appear on areas of skin free from leprosy lesions. They appear suddenly, usually in the evenings, the smaller ones disappearing by the following morning and the larger ones taking days or weeks to disappear leaving a blue stain in the skin. The patient often complains of burning discomfort in the erythematous nodules and patches, and pressure on them with the finger may be painful. Their bright red colour disappears immediately slight pressure is exerted on them, but it returns as soon as the pressure is released. When numerous they are accompanied by constitutional symptoms which include intermittent fever, severe nerve pains, arthralgia, bone and periosteal pains, acute iridocyclitis, orchitis, rhinitis, epistaxis, lymphadenitis, insomnia and mental depression. The fever has its fastigium in the evenings and may be accompanied by rigors and drenching perspiration. In some cases the erythematous nodes develop central necrosis and ulceration, leaving atrophic scars. As mentioned earlier, erythema nodosum is not always present.

Nerve pain and tenderness may occur alone, just as any of the other allergic manifestations listed above may occur alone or in combination without erythema nodosum. They are all different aspects of the same type of reaction and they will all respond to treatment with corticosteroids.

I would suggest that 'Lucio's phenomenon' (*erythema necroticans*) is merely a variant of my "Lepromatous Reaction Type 2" and could be included under this heading. I understand that it can be controlled by corticosteroids[4].

References

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3. PEPLER, W. J., KOOIJ, R. and MARSHALL, J. (1955) Internat. J. Leprosy, **23**, 53.
4. PROF. F. LATAPI. Personal communication (1955).