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Abstracts

1. **Mycobacterium ulcerans** Infection. Clinical and Bacteriological Study of the First Cases recognized in South East Asia, by J. H. S. PETTIT, N. Y. MARCHETTE and R. J. W. REES, *Brit. J. Derm.*, **78** 4, Apr. 1966, p. 187–197.

This paper gives case reports and nine illustrations of four patients of skin ulceration with deeply undermined edges in Malaya. It is believed that these are the first patients with *Mycobacterium ulcerans* infection to be recognized in S. East Asia. It is gratifying to report that the authors have confirmed the finding of LUNN and REES that the administration of B 663 has been dramatically successful in all their patients. This riminophenazine derivative was originally developed by BARRY *et al.* (1957, 1958 and 1965) and has now been shown to have a therapeutic value for leprosy (BROWNE and HOGERZEIL, 1965, PETTIT and REES, 1966). At present the only available preparation is an 100 mgm. capsule and the authors have given 100 mgm. three times a day for six days a week.

It is suggested that the ulcers of *Myco. ulcerans* are probably not uncommon in humid tropical climates and a better knowledge of the disease and its bacteriology will enable more patients to be diagnosed and treated.

2. **A Prosthesis to restore Balance and Prevent Ulcers after partial Amputation of the Foot,** by W. A. WIGNEY, F.CH.A.V., S.R.CH., Senior Chiropodist to the Diabetic Clinic, Royal Melbourne Hospital, *Med. J. of Australia*, 1965, **1** : 852 (June 5).

The author describes a prosthesis made from inert silicone rubber for this purpose. This is of particular interest in surgery for leprosy. After conservative surgery of the foot it is impossible to avoid disturbing the natural balance and stability. If a metatarsal resection has been necessary or exposed bone has to be necessary, malfunction of the foot will result and inevitably some interference can be expected. Even the removal of the 5th toe can give the patient a sense of insecurity. Abnormal pressure areas are often produced which hasten the development of perforating ulcers or small areas of gangrene.

3. **Annual Report of the Ghana Leprosy Service, 1961–62,** by DR D. S. CHAUDHURY.

The report which has just been received indicates an increase in the number of patients treated showing that more have been brought under treatment at an early stage. The Laboratory trained six assistants in elementary routines for posting to different regions so that out-patient treatment is under laboratory control from the beginning. Co-operation and assistance have been received from UNICEF and Radda Barnen.

4. **New Orientation in the Control of Leprosy in Japan. Curability of the Disease,** by SHIGETAKA TAKASHIMA. *Internat. J. Leprosy*, 1965, **33**, 1, 1–17.

The author has reported on (1) arrested and discharged patients, (2) bacteriological, pathological, and immunological criteria of curability, (3) comparison with respect to antileprosy programmes of the present course in Japan and that of the World Health Organization, and (4) the trend of leprosy in Japan.

1. The curability of leprosy was found to be higher than expected, quite in contrast to socially prevalent opinions and also the general medical view.

2. The curability of leprosy has been acknowledged as proven from the bacteriological, pathological and immunological points of view.

3. In Japan, hereafter, leprosy control is to be directed to counter-measures among institutionalized patients, for antileprosy measures have been nearly completed for domiciliary patients in the communities.

4. Still further study is needed to bring about an increase in the resistance of a nation against leprosy and promote curability of leprosy.

5. **Chemotherapeutic Trials in Leprosy. 2. Comparative Trial of Dapsone plus Ditophal (Etisul) and Dapsone alone in the Treatment of Lepromatous Leprosy,** by M. F. R. WATERS and J. H. S. PETTIT. *Internat. J. Leprosy*, 1965, **33**, 3, 280–95.

A controlled clinical trial, using the 'double blind' technique, is reported of combined dapsone and ditophal therapy compared with dapsone and placebo in the treatment of pure lepromatous and near-lepromatous leprosy. Twenty-five untreated, matched pairs were admitted and the final analysis was made on 23 pairs and 47 patients studied for 1 year.

Dapsone and ditophal were commenced simultaneously, and over the treatment period 0–1½ months, a statistically significant (at the 1% level) greater decrease in the percentage of solid-staining bacilli occurred in the smears of pure lepromatous patients treated with ditophal and dapsone than occurred in the smears of patients treated with placebo and dapsone. Therefore, it is evident that combined therapy resulted in a faster rate of killing of leprosy bacilli than did dapsone alone. However, only one method of clinical assessment of the pure lepromatous pairs favoured combined therapy; the two other methods of clinical assessment used, and the bacterial index and biopsy index results, all failed to reveal any significant differences. between the two treatment groups. In addition, the incidence and severity of erythema nodosum leprosum did not differ in the two groups. Since the more rapid death of bacilli early in treatment had little effect on the rate of improvement of patients after 12 months, the widespread use of ditophal with dapsone does not appear to be justified Special circumstances are envisaged, however, in which ditophal would be a useful adjunct to treatment. The small number (11) of near-lepromatous patients studied showed a high incidence of lepra reactions, and four underwent histological change during their year in the trial. There was no evidence that the addition of ditophal to dapsone

treatment increased the rate of improvement, clinically, histologically or bacteriologically, in this type of leprosy which, because it is so unstable, appears unsuitable for formal clinical drug trials. Although the majority of the patients included were light-skinned Chinese no contact dermatitis nor other toxic effect of ditophal was observed.

6. **Experimental Infection of the Golden Hamster with** *Mycobacterium leprae*, by M. F. R. WATERS and JANET S. F. NIVEN. *Internat. J. Leprosy*, 1965, **33**, 3, 297–315.

Forty-eight golden hamsters, inoculated in the left ear and left testis with living suspensions of *M.leprae* and in the right ear and right testis with heat-killed suspensions, were maintained for 5–22 months. Sixteen of the 23 left ears examined histologically showed typical intracellular acid-fast micro-organisms in a variety of cell types. However, of 28 pairs of testes examined histologically, in only one left testis were intracellular mycobacteria found. Bacteriologically, acid-fast bacilli were recovered from suspensions prepared from nine left testes out of 19 pairs of testes examined, and these positive suspensions were used to attempt passage to 18 hamsters. After 18 months, 6 of 8 first passage ears examined histologically showed intracellular mycobacteria in sites similar to those found in the primary inoculation animals. Homogenates from nine other ears contained acid-fast bacilli, and counts on four confirmed a ten-fold increase, although the yield never exceeded 10^6 bacilli. It is concluded that a limited multiplication type of infection has been achieved in the hamster ear, but not in the testis, analogous to that described by Shepard in the mouse footpad.

7. *Mycobacterium leprae:* **Viability at 0°C, 31°C, and during Freezing,** by CHARLES C. SHEPARD and DOROTHY H. McRAE. *Internat. J. Leprosy*, 1965, **33**, 3, 316–23.

1. At 0°C (in crushed ice) suspensions of *M.leprae* in 0.1% bovine albumin balanced salt solution maintained their viability (as measured by their ability to multiply in mouse foot pads) with little change for about two weeks. There was a distinct loss in viability after three to four weeks.

2. At 31°C in bacteriological media containing about 1% bovine albumin and 0.2 M sucrose, *M.leprae* maintained viability with little change for two weeks.

3. Freezing and storage at —60°C caused serious losses in viability under most conditions. However, in the presence of 10% glycerol, losses of viability were sometimes only moderate (estimated as about five-fold).

Temperature Optimum of *Mycobacterium leprae* **in Mice,** by CHARLES C. SHEPARD. *J. of Bacteriology*, Nov., 1965, **90**, 5, 1271–5.

Mycobacterium leprae multiplied most rapidly in foot pads of mice kept at an air temperature of 20°C. At air temperatures of 15° and 25°C, bacillary multiplication was slightly slower; at 10° and 30°C, distinctly slower; and at 4° and 35°C, no bacillary multiplication was detected. The temperature of the foot pad tissues of mice kept at an air temperature of 20°C averaged 27° to 30°C and that of mice kept at 10° and 30°C averaged about 25° and 36°C, respectively. These measurements indicate that the optimal temperature for the growth of *M.leprae* in mice is in the range several degrees above and below 30°C. The comparative effect of different air temperatures on the growth of *M.leprae* in foot pads was very similar to that found earlier for *M.leprae* in this site, thus indicating that the potential growth of *M.leprae in vitro* might have a similar optimum of *M.marinum in vitro*, i.e., 25° to 35°C. The optimal temperature for the growth of *M.leprae* appears to be the same in mice as in humans. It is pointed out that the temperature optimum of *M.leprae* may be a reflection of the fact that most of the bacilli being excreted into the environment, where they may reach new hosts, have multiplied in the nasal mucosa, a cool tissue.

9. **Treatment of Acute Falciparum Malaria with Diphenylsulfone in North-East Tanzania,** by A. B. G. LAING. *J. Trop. Med. & Hyg.*, 1965, **68**, 10, 251–3.

Diphenylsulfone (DDS) was used in single doses of 200 mg. (and proportionately less for children under 12 years) to treat forty semi-immune African patients suffering from acute falciparum malaria in north-east Tanzania. There were five failures and, in addition, two recrudescences. The average duration of a sexual parasitaemia was 3.2 days and fever 2.4 days. Dissection of mosquitoes fed on one of the patients showed that the drug lacked sporontocidal properties against *P.falciparum*. It is considered that although diaphenysulfone is not a reliable drug for treating acute malaria, its antimalarial properties do merit a place in malaria chemo-therapy, particularly as a potentiator of other drugs such as pyrimethamine.

Influence of Repeated Lepromin Injections on the Mitsuda Skin Reaction, by B. BEIGUELMAN, R. QUAGLIATO and D. PIRES DE CAMARGO. *Internat. J. of Leprosy*, 1965, **33**, 4, 795–9.

A sample of 1,251 healthy leprosy contacts, not reacting macroscopically to lepromin, was injected a second time with lepromin. Of these, 834 were vaccinated orally with BCG after the first lepromin test. The remaining 417 were not vaccinated and were used as controls. No difference was found between the groups in the proportion of macroscopically positive late lepromin reactions revealed by the second test. The results suggest that lepromin has a sensitizing effect of short duration.

11. **Nature and Familial Character of the Lepromin Reactions,** by B. BEIGUELMAN and R. QUAGLIATO. *Internat. J. of Leprosy*, 1965, **33**, 4, 800–7.

The distribution of lepromin and Mantoux reactions was investigated in a randomized sample of 100 families living in a Brazilian rural area (Cosmopolis, State of São Paulo). A census was conducted in the studied area prior to the sampling order to include only white, complete, unrelated families of larger size.

Analysis of the data collected supports the following hypotheses:

1. The early lepromin reaction may be considered as an allergic response to leproproteins contained in lepromin.

2. The macroscopically positive late lepromin reaction reflects both the capacity of the subject's macrophages for

lysing leprosy bacilli, and the influence of sensitizing agents stimulating the lysogenic ability of the macrophages.

3. The lysogenic capacity of macrophages probably has a hereditary basis.

12. **The Genetics of Resistance to Leprosy,** by B. BEIGUELMAN. *Internat. J. of Leprosy*, 1965, **33,** 4, 808–11.

The late lepromin reaction was investigated among children of persons with polar, i.e., lepromatous and tuberculoid, types of leprosy. The data secured correspond with the view that the lysogenic capacity of macrophages for leprosy bacilli is a dominant trait, provided that allowance is made for a discrepancy found among children born to parents each of whom is lepromatous. The exception to the postulated inheritance may be ascribed to the influences caused by BCG vaccination, incomplete penetrance of the gene for leprosy resistance and illegitimacy among the offspring of leprosy patients.