Abstracts

1. **Patterns of sensory loss in lepromatous leprosy**, by T. D. SABIN and J. D. EBNER. *Int. J. Lepr.* 1969, **37** (3), 239-48.

At Carville, Louisiana, U.S.A., the authors compared thermographs depicting skin temperature patterns of normal subjects with the configuration of sensory loss to pinprick in a series of patients with lepromatous leprosy, and found that the pattern of sensory loss tends to involve the cooler skin surfaces earliest and then progresses on the basis of relative skin temperature. Thus the limbs are affected first—the dorsa of feet, the lateral aspects of legs, and the dorsal aspects of hands and forearms—whereas the scalp, axillae, intergluteal fold and the inguinal areas are all warm regions that tend to show normal sensation even in far advanced cases.

W. H. Jopling

2. **Double-blind controlled clinical trial of clofazimine in reactive phases of lepromatous leprosy**, by A. B. A. KARAT, A. JEEVARATNAM, S. KARAT and P. S. S. RAO. *Br. Med. J.,* 1970, Jan. 24, 198-200.

A double-blind controlled trial in 24 patients with lepromatous leprosy in reaction showed that clofazimine (B 663, Lamprene) successfully controlled erythema nodosum leprosum and had a useful effect in preventing recurrence once the reaction had been controlled. The dosage of clofazimine was 100 mg 3 times a day, and the authors consider the drug to be safer and more effective than prednisolone. The only side-effect was red/black skin pigmentation, and the patients were willing to accept this in return for relief of symptoms.

W. H. Jopling

3. **Dapsone-resistant *Mycobacterium leprae* in a patient receiving dapsone in low doses,** by S. G. BROWNE. *Int. J. Lepr.,* 1969, **37** (3), 296-301.

A Nigerian man, aged 35 years, suffering from advanced lepromatous leprosy, was treated at the Oji River Leprosy Settlement. The patient's Morphological Index (MI) was 35% initially and the Bacterial Index (BI) 3.3 (maximum 4). Dapsone 50 mg was given twice weekly for 52 months, each dose of the drug being swallowed in the presence of a doctor or a leprosy worker. After 6 months treatment, the MI was 0% and after 35 months "even fragmented bacilli and acid-fast dust were no longer to be seen" in skin smears. After 52 months, small fleshy papules appeared on the skin of the arms and the lumbar region. The histological picture was granulomatous tissue crammed with *Mycobacterium leprae,* 80% of which were morphologically normal. "There was no suggestion of any defect in intestinal absorption" (of dapsone). Apparently normal skin, earlobes and nasal mucosa "remained free from bacilli". Tissue from one of the papules was injected into the footpads of mice receiving dapsone in their diet. Multiplication of *Myco. leprae* was found in 10 out of 12 footpads of mice receiving dapsone 0.006% in their diet, and 6 out of 12 footpads of mice receiving 0.025% dapsone.

The significance of this case history is discussed, including its relevance to field work by medical auxiliaries. Dapsone given in a "low-dose regimen facilitates treatment. . . . On balance, then, the risk of the emergence of resistant strains is most probably outweighed by the undoubted advantage of a reduced rate of complications" (of low dose dapsone). [The rate of excretion of dapsone varies widely and may be very rapid. Now that the minimum inhibitory concentration of dapsone for *Myco. leprae* is known approximately, a rational discussion of

dapsone dosage and treatment intervals in relation to maintaining satisfactory anti-bacterial blood levels would have added to the value of this paper. That alternative low dosage regimens are rational, such as 10 or 25 mg daily, 50 mg thrice weekly or 75 or 100 mg twice weekly, should be more widely known.]

C. S. Goodwin

The following 3 abstracts are reprinted, with permission, from *Trop. Dis. Bull.,* 1970, **67**, 10:

4. **Die Verbreitung der Lepra in Spanien und die seit 1948 durchgeführten Bekämpfungsmassnahmen** by E. H. FINK. (Prevalence of leprosy in Spain and control measures since 1948). *Ztschr. Tropenmed. Parasit.,* 1970, **21**, No. 2, 135-46.

The English summary appended to the paper is as follows:—

"By assessment of epidemiological and clinical data a general account of leprosy prevalence in Spain is given as it has evolved since a campaign to eradicate this disease was started in 1948:

"About 5000 leprosy patients are registered with the Health Authorities in Madrid; more than 1200 of them are considered sufficiently treated and cured, and more than 500 show acid-fast bacilli on bacterioscopic examination. These cases are distributed over four endemic areas, namely (arranged in the order of decreasing importance) Andalusia, the Levant Provinces from Alicante to Barcelona, the Canaries, and Galicia, a region north of Portugal. Since the prevalence of active cases has not shown any striking changes during the last 10 years, a consolidation phase—as defined by WHO criteria—has probably been achieved. Nevertheless, eradication of leprosy in Spain is not to be expected in the immediate future as indicated by the annual incidence. During recent years, an increasing number of early cases, i.e. within 1 or 2 years after the first clinical manifestations, have been detected.

"The institutions taking part in the campaign and their activities are described. Despite the low infectivity of leprosy, exchange of information between the Public Health Authorities of neighbouring European states is recommended. This would also confer advantages on those patients moving from one country to another as far as uninterrupted medical care is concerned."

5. **Nodular vasculitis-like lesions as the initial manifestation of leprosy**, by O. CANIZARES and R. ANDRADE. *Derm. Int.,* 1969, **8**, Nos. 2/4, 50-56.

This is a description of a Puerto Rican woman with skin lesions similar to the erythema nodosum leprosum (ENL) seen in lepra reaction, together with oedema of feet, lower legs and hands. These clinical signs first appeared 9 months previously, when she was pregnant, the lesions at that time being confined to the legs but later extending to other parts such as the skin of thighs and forearms. Macules on the trunk were diagnosed as tinea versicolor. There were no neurological signs; smears from the lesions and from nasal mucosa were negative for acid-fast bacilli, and the lepromin test was negative. Biopsies from the lesions showed a diffuse inflammatory infiltrate consisting of histiocytes, many of them vacuolated, a few lymphocytes and fewer plasma cells, together with large numbers of bacilli—the typical features of lepromatous leprosy. The sections showed no evidence of vasculitis. The authors conclude that the erythematous nodular lesions marked the onset of the patient's leprosy—a very rare phenomenon.

[Skin lesions which are bacilliferous on biopsy *always* provide positive smears, and the fact that the authors failed to demonstrate bacilli in smears raises serious doubts with regard to their technique.]

W. H. Jopling

6. **Ethambutoli en el tratamiento de la lepra. Resultados del tratamiento de 20 pacientes durante 12 meses,** by A. SAUL and R. BARCELATA. (Ethambutol in the treatment of leprosy. Results of treating 20 patients for 12 months) *Derm. Revta Mex.,* 1969, **13,** No. 2, 152-60. English summary.

Ten adult men and 10 women suffering from leprosy were treated with ethambutol in a single daily dose of 800 mg per day. Sixteen patients who had the lepromatous form of the disease were treated for 12 months; 3 with the tuberculoid form and 1 with the dimorphic form were treated for 6 months. Seven of the patients had received previous treatment with dapsone. The evolution of the disease ranged from 1 to 20 years. Improvement of the lepromatous lesions, such as disinfiltration of the lesions, flattening and necrosis of nodules and healing of ulcers, was seen after 15 to 30 days. After 12 months, the authors considered that there was clinical cure in 4 of the patients with lepromatous leprosy, improvement in 3 and relapse in 5. Smears remained positive in 9 patients at 12 months. The 3 patients with the tuberculoid form had lost all their lesions at 6 months, and the dimorphic patient appeared to be cured at 12 months. No lepra reaction or side-effects were observed. Since 5 of the patients with the lepromatous form, who were initially much improved, began to show active lesions again after 9 months, it is possible that the bacilli had become resistant to the drug. Accordingly, it is recommended that ethambutol should be combined with dapsone and that further trials should be made.

F. Hawking

The following 2 abstracts are reprinted, with permission, from *Trop. Dis. Bull.,* 1970, **67,** 11:

7. **Hallazgo de bacilos ácidos resistentes en la pulpa dental da pacientes leprosos,** by R. CESPEDES and B. MEONO. (Acid-resistant bacilli in the dental pulp of patients with leprosy) *Acta Méd. Costarric.,* 1970, **13,** No. 1, 105-10.

The English summary appended to the paper is as follows:—

"Eighty-two biopsies from active Hansen's disease removed from dental pulp were studied.

"Ten patients had invasion of the pulpar tissue by acid resistant bacilli with important histopathological changes.

"We emphasize the fact that finding the bacilli in the dental pulp also implies the possibility of finding the bacilli in the dentine with the corresponding histopathological alterations."

8. **Preservation of sensation in a cutaneous vascular malformation in lepromatous leprosy,** by T. D. SABIN. *New Engl. J. Med.,* 1970, **282,** No. 19, 1084-5.

After discussing the evidence for the view that in lepromatous leprosy the cooler areas of the skin contain the greatest numbers of leprosy bacilli and have the most marked sensory loss, the author describes the case of an adult male who commenced treatment for lepromatous leprosy in 1952. By 1967 smears and biopsies become bacteriologically negative but by this time the patient had developed extensive sensory loss, together with weakness of the intrinsic muscles of both hands. However, on testing the hands for sensory loss, it was noted that there was a small island of preserved sensation on the palm of the right hand exactly where he had a congenital capillary vascular malformation. A thermograph demonstrated that this area was strikingly warmer than the surrounding skin. The hypothesis is put forward that during the active phase of the disease the warmth of this area was sufficient to create a relatively unfavourable site for multiplication of leprosy bacilli, thus sparing the intracutaneous nerve endings and networks.

W. H. Jopling

The following 4 abstracts are reprinted, with permission, from *Trop. Dis. Bull.*, 1970, **67**, 12:

9. **Leprosy in the Bible,** by S. G. BROWNE. 20 pp. 1970. London: Christian Medical Fellowship.

In this scholarly study of leprosy in the Bible, the author deals with the Old and New Testaments separately. After quoting from the Old Testament he makes it clear that leprosy was quite unknown in the lands of the Bible at the time of Moses and the patriarchs, and the word *tsara'ath* did not stand for a disease but rather for a social ill characterized by visible skin blemishes, engendering fear and requiring ritualistic cleansing. In the translation of the Old Testament from Hebrew into Greek—the Septuagint—the word *tsara'ath* is replaced by *lepra,* a word representing a generic concept of scaliness and containing no essential idea of ritualistic uncleanliness or defilement. The words *leprosy* and *leprous,* as they appear in the Bible today, are derived from the Vulgate—Jerome's translation of the Septuagint into Latin. Turning to the New Testament and the references to *leprosy* in the Gospels, it is probable that some of these refer to true leprosy, as the disease "certainly existed in Greece, Italy and north Africa at the time of our Lord", but no positive help comes from archaeological findings in Palestine. Finally, the author discusses the present-day role of the Christian missionary in leprosy work, and he suggests that Christ's command to His disciples to "cleanse the leper" be broadly interpreted as "Seek the outcast, the underprivileged, all those who suffer because of society's attitudes. Help them in all ways. . . ."

W. H. Jopling

10. **Prikaz dva novootkrivena slučaja lepre dijagnostikovana u infektivnoj klinici u Beogradu, sa osvrtom na problem lepre u našoj zemlji,** by M. PETROVIC and N. ANDELKOVIC. (Two newly discovered cases of leprosy diagnosed at the clinic for infectious diseases in Belgrade and general aspects of the leprosy problem in Yugoslavia) *Glasn. Zav. Zdrav. Zašt. SRS.,* 1969, **18**, No. 5, 31-45.

The English summary appended to the paper is as follows:—

"In the period 1919 to 1967, 120 cases of leprosy have been reported, 55 of which with fatal issue (lethality 45.8%). The most important focuses of leprosy in our country are in Bosnia, Montenegro and Serbia.

"From 1945 to 1967, 8 cases and another 2 in 1968, were reported in Serbia. During the investigation of leprosy areas in Sandzak, in June 1968, 3 further cases were discovered. Of the total of 13 cases reported in the Socialist Republic of Serbia 10 are males (76.9%) and 3 (23.1%) females.

"Nine cases are from the interior of Serbia, 2 from the Autonomous Province of Vojvodina and 2 from Kosovo. Of the first 9 cases, 4 are from the surroundings of Prijepolje, 1 from Sjenica and 1 from Nova Varos.

"The 2 cases described in this paper are of lepromatous (open) type of autochthonous leprosy. The clinical diagnosis has been confirmed by isolating the *M. leprae* in body secretions and by histopathological findings.

"The source of infection in these cases has been in the family; the focuses of leprosy in our country have subsisted through intrafamilial infection in districts where hygienic and general living conditions are poor.

"The problem of leprosy has not yet been solved in Yugoslavia. The occurrence of even a few cases of the lepromatous type of disease in a region must be considered as a health problem and measures should be taken to assure its solution."

11. **A study of epidermal melanocytes in the hypopigmented patches of leprosy,** by A. NAYAR and C. K. JOB. *Indian J. Med. Res.,* 1970, **58**, No. 2, 187-93.

This investigation was undertaken to determine whether the hypopigmented lesions in leprosy

could be attributed to "a diseased melanocyte system". From 10 patients with indeterminate or tuberculoid leprosy who had flat, hypopigmented, skin macules (group I), and from 10 patients with dimorphous [borderline] or "major tuberculoid" leprosy who had raised "infiltrated", hypopigmented skin lesions (group II), skin biopsies were taken, one from the hypopigmented lesion and one from the "symmetrically opposite side of the body, where the skin showed no obvious change". Epidermal sheets were prepared and stained with buffered dopa solution.

The number of melanocytes in normal skin from the upper and lower limbs varied from 700 to 1885 per mm^2 and from the back, chest and abdomen from 1026 to 2131 per mm^2. In 7 of the 10 patients in group I there was a decrease in the number of melanocytes in the hypopigmented skin compared with the control one, in 5 of these the decrease being statistically significant, and the number ranging from 596 to 1368 per mm^2. In group II in 6 of the 10 patients there was a reduced melanocyte population in the hypopigmented skin lesions, 4 of these showing a statistically significant decrease with numbers ranging from 523 to 962 per mm^2. In 6 of the 20 patients there was an increase in the number of melanocytes, 3 of these being statistically significant. Variations in the intensity of staining of melanocytes, their size, length of dendrites and branching are described and illustrated in 8 microphotographs. No consistent pattern was observed.

The authors conclude that "the majority of the lesions studied showed a reduction in melanogenic activity", and suggest that this is of "etiological significance in the pathogenesis of hypopigmentation in leprosy".

C. S. Goodwin

12. **The sensitivity to dapsone (DDS) of *Mycobacterium leprae* from patients with and without previous treatment**, by C. C. SHEPARD, L. LEVY and P. FASAL. *Am. J. Trop. Med. Hyg.*, 1969, **18**, 2, 258-63.

The sensitivity of these strains of *Mycobacterium leprae* was determined by inoculating 5×10^3 bacilli into the footpads of mice and then administering dapsone in the diet from the day of infection. The amount of dapsone in the diet was 0.0001% and this quantity is calculated to give concentrations in the blood and tissues of 0.02 μg/ml, which is x 100 that present in man on standard doses of the drug. Four months after the day of infection, the number of bacilli in homogenates of the pads of the untreated mice was compared with the number in the treated animals and, if necessary, the counts were repeated at intervals of 2 to 3 months.

All of 11 strains from untreated patients and 6 from patients who had received some treatment with dapsone multiplied in treated mice at a much slower rate than in untreated ones, and these strains were regarded as dapsone-sensitive. By contrast, 15 isolates from 10 patients who had been treated with sulphones for 11 to 20 years (some having started treatment with either sodium glucosulphone or sodium sulphoxone) were regarded as dapsone-resistant, because they grew at approximately the same rate in the treated mice as in the untreated ones. The authors suggest that treatment with the diamino-subsituted forms of dapsone may have contributed to the development of this resistance.

S. R. M. Bushby

13. **Nerve abscess in leprosy**, by K. K. KUNDU. *Bull. Calcutta Sch. Trop. Med.*, 1968, **16**, 131.

A patient suffering from lepromatous leprosy, untreated and of 7 years' duration, presented with peripheral paraesthesiae, widespread enlargement of superficial nerves, and two soft swellings in the right median nerve. The pus evacuated after incision under local anaesthesia contained numerous non-cultivable acid-fast organisms. Histopathological examination of the skin and nerves revealed typical changes characteristic of lepromatous leprosy.

S. G. Browne

14. **Deux cas d'abcès lépromateux aigus du nerf cubital. (Two cases of acute lepromatous abscess of the ulnar nerve)**, by A. CARAYON, J. LANGUILLON, L. MAYDAT, I. FAYE and M. BOURGES. *Bull. Soc. Méd. d'Afrique Noire,* 1969, **14,** 659-661.

The authors describe two examples of acute and localized softening of the ulnar nerve (pseudo-abscess) occurring in patients with histologically-confirmed lepromatous leprosy. In the first, from three separate areas of softening, "pus" containing numerous acid-fast organisms was evacuated, the patient's high temperature falling to normal after the operation. In the second case a single area of softening was seen, in the nerve lodged in the epitrochlear tunnel; the "pus" contained many acid-fast organisms.

In the first patient, the nerve changes occurred during an acute exacerbation; in the second case the "abscess" appeared during a clinical relapse some 20 years after apparent cure.

S. G. Browne

15. **Absorption and excretion of ^{35}S dapsone in dermatitis herpetiformis,** by J. O.'D. ALEXANDER, E. YOUNG, T. McFADYEN, N. G. FRASER, E. P. DUGUID and E. M. MEREDITH. *Br. J. Derm.* 1970, **83,** 620-631.

The possibility that dapsone might be concentrated in inhibitory amounts in the lesions of leprosy, and particularly in the vicinity of *Myco. leprae,* was investigated and reported by K. R. Chatterjee and R. K. Poddar in a paper entitled "Radio-active tracer studies on uptake of diamino-diphenyl-sulphone by leprosy patients" (*Proc. Soc. exp. Biol. Med.* (1957) **94,** 122).

In the present paper Alexander and his colleagues, investigating the metabolism of dapsone in patients suffering from dermatitis herpetiformis, and using modern radiochromatographic techniques, report studies that are of interest to leprosy workers.

They found that the concentration of tagged dapsone was similar in the lesions studied to that in the normal skin; dermatitis herpetiformis, in contrast to leprosy, is an acute disease, characterized pathologically by an early eosinophilic leukocyte reaction progressing to a mild chronic inflammatory infiltrate which heals in a fortnight. However, there was a concentration of isotope in the papillary layer of the upper corium (an area often primarily affected in bacilliferous leprosy), but not in the papillary capillaries. The authors found no evidence that any local concentration of dapsone was necessary for its observed efficacy.

In comparing the isotope findings with chemical estimations of dapsone levels in the serum, the authors found that the latter were less consistent and less reliable than the former. There was considerable individual variation in the serum levels, a fact that may be correlated with the occurrence of cyanosis and methaemoglobinaemia unrelated to the dose given.

The rapid excretion of dapsone indicates a half-life of about 72 h, but the remaining measurable quantity often demonstrable in the serum may be therapeutically effective in the individual patient.

S. G. Browne