

# THE INTRADERMAL LEISHMANIN TEST AS AN EPIDEMIOLOGICAL TOOL

F. F. FENECH

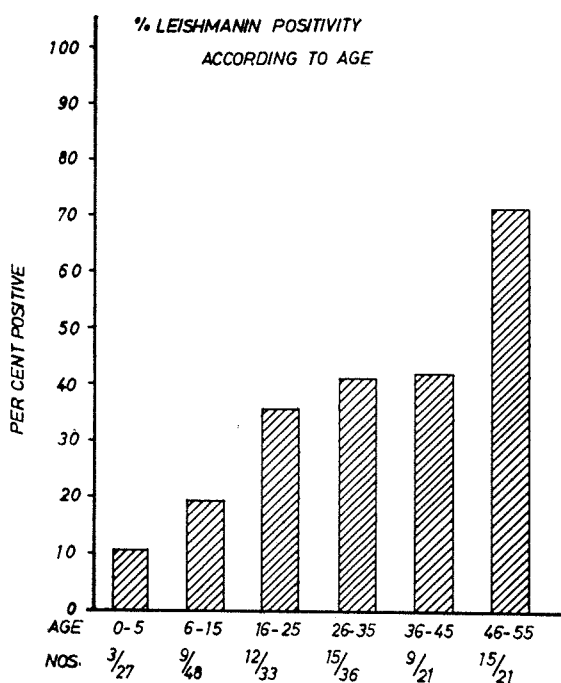
*Department of Medicine, University of Malta*

Malta had been an endemic area for Kala-azar long before Critien made the diagnosis of the first case of infantile leishmaniasis in 1911. There is no doubt that the dramatic drop in the incidence which has occurred since 1948 must be related to the general improvement in sanitation and the standard of housing as well as to such other measures as the suppression of the insect vectors and elimination of the animal reservoir (Cachia and Fenech, 1964). Between 1970 and 1974, the average annual incidence was six cases; however, in 1975, there were 20 cases of Kala-azar, an incidence similar to the 1960 figures. Recent studies by Pampiglione et al (1975) in Italy, have provided further evidence that clinically obvious cases of Kala-azar represent a minority of infected people, the majority developing no symptoms at all or only a few symptoms and a spontaneous recovery. This is not surprising as this state of affairs occurs in other infectious diseases. Manson-Bahr (1961) used the intradermal leishmanin test successfully as an epidemiological tool in his studies on leishmaniasis in Kenya. It is worth noting that the leishmanin test bears a similar relationship to leishmaniasis as does the tuberculin test to tuberculosis. Pampaglione et al (1975) also demonstrated its usefulness in Mediterranean Kala-azar. The purpose of this preliminary study was to confirm the hypothesis that actual cases of Kala-azar are a microfocus of infection in the community as well as to assess the usefulness of this skin test in epidemiological work.

## Material and Results

The household contacts of the 40 cases of Leishmaniasis reported in the years 1972 to 1975 were invited to take part in

the study; however, only 28 families agreed to participate. 186 household contacts as well as 28 recovered cases were tested with a leishmanin preparation provided by Professor Pampiglione of Bologna, Italy. The antigen was injected intradermally into the forearm in a dose of 0.1ml. The size of the reaction was read after 48 hours and an area of induration over 5mm in diameter was considered as positive. A control injection in the opposite forearm was not used.



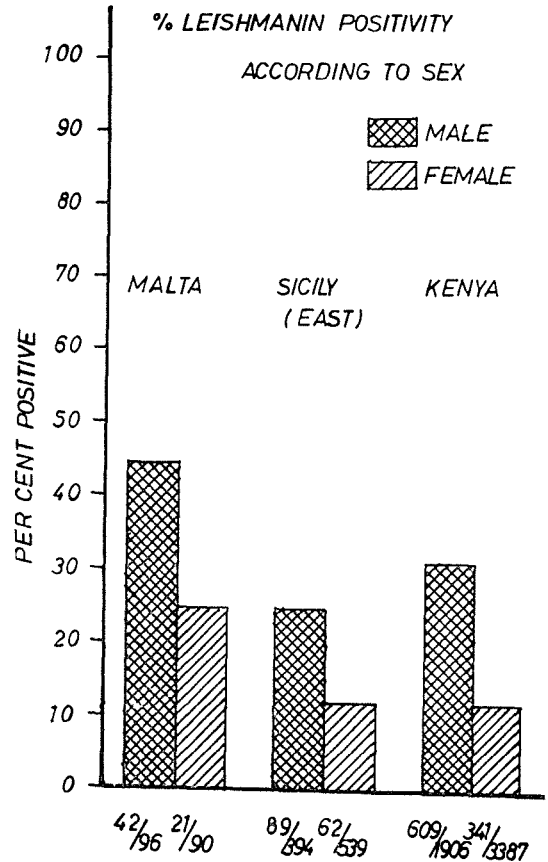
## Discussion

The leishmanin skin test, like the tuberculin test, becomes positive when cell mediated immunity develops. An essential prerequisite for such an event is the presence of leishmania in the body irrespec-

tive of whether or not clinical manifestations have appeared. The percentage of positivity in the various age groups provides information of the degree of distribution of the disease in the community. Figure 1 shows that there is a steady increase in positivity with age, reaching a level of 73% in those over 45 years. The gradual increase in positivity with age does suggest that there has not been a sudden change from a high to a low level of transmission. In such a situation, the development of certain environmental changes such as an increase in the vector or reservoir population could explain the relatively high incidence of Kala-azar in 1975 as compared to the previous years. It is also interesting that the disease is also affecting older patients; in fact, patients over the age of 10 years accounted for 23% of a total of 61 patients in the years 1970 to 1976 as compared to less than 3% in the period 1947 to 1962 (Cachia and Fenech, 1964). It is likely that, whilst in the past most of the adult patients were immune due to subclinical infection, it is less so now. This is borne out by the high leishmanin positivity rate in the over-45-years group as compared to the younger age groups.

Another interesting feature is that whilst the sex of patients does not appear to influence the incidence of the disease (Cachia and Fenech, 1964), there was a definite higher leishmanin positivity rate in male household contacts as compared to females (Figure 11). This is similar to what has been found in other studies in Eastern Sicily (Pampiglione et al, 1975) and Kenya (Southgate and Oriedo, 1967).

It is likely that the leishmanin skin test can prove as useful in the study of the epidemiology of leishmaniasis as the tuberculin test in tuberculosis. Moreover, Pampiglione et al (1976) have also suggested a more practical use for it. As leishmanin positivity develops in asymptomatic cases early and practically at the same time as patients presenting with the clinical illness, the presence of a positive leishmanin test in household contacts associated with a negative test in the ill patient might suggest the diagnosis of



Kala-azar in the affected individual. This observation, if confirmed, has useful diagnostic implications especially when Kala-azar affects adult patients as, in this group, the clinical presentation is very often atypical (Fenech, 1976).

I would like to thank Professor S. Pampiglione for supplying the leishmanin antigen and Professor H. Gilles for helpful advice. My thanks are also due to Drs. R. Ellul-Micallef, A. Caruana Galizia and C. Mallia for all their help.

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