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IMMUNOBLOTTING FOR THE DETECTION OF LYME BORRELIOSIS IN AUSTRALIA

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An indigenous form of LB, indistinguishable clinically from its northern hemisphere equivalent, is quite common throughout the entire eastern seaboard of continental Australia. The suspected vector is *Ixodes holocyclus* which is known to carry fastidious, slow growing borreliae. Although not yet characterized antigenically, it is likely that these spirochaetes are members of the rapidly expanding and antigenically diverse range of *B. burgdorferi* related genospecies associated with LB.

In the absence of direct detection methods for the laboratory confirmation of LB, we investigated the usefulness of immunoblotting (WB) for disease confirmation. Using B31 and two European *B. burgdorferi* strains (ACA-1, NBS-16) as antigen, data are presented for 9 patients representing various forms of LB who, unlike controls, contain antibodies to many, but not all, of the immunodominant antigens. Most notably, patients react with the well-defined 41kDa (flagellin), 31kDa (OspA), often with the 34kDa (OspB) and antigens in the 20-30kDa range (OspC, OspD), thus complying with the criteria established by Dressler *et al* for WB positivity.

Using OspA reactivity as a criterion for positivity, our experience is similar to elsewhere in that a relatively small proportion of LB patients is positive. A survey of 450 likely LB positive sera indicated that only 75 (16.6%) were OspA positive. Of interest, was the finding that only 9 (1.5%) reacted with B31 OspA, while 27 (6%) reacted only to ACA-1 (a European skin isolate) and 40 (9%) were positive to NBS-16 (a Swedish tick isolate). These data suggest that several types of LB borreliae may be co-circulating in Australia.

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MULTISYSTEM INVOLVEMENT WITH LYME BORRELIOSIS IN AUSTRALIA

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Controversy exists in Australia about the presence of an indigenous form of Lyme borreliosis. We will present clinical with supportive immunoblot data on 9 cases (6 female, 3 male) of Lyme-like illnesses acquired in Australia, for which no other cause was found. Average age was 47 years, range 9-67 years. Clinical features were: skin lesions (5 cases); physician diagnosed erythema migrans (2 females); patient reported erythema migrans (2 females); benign lymphocytic infiltration of Jessner-Kanof (1 male); complete heart block in a 52 year old man, requiring permanent pacemaker insertion; pauciarticular arthritis (3 females, 1 nine year old male); clinical signs of neurological abnormalities supported by abnormalities of nerve conduction, nuclear magnetic resonance imaging (3 females), but in all 3 cases who had spinal taps, no abnormalities were detected on cerebrospinal fluid examination. Neurological abnormalities were: bilateral facial nerve palsy (1); retrobulbar neuritis (1); radiculopathy (1). All patients had serum antibodies to outer surface protein A antigen (OspA) on immunoblot testing using European *B.burgdorferi* isolates, but not on testing to B31 strain. We feel, on the basis of these patients, that an indigenous form of Lyme borreliosis exists in Australia and that it produces multisystem involvement as seen in known endemic areas in the northern hemisphere.

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