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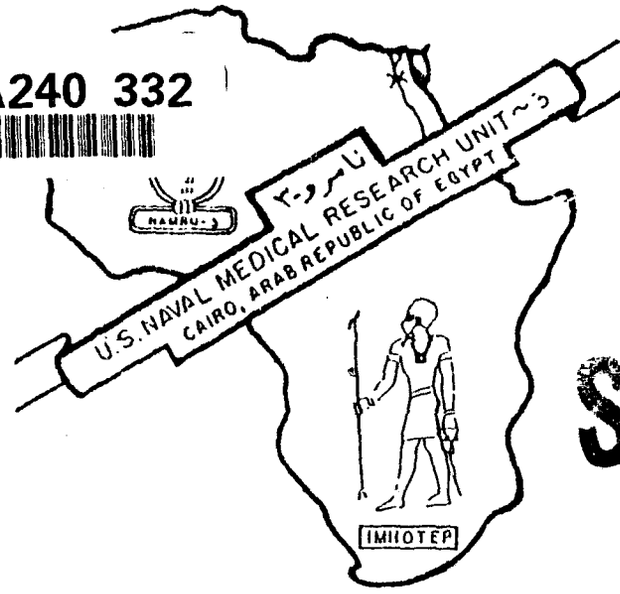

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LYME DISEASE AGENT IN EGYPT?

BY

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Short Report

Lyme disease agent in Egypt?

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We here report our findings after evaluating individuals from various geographical locations in Egypt for exposure to *Borrelia burgdorferi*.

Our initial screening of sera collected from high-risk individuals with fever of unknown origin (FUO) or meningitis and of low-risk individuals (routine blood bank donors) as controls revealed several reactive samples. To our surprise, all reactive samples were from routine blood bank donors living in an isolated oasis of Egypt. We therefore extended our investigation by assaying 61 individuals from this location, all of whom were either blood bank donors or patients at a clinic for dermatological disorders including sexually transmitted diseases (STD). In Egypt, dermatologists generally care for patients with STDs.

A commercially available indirect fluorescent antibody (IFA) assay (Lyme-check, Diagnostic Technology, Hauppauge, New York, USA) for determination of antibodies to *B. burgdorferi* was performed on the sera from 145 patients with FUO, STD and meningitis and from routine blood bank donors. Due to the possibility of false positives resulting from prior syphilis infection (MAGNARELLIA *et al.*, 1987), these sera were also tested by the rapid plasma reagin (RPR) test and the fluorescent treponemal antibody absorption (FTB-ABS) test. All sera positive for Lyme disease by IFA were further characterized by Western blot analysis (BARBOUR *et al.*, 1983) at a dilution of 1:100 with the prototype strain B–31 of *B. burgdorferi*.

Table. Serological results for 14 patients from Fayoum, Egypt[a]

No.	Age	Sex	Group	IFA	RPR	FTA-ABS	Western blot
05	52	M	STD	256	–	–	Strong +
17	39	M	Donor	256	–	–	Strong +
90	28	M	Donor	2048	+	–	Strong +
08	65	M	STD	256	+	–	Moderate +
09	10	F	STD	512	+	–	Moderate +
23	24	M	Donor	512	–	–	Moderate +
28	27	M	Donor	1024	+	–	Moderate +
88	44	M	Donor	256	+	–	Weak +
21	27	M	Donor	2048	+	–	Equivocal
72	24	M	STD	512	–	–	QNS
06	10	M	STD	256	+	–	–
74	45	F	STD	2048	+	QNS	–
79	40	F	STD	256	+	QNS	–
87	30	M	Donor	2048	+	–	–

[a]Abbreviations: IFA, indirect fluorescent antibody assay; RPR, Lyme rapid plasma reagin test; FTA-ABS, fluorescent treponemal antibody absorption test; STD, sexually transmitted disease; QNS, quantity not sufficient for analysis; M, male; F, female; +, positive; –, negative.

Results indicated that none of the 16 meningitis or 68 FUO cases had been exposed to *Borrelia*. Of the 61 individuals from Fayoum, a desert oasis some 80 km south-west of Cairo, 14 (23%) were positive with IFA serum titres ranging from 1:256 to 1:2048 when tested with the Lyme disease agent (Table). Western blot analysis of these sera demonstrated that 8 of the 14 sera had specific reactions to 8–14 protein components of *B. burgdorferi*. Of these Lyme IFA reactive sera, 10 reacted positively to the RPR test; however, all tested were negative by the FTA-ABS test. These RPR-positive sera may represent early stage syphilis, or non-syphilitic disease, but are not likely to be cross-reactions induced by exposure to *B. burgdorferi*, since patients with Lyme disease alone fail to react in the RPR test (HUNTER *et al.*, 1986). However, prior exposure to both *Treponema pallidum* and other *Borrelia* is certainly possible and could explain positive titres to both pathogens. Our data indicate that 8 individuals may have been exposed to *B. burgdorferi* or other species of *Borrelia*. *B. crocidurae* is transmitted by the soft tick *Ornithodoros erraticus* and is widespread in Egypt and other parts of northern Africa (KHALIL *et al.*, 1984). The oasis of Fayoum has a large lake and many potential mammalian and avian hosts inhabit or migrate through the area, where ixodid ticks are also present.

We believe that there is serological evidence suggestive that *Borrelia* infection, and possibly Lyme disease, may be present in this area of Egypt and that further efforts to identify its prevalence, clinical presentation, vectors, animal hosts, and epidemiology are warranted.

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