

Laboratory and Epidemiology Communications

Japanese Spotted Fever in Shimane Prefecture
– Outbreak and Place of Infection

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Japanese spotted fever (JSF, caused by *Rickettsia japonica*) was first discovered by Dr. F. Mahara in Anan City, Tokushima Prefecture, in 1984 (1). Since then, a total of 200 JSF cases have been reported in 10 prefectures. Incidence of this disease has been higher on the Pacific side of the Japanese Islands, from Kagoshima to Chiba (2). However, cases have also been reported, though rarely, from Shimane Prefecture, on the opposite side of the Pacific coast.

A total of 14 cases in Shimane Prefecture have been reported since September 1987 (3). The Table shows the number of cases confirmed by our institute from 1987-1999. Though there were no cases between 1990 and 1994, incidence recurred in 1995.

The outbreaks were geographically restricted to the area surrounding the Misen mountain range on the west side of the Shimane Peninsula (about 6,860 ha in size), where Taisha

Town and Hirata City are located (Figure). It is inhabited by a population of about 46,000.

The outbreak of Tsutsugamushi (scrub typhus, caused by *Orientia tsutsugamushi*) occurred in a different place; along the Chugoku mountain range, which is separated by the Izumo Plain from the above-mentioned JSF endemic area. A total of 47 cases have been reported since 1985; the seasonal peaks were in March-May and October-November. The Tsutsugamushi endemic area is now expanding toward the JSF endemic area. Therefore, irrespective of the residential area, tests for both JSF and Tsutsugamushi should be done.

A total of 2,713 blood specimens were obtained in 1988 and 1989 from residents 40 years of age or older in Shimane Prefecture. The specimens were examined by the indirect fluorescent antibody technique using *R. japonica* YH strain as the JSF antigen. The seropositivity was 0-5% in most areas. However, in areas where cases had been previously reported, it was 6.9%, and in areas where actual infection was supposed to have taken place, it was 11.7%. When blood specimens sequentially obtained (1988-1992) from the same population, in one area, were compared, the positive ratio tended to increase gradually. In sera collected in 1978, long before the discovery of JSF (1984), the antibody was detected (4). The antibody was also detected in wild mice, wild deer, and hunting dogs in the area (5).

In Shimane Prefecture, JSF infection is frequent in May-June and August-October. The seasons correspond to the hatching of ticks and the agricultural activities of farmers. Patient age ranged from that of small children to adults 50-60 years of age. Various species of ticks considered to transmit JSF, such as *Haemaphysalis* spp. and *Ixodes* spp., have been confirmed in the infected areas in Shimane Prefecture.

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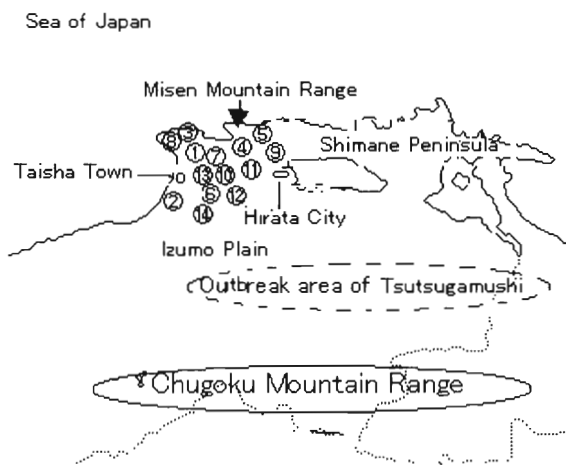


Figure. Places where JSF patients were found. Numbers indicate patient number.

Table. Japanese spotted fever in Shimane Prefecture

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Incidence (number)	1	1	1	0	0	0	0	0	1	3	3	3	1
Patient number*	1	2	3						4	5-7	8-10	11-13	14

*See Figure.

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