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Shigella sonnei Outbreak among Men Who Have Sex with Men in Tokyo

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Shigella spp. are transmitted by the fecal-oral route via contaminated food and water or by person-to-person contact. Shigellosis was first reported as a sexually transmitted disease among men who have sex with men (MSM) in San Francisco in the mid-1970s (1). Since then, outbreaks among MSM have been reported in several countries (2,3). However, until recently, *Shigella* infection among MSM had never been reported in Japan.

Five patients with shigellosis were admitted in The Institute of Medical Science, University of Tokyo (IMSUT) Hospital within a short period between September and November 2011. All these patients were HIV-infected MSM, who had a low to mid-range CD4 T-cell count of between 168 and 415 cells/ μ l. Three had already received antiretroviral therapy (ART). All 5 patients had abdominal pain and watery diarrhea (5–30 times/day), 3 had bloody stools, 4 had fever, and 1 had vomiting (Table 1). *Shigella sonnei* was identified from the stool cultures of all patients. The patterns of suscep-

tibility to antibiotics were identical in all cases. All isolates were susceptible to levofloxacin (LVFX). After receiving a 5-day treatment of LVFX 500 mg/day, 4 patients recovered from diarrhea within several days. Only 1 patient (Patient No. 3) continued to experience diarrhea following the 5-day treatment with LVFX, and received LVFX 500 mg/day for a further 5 days. The mean duration of their symptoms was 10 days (range, 5 to 14 days). This is a little longer than the usual pattern of shigellosis, which usually resolves in a few days with appropriate treatment. Trophozoites of *Entamoeba histolytica* were identified from the stools of one of the patients (Patient No. 2), and metronidazole was added to the treatment. On the basis of our interview, we did not establish any close relationships, such as direct sexual contact, among the 5 patients. Pulsed-field gel electrophoresis (PFGE) of all strains performed subsequently revealed a similar pattern, suggesting a single strain of *S. sonnei* had spread among these MSM.

There are 4 species of *Shigella* (*S. dysenteriae*, *S.*

Table 1. Characterization of 5 MSM patients with *Shigella sonnei*

	Patient no. 1	2	3	4	5
Sex	Male	Male	Male	Male	Male
Age (y)	44	47	34	38	35
CD4 T-cell count (cell/ μ l)	252	392	207	415	168
Antiretroviral therapy	+	+	+	–	–
Self-reported homosexual contact	+	+	–	+	+
Onset	2011/8/31	2011/9/2	2011/10/5	2011/10/12	2011/11/6
Total duration of diarrhea (day)	9	14	11	10	5
Fever	–	+	+	+	+
Abdominal pain	+	+	+	+	+
Bloody stool	+	+	–	+	–
Vomiting	–	–	+	–	–
Treatment	LVFX (500) 5 days	LVFX (500) 5 days	LVFX (500) 10 days	LVFX (500) 5 days	LVFX (500) 5 days

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flexneri, *S. boydii*, and *S. sonnei*) and approximately 60–80% of shigellosis in Japan is due to *S. sonnei*, which is associated with foreign travel (4). Among our patients, none had traveled abroad during the 6 months prior to their illness. Although 1 patient denied having sex with men for several recent months, the other 4 patients had a homosexual contact before the onset of symptoms. In order to prevent an outbreak of *Shigella* spp., practitioners and MSM need to be made aware of the risk of sexual transmission of orally transmitted agents. From 1999 to 2000, we experienced outbreaks of hepatitis A virus (HAV) among HIV-infected MSM (5). HAV was not recognized as a sexually transmitted agent at that time in Japan. The outbreaks of HAV and *S. sonnei* among MSM reported here prompted us to expand the concept of sexually transmitted diseases. We report the first outbreak of shigellosis among MSM in Japan and believe that our findings reinforce the importance of preventative behavior for MSM against sexual-

ly transmitted agents, including *Shigella* spp.

Conflict of interest None to declare.

REFERENCES

1. Dritz, S.K. and Back, A.F. (1974): *Shigella* enteritis venereally transmitted. *N. Engl. J. Med.*, 291, 1194.
2. Marcus, U., Zucs, P., Bremer, V., et al. (2004): Shigellosis—a re-emerging sexually transmitted infection: outbreak in men having sex with men in Berlin. *Int. J. STD. AIDS.*, 15, 533–537.
3. Morgan, O., Crook, P., Cheasty, T., et al. (2006): *Shigella sonnei* outbreak among homosexual men, London. *Emerg. Infect. Dis.*, 12, 1458–1460.
4. National Institute of Infectious Diseases and Tuberculosis and Infectious Diseases Control Division, Ministry of Health, Labour and Welfare (2009): Shigellosis, Japan, 2006–2009. *Infect. Agents Surveillance Rep.*, 30, 311’–312’.
5. Koibuchi, M., Ishida, T., Nakamura, T., et al. (1999): Genetic analysis of outbreak of hepatitis A virus infection among HIV-1 seropositive men. *Jpn. J. Infect. Dis.*, 52, 249–250.