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National Institute of Infectious Diseases and
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Control Division,
Ministry of Health, Labour and Welfare

<THE TOPIC OF THIS MONTH>
Amebiasis in Japan, week 1 of 2007-week 43 of 2016

Amebiasis is caused by the protozoan parasite *Entamoeba histolytica*, transmitted through the fecal-oral route. The parasite is released in the feces as cysts, which may contaminate drinking water or foods. Once the cysts are ingested and reach the small intestine, they undergo excystation and become trophozoites. Trophozoites migrate to the colon and cause mucosal ulcers in 5-10% of infected persons, resulting in "intestinal amebiasis". This condition is associated with dysenteric signs or symptoms, such as mucous and bloody stool, diarrhea, tenesmus (feeling of incomplete defecation) and abdominal pain. Occasionally, the trophozoites migrate hematogenously further to the liver, lung, brain or skin and produce local abscesses resulting in "extraintestinal amebiasis", which is clinically more serious. The World Health Organization estimates that globally several tens of thousands of people die of amebiasis annually.

E. histolytica infects experimental cynomolgus monkey as well as humans. *E. dispar* infects monkeys as well as humans but is nonpathogenic and does not require treatment. While *E. nuttalli* has been detected from Japanese monkeys, its pathogenicity to humans is unknown (see p. 249 of this issue).

Reports under the National Epidemiological Surveillance of Infectious Diseases (NESID) system

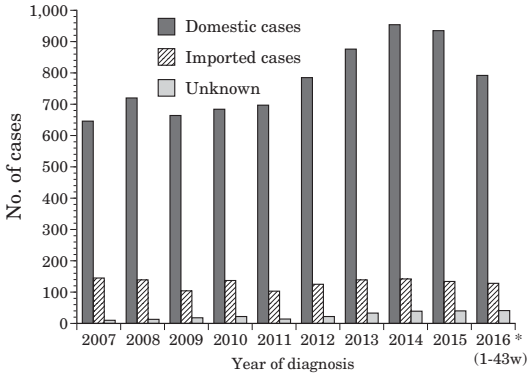
Amebiasis is a category V notifiable infectious disease under the Infectious Diseases Control Law. A physicians who has made a diagnosis of amebiasis (excluding asymptomatic cases) shall notify the case within 7 days (see http://www.nih.go.jp/niid/images/iasr/37/442/de4421.pdf for the notification criteria).

Reports of amebiasis have been increasing in Japan in recent years (IASR 28: 103-104, 2007), and much of this increase has been due to increase in cases infected domestically (Fig. 1). Among 9,301 cases reported from week 1 of 2007 to week 43 of 2016 (as of 23 November 2016), 7,753 cases (83%) were infected in Japan. There were 1,302 cases infected abroad (including 228 cases that had visited two or more countries and 102 cases whose country of travel was unknown), such as in China (179 cases), Thailand (149 cases), Indonesia (139 cases), Philippines (82 cases), India (59 cases), Republic of Korea (53 cases), Vietnam (47 cases), Taiwan (42 cases), and Cambodia (37 cases).

Age and sex distribution: As reported previously, the majority of reported cases were male (IASR 28: 103-104, 2007); among notified cases, 8,181 were male (88%) and 1,120 were female (12%). The median age of cases was 50 years (interquartile range: 41-59 years) for males and 40 years (interquartile range: 31-48 years) for females (Fig.2). Among females, 115 cases were reported in 2007 and 121 cases were reported in 2015. Among males, however, 686 and 988 cases were reported for the respective years (a 1.4-fold increase), indicating that much of the recent increase was in men (see p. 241 of this issue).

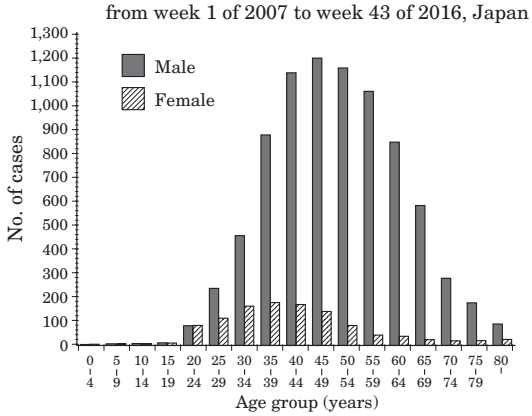
Among 9,301 cases notified during the period, 38 were reported as fatal cases at the time of notification; 37 were male (1 case in his 30s, 5 cases in their 40s, 9 cases in their 50s, 9 cases in their 60s, 8 cases in their 70s and 5 cases in their 80s) and one female in her 70s.

Figure 1. Number of reported amebiasis cases by year, from 2007 to 2016*, Japan



(National Epidemiological Surveillance of Infectious Diseases: as of November 23, 2016)

Figure 2. Age distribution of amebiasis cases by gender, from week 1 of 2007 to week 43 of 2016, Japan



(National Epidemiological Surveillance of Infectious Diseases: as of November 23, 2016)

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Table. No. of reported amebiasis cases, by prefecture, week 1 of 2007-week 43 of 2016

Prefecture	No.cases	Per 1,000,000 person-year	Prefecture	No.cases	Per 1,000,000 person-year
Hokkaido	252	4.66	Shiga	88	6.35
Aomori	46	3.41	Kyoto	222	8.57
Iwate	70	5.35	Osaka	985	11.30
Miyagi	203	8.79	Hyogo	391	7.12
Akita	31	2.90	Nara	108	7.84
Yamagata	51	4.44	Wakayama	48	4.87
Fukushima	136	6.82	Tottori	31	5.36
Ibaraki	125	4.28	Shimane	22	3.12
Tochigi	80	4.05	Okayama	135	7.06
Gunma	96	4.86	Hiroshima	154	5.48
Saitama	361	5.10	Yamaguchi	64	4.49
Chiba	494	8.08	Tokushima	34	4.40
Tokyo	1,862	14.39	Kagawa	63	6.44
Kanagawa	869	9.77	Ehime	59	4.19
Niigata	120	5.14	Kochi	22	2.93
Toyama	50	4.65	Fukuoka	351	7.04
Ishikawa	59	5.13	Saga	35	4.19
Fukui	38	4.79	Nagasaki	57	4.06
Yamanashi	38	4.48	Kumamoto	88	4.93
Nagano	150	7.09	Oita	52	4.42
Gifu	121	5.92	Miyazaki	63	5.65
Shizuoka	213	5.76	Kagoshima	49	2.92
Aichi	581	7.98	Okinawa	46	3.36
Mie	88	4.83	Total	9,301	7.39

*2010 Population Census of Japan

(National Epidemiological Surveillance of Infectious Diseases: as of November 23, 2016)

Clinical types: Among notified cases, 7,763 were intestinal amebiasis, 1,131 were extraintestinal amebiasis and 407 were both intestinal and extraintestinal amebiasis cases. While it was reported previously that the extraintestinal type was more frequently reported among males than among females (20% vs. 12%, respectively) (IASR 28: 103-104, 2007), in the present data (week 1 of 2007-week 43 of 2016), the frequency was comparable, i.e., 12.2% (998/8,181) in males and 11.9% (133/1,120) in females. In recent years, as intestinal amebiasis cases with specific clinical manifestation of colonic mucosa lesions (but otherwise asymptomatic) have been increasing reported in males, the increased detections from colonoscopy may be contributing to the rise in notifications (see pp. 241 & 246 of this issue).

Geographical distribution: As in 2003-2006 (IASR 28: 103-104, 2007), during week 1 of 2007-week 43 of 2016, prefectures with major urban areas, such as Tokyo, Osaka and Kanagawa, reported both the largest number of cases and largest notification rate per million population (Table).

Infection route: Among the 9,301 cases, the presumed infection route was unknown for 49% of all cases (4,521 cases: 3,984 males and 537 females). Infections attributed to oral consumption (e.g. uncooked foods, fresh fruits or water) occupied 22% of the total cases (2,080 cases: 1,778 males and 302 females), though the specific source was not identified in more than 80% of the cases. Sexual transmission occupied 29% of all cases (2,700 cases: 2,419 males and 281 females); among males, infection through heterosexual contacts accounted for 1,090 cases and homosexual contacts for 864 cases, while among females, heterosexual infection accounted for 221 cases and homosexual contacts for 6 cases (for both genders, bisexuals were included in the homosexual contact category). Though amebiasis among men who have sex with men (MSM) have been well known (see p. 242 of this issue) (IASR 28: 103-104, 2007), amebiasis attributed to heterosexual contact is being increasingly reported (see p. 241 of this issue) (IASR 35: 223-224, 2014). Infection of amebiasis among female commercial sex workers (CSW) were reported previously (IASR 24: 81, 2003 & 28: 109-110, 2007), and, among the 1,120 female amebiasis cases, 23 were self-reported CSWs.

Laboratory diagnosis: Definitive diagnosis requires laboratory diagnosis to detect the presence of *E. histolytica* (Laboratory Manual for the Pathogen Detection: http://www.nih.go.jp/niid/images/lab-manual/entamoeva.pdf in Japanese). Among the 9,301 cases notified, 7,549 were diagnosed by detection of ameba by microscopy, 2,500 by antibody detection, 82 by antigen detection by ELISA and 108 by PCR (includes detection by more than one method).

Treatment

Oral administration of metronidazole, which became covered by national health insurance specifically for the treatment of amebiasis since August 2012, is highly effective and the mainstay of treatment of amebiasis (see pp. 243 & 245 of this issue). Paromomycin, which is considered to be effective against cyst carriers, has also been covered by national health insurance since December 2012.

Future challenges

In recent years, reports of non-fulminant amebiasis cases have been increasing (see pp.241 & 248 of this issue). While asymptomatic cases do not require notification, as asymptomatic carriers are potential sources of infection, and some will go on to become fulminant, treatment of such carriers is important. Among domestically infected amebiasis cases, while attention has been paid for amebiasis among MSM, reports of CSW cases (see p. 243 of this issue) continue. The recent increase in notifications of amebiasis caused by heterosexual contacts may be associated with diversification of sexual behaviors in recent years, which may result in the ingestion of cysts. Measures against amebiasis should be considered within a comprehensive framework of control measures against sexually transmitted infections.

The statistics in this report are based on 1) the data concerning patients and laboratory findings obtained by the National Epidemiological Surveillance of Infectious Diseases undertaken in compliance with the Law Concerning the Prevention of Infectious Diseases and Medical Care for Patients of Infections, and 2) other data covering various aspects of infectious diseases. The prefectural and municipal health centers and public health institutes (PHIs), the Department of Food Safety, the Ministry of Health, Labour and Welfare, and quarantine stations, have provided the above data.

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