# EPI-NEWS

NATIONAL SURVEILLANCE OF COMMUNICABLE DISEASES



Editor: Peter Henrik Andersen
Dept. of Epidemiology
Statens Serum Institut • 5 Artillerivej • DK 2300 Copenhagen S

Tel.: +45 3268 3268 • Fax: +45 3268 3874
www.ssi.dk • epinews@ssi.dk • ISSN: 1396-4798


## THE INTESTINAL PARASITE DIENTAMOEBA FRAGILIS


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Dientamoeba fragilis (D. fragilis) is a unicellular intestinal parasite which, in humans, may cause stomach ache, diarrhoea, flatulence, fatigue and in some cases loss of appetite. The pathogenesis and several aspects of the parasite's biology and life cycle remain undetermined; it is, for instance, not known with certainty how humans are infected.

**Occurrence**

Apparently, the parasite does not have cyst stages, and D. fragilis therefore cannot be detected by conventional intestinal parasite diagnosis. The occurrence of D. fragilis in Denmark has not previously been known. By using the SAF method described below, it has been demonstrated that D. fragilis is probably a commonly occurring parasite in Denmark.

**D. fragilis testing of SAF-preserved stool samples**

To determine the trophozoite stages of certain parasites, stool samples can be preserved by adding sodium acetate acetic acid formalin (SAF). Preservation must take place before the sample is sent to the laboratory. After preservation, the trophozoite stages may be identified by specific staining techniques.

In the SSI laboratory of parasitology, SAF-preserved stool samples from patients with suspected intestinal parasitosis were analysed in collaboration with a number of general practitioners. Patients had typically experienced persistent or travel-related diarrhoea. The stool samples were collected and forwarded in two ways: In standard stool containers without preservatives and in containers added SAF. The laboratory compared staining and microscopy results from the SAF-preserved samples and the unpreserved stool samples, which were tested after standard forwarding and processing using the formol-ethylacetate concentration technique (FECT).

A total of 117 paired samples from 103 patients were forwarded. The proportion of parasite-positive patients was 23% and 13% for the SAF and FECT methods, respectively. Table 1 shows the number of species detected in the samples. A total of 12% of the examined patients tested positive for D. fragilis. All positive cases were detected in the SAF-preserved samples, whereas the parasite was not diagnosed by the conventional method. In two of the twelve D. fragilis infected patients, other parasites that required treatment were detected concurrently. All except one of the D. fragilis patients were < 30 years, and in 11 of 14 parasite-positive patients < 30 years the D. fragilis infection was found. The parasite was detected in patients who had become ill in Denmark, as well as in connection with foreign travel.

D. fragilis was the second most frequently detected parasite in the study; the most frequently detected was Blastocystis hominis, the clinical significance of which is unknown.

**Table 1. Parasite species detected by the sodium acetate acetic acid formalin (SAF) and formol-ethylacetate (FECT) methods among 103 patients**

| | Positive patients | | |
|---|---|---|---|
| Species | Trichom-staining of SAF-preserved faeces (trophozoites and cysts) | FECT concentration of unpreserved faeces (cysts) | Ziehl-Neelsen staining on FECT concentrations (oocysts) |
| Blastocystis hominis | 18 | 10 | - |
| Dientamoeba fragilis | 12 | 0 | - |
| Giardia duodenalis s. lamblia | 2 | 2 | - |
| Entamoeba histolytica/ dispar | 1 | 1 | - |
| Cryptosporidium sp. | 0 | 0 | 1 |
| Cyclospora cayetanensis | 0 | 0 | 1 |
| Endolimax nana | 2 | 4 | - |
| Entamoeba coli | 1 | 2 | - |
| Entamoeba hartmanni | 1 | 0 | - |

**Which patients require examination?**

The study indicates that some of the patients presenting with unexplained gastrointestinal symptoms probably have a D. fragilis infection. Consequently, D. fragilis testing is relevant, particularly in connection with investigation of patients with unexplained chronic abdominal pains, irregular bowel habits or other symptoms consistent with intestinal parasitosis. However, forwarding of SAF-preserved stool samples cannot generally replace the forwarding of unpreserved samples which facilitate the use of other diagnostic methods including culture and PCR.

**Comment**

Several studies have demonstrated a correlation between D. fragilis infection and gastrointestinal symptoms. The symptoms generally disappear when treated with metronidazole. Combined, these observations support the view that the D. fragilis parasite is pathogenic.

Studies from other countries have found a day-to-day variation in the shedding of D. fragilis trophozoites. In most cases, the present study tested only one stool sample per patient; consequently the real occurrence may be higher than the observed prevalence. In this study, the total number of parasite-positive samples was higher in the SAF-preserved samples than in conventionally tested samples. This implies that other intestinal parasites may also be under-diagnosed in Denmark, EPI-NEWS 04/06.

In the present study, D. fragilis was common in younger patients and apparently not associated in particular with travelling. However, there is a need for analysis of more substantial and representative materials to further clarify the frequency and disease burden caused by D. fragilis infection.

(R. Stensvold, H.V. Nielsen, M. Arendrup, DBMP, K. Mølbak, Department of Epidemiology)

**EPI-NEWS BY E-MAIL**

In a letter accompanying EPI-NEWS 42/06, all readers were encouraged to subscribe to the e-mail version of EPI-NEWS in future instead of the printed version.

The editor wishes to thank the about 1550 readers who have subsequently chosen to receive the e-mail version of EPI-NEWS only. Currently, the printed version has about 4750 and the e-mail version 4100 subscribers.

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(P.H. Andersen, Department of Epidemiology)

13 December 2006

## Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2006 figures are preliminary)

| Table 1 | Week 49 2006 | Cum. 2006 [1] | Cum. 2005 [1] |
|---|---|---|---|
| AIDS | 3 | 44 | 55 |
| Anthrax | 0 | 0 | 0 |
| Botulism | 0 | 0 | 0 |
| Cholera | 0 | 0 | 0 |
| Creutzfeldt-Jakob | 1 | 23 | 2 |
| Diphtheria | 0 | 0 | 0 |
| Food-borne diseases | 10 | 540 | 550 |
| of these, infected abroad | 1 | 130 | 129 |
| Gonorrhoea | 5 | 403 | 478 |
| Haemorrhagic fever | 0 | 0 | 0 |
| Hepatitis A | 1 | 38 | 60 |
| of these, infected abroad | 0 | 19 | 22 |
| Hepatitis B (acute) | 0 | 19 | 31 |
| Hepatitis B (chronic) | 6 | 298 | 136 |
| Hepatitis C (acute) | 0 | 7 | 1 |
| Hepatitis C (chronic) | 4 | 429 | 304 |
| HIV | 7 | 235 | 256 |
| Legionella pneumonia | 7 | 127 | 108 |
| of these, infected abroad | 0 | 30 | 45 |
| Leprosy | 0 | 0 | 0 |
| Leptospirosis | 0 | 8 | 10 |
| Measles | 0 | 27 | 2 |
| Meningococcal disease | 0 | 66 | 87 |
| of these, group B | 0 | 32 | 40 |
| of these, group C | 0 | 14 | 22 |
| of these, unspec. + other | 0 | 20 | 22 |
| Mumps | 0 | 16 | 8 |
| Neuroborreliosis | 1 | 86 | 89 |
| Ornithosis | 0 | 11 | 20 |
| Pertussis (children < 2 years) | 1 | 49 | 140 |
| Plague | 0 | 0 | 0 |
| Polio | 0 | 0 | 0 |
| Purulent meningitis | | | |
| Haemophilus influenzae | 0 | 3 | 4 |
| Listeria monocytogenes | 0 | 7 | 2 |
| Streptococcus pneumoniae | 0 | 73 | 105 |
| Other aethiology | 0 | 10 | 17 |
| Unknown aethiology | 0 | 17 | 17 |
| Under registration | 2 | 29 | - |
| Rabies | 0 | 0 | 0 |
| Rubella (congenital) | 0 | 0 | 0 |
| Rubella (during pregnancy) | 0 | 0 | 0 |
| Shigellosis | 3 | 62 | 105 |
| of these, infected abroad | 3 | 52 | 83 |
| Syphilis | 0 | 68 | 118 |
| Tetanus | 0 | 2 | 2 |
| Tuberculosis | 6 | 380 | 406 |
| Typhoid/paratyphoid fever | 0 | 26 | 33 |
| of these, infected abroad | 0 | 24 | 31 |
| Typhus exanthematicus | 0 | 0 | 1 |
| VTEC/HUS | 3 | 137 | 150 |
| of these, infected abroad | 1 | 47 | 54 |

[1] *Cumulative number 2006 and in corresponding period 2005*

## Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received in SSI laboratories

| Table 2 | Week 49 2006 | Cum. 2006 [2] | Cum. 2005 [2] |
|---|---|---|---|
| Bordetella pertussis (all ages) | 4 | 211 | 477 |
| Gonococci | 1 | 396 | 432 |
| of these, females | 0 | 69 | 45 |
| of these, males | 1 | 327 | 387 |
| Listeria monocytogenes | 1 | 53 | 40 |
| Mycoplasma pneumoniae | | | |
| Resp. specimens [3] | 25 | 496 | 1032 |
| Serum specimens [4] | 12 | 397 | 768 |
| Streptococci [5] | | | |
| Group A streptococci | 2 | 131 | 94 |
| Group B streptococci | 1 | 89 | 75 |
| Group C streptococci | 0 | 20 | 25 |
| Group G streptococci | 1 | 136 | 108 |
| S. pneumoniae | 17 | 889 | 1029 |
| **Table 3** | **Week 47 2006** | **Cum. 2006 [2]** | **Cum. 2005 [2]** |
| Pathogenic int. bacteria [6] | | | |
| Campylobacter | 63 | 2978 | 3514 |
| S. Enteritidis | 6 | 539 | 615 |
| S. Typhimurium | 9 | 385 | 522 |
| Other zoon. salmonella | 12 | 647 | 529 |
| Yersinia enterocolitica | 3 | 190 | 223 |
| Verocytotoxin-producing E. coli | 4 | 138 | 141 |
| Enteropathogenic E. coli | 7 | 260 | 251 |
| Enterotoxigenic E. coli | 19 | 229 | 347 |

[2] *Cumulative number 2006 and in corresponding period 2005*

[3] *Resp. specimens with positive PCR*

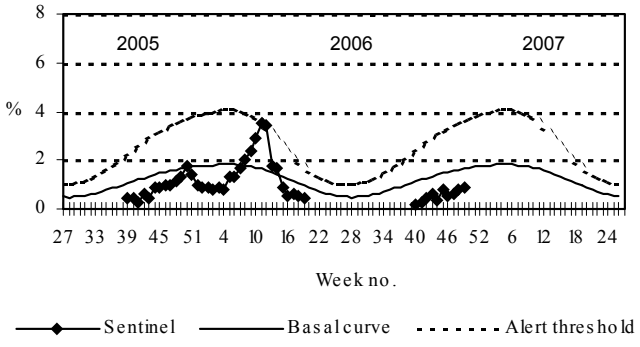
[4] *Serum specimens with pos. complement fixation test*

[5] *Isolated in blood or spinal fluid*

[6] *See also www.germ.dk*

## Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2005/2006/2007




Sentinel: Influenza consultations (as percentage of total consultations)

Basal curve: Expected frequency of consultations under non-epidemic conditions

Alert threshold: Possible incipient epidemic

13 December 2006