

# TRICHINELLOSIS OUTBREAK IN LITHUANIA, UKMERGE REGION, JUNE 2009

A Bartuliene (a.bartuliene@ulpkc.lt)<sup>1</sup>, R Liausediene<sup>1</sup>, V Motiejuniene<sup>2</sup>

1. Centre for Communicable Disease Prevention and Control, Vilnius, Lithuania

2. Ukmerge department at the Vilnius Public Health Centre, Ukmerge, Lithuania

This article was published on 24 September 2009.

Citation style for this article: Bartuliene A, Liausediene R, Motiejuniene V. Trichinellosis outbreak in Lithuania, Ukmerge region, June 2009. Euro Surveill. 2009;14(38):pii=19336. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19336>

An outbreak of trichinellosis due to wild boar meat was detected in Lithuania in June 2009. The outbreak affected 107 people all of whom had consumed sausages made of wild boar meat. Inspection of food samples confirmed the presence of *Trichinella* larvae in the meat.

### Background

Several human cases of trichinellosis are reported in Lithuania every year. Between 1999 and 2008, a total of 359 cases were registered, including 66 sporadic cases and 42 outbreaks. During these ten years the incidence of trichinellosis decreased from 1.7 to 1.2 cases per 100,000 population [1].

The epidemiological investigations show that human trichinellosis in Lithuania is mostly spread by consumption of meat from infected pigs and wild boars. Of all outbreaks reported from 1999 to 2008, 58% occurred due to consumption of meat from home-raised pigs, 10% due to infected wild boar meat and about 8% due to illegal sale of meat. Some 24% of outbreaks were unexplained.

### Outbreak investigation

On 11 June 2009 the Lithuanian Centre for Communicable Disease Prevention and Control received an urgent report about five suspected cases of human trichinellosis in Ukmerge municipality. An epidemiological investigation was started on the same day in order to determine the extent of the outbreak, identify its source and propose control measures. The investigations involved specialists from the Ukmerge department at Vilnius public health centre and the Ukmerge district State Food and Veterinary service.

### Case finding

A standardised questionnaire was used to collect information on the clinical features, date of onset of symptoms, consumption of meat products, and dates and places of meat purchase. Investigation of the first cases quickly revealed that they had consumed homemade sausages from wild boar.

A **confirmed case** was defined as a person with the following clinical symptoms: fever (> 38 °C), with myalgia, or facial or orbital oedema, who had consumed homemade sausages from wild boar, produced on 16 May 2009, and had positive serology for *Trichinella*. A **probable case** was defined as a person with the following clinical symptoms: fever, myalgia, facial or orbital oedema, or hypereosinophilia, who had consumed homemade sausages from wild boar, produced on 16 May 2009. A **suspected case** was defined

as a person with hypereosinophilia alone or associated with fever, myalgia or orbital oedema, who had consumed homemade sausages from wild boar, produced on 16 May 2009.

Patients and their family members were interviewed and active finding of persons who had consumed suspected meat was implemented after receiving an urgent report from a personal healthcare institution (general practice and hospital) about a suspected case of trichinellosis. Active case finding was started every time a healthcare institution reported a suspected trichinella case. Persons who had consumed suspected meat were referred to their local healthcare institutions for laboratory examination and medical observation. Blood samples were tested for eosinophilia and serological investigations for antibodies against trichinellosis were performed by ELISA.

### Food investigation

On 11 June the State Food and Veterinary service collected the remainder of wild boar sausages (13.4 kg produced from several animals) from hunters and their family members and tested them for trichinellosis. The food samples were tested using the artificial digestion method.

### Results

#### Human cases

As a result of the investigations, it was established that 128 persons had consumed sausage made from wild boar meat suspected as the source of infection. Of these, 107 people were considered to have been affected by the outbreak. Fourteen cases (13.1%) were laboratory-confirmed, the remaining 93 (86.9%) were regarded as probable cases fulfilling clinical and epidemiological criteria. Blood serological reactions for the detection of antibodies against *Trichinella* were performed three to four weeks after meat consumption. It is presumed that this time was too short for finding antibodies against *Trichinella*, which can explain the relatively small proportion of confirmed cases.

The first patient fell ill on 20 May; the last case was detected on 26 June (Figure 1). The outbreak lasted 37 days. The shortest incubation period was five days and the longest was 25 days.

Most cases were reported from Ukmerge municipality but the infection spread beyond this region, affecting six municipalities in total (Table).

The majority of cases were adults (88.8 %), only 12 cases in children were registered (Figure 2).

The main clinical symptoms were: fatigue (100%), nausea (94.6%), fever (91.6%), muscular pain (88.2%), facial oedema (52.3%), orbital oedema (94.6%), and haemorrhagic rash of the skin (14.6%). Eosinophilia was found in all patients. The clinical symptoms of disease were serious in five cases (4.7%), medium in 50 cases (46.7%) and mild in 52 cases (48.6%). A severe course of disease was defined by fever higher than 39 °C, face swelling, pain of neck, shoulders and trunk, myalgia, and neurological complications (lethargy, apathy and excitement). A medium course of disease was defined by fever of up to 39 °C, orbital oedema and

lesser myalgia. A mild course of disease was defined by subfebrile temperature and insignificant orbital oedema.

Fifty-five patients (51.4%) were hospitalised. The patients were treated by mebendazole. Corticosteroids were administered for patients with a severe and medium course of disease. All patients were followed up after treatment and all recovered. Persons with a severe or medium course of disease will be followed for six months by their local healthcare institutions. For these patients, an assessment of eosinophilia and myalgia will be done regularly.

#### Food source

On 12 June the laboratory department of the State Food and Veterinary Risk Assessment Institute found *Trichinella* pathogens in the collected sausage samples. In 1g of meat about 20 larvae were found. The samples will be sent to Italy for the determination of the *Trichinella* type.

#### Conclusion

The source of infection was identified to be wild boar meat. Several wild boars were hunted on 10 May 2009 in Ukmerge region. The meat was not inspected for the presence of *Trichinella*. On 16 May 2009, 50 kg of cold-smoked sausages were produced from the wild boar meat in a joint stock company 'Alekniskis'. The sausages were not produced for trade but only for private consumption. The sausages were distributed to huntsmen who ate this meat themselves and distributed it further among their family members, neighbours, relatives and acquaintances.

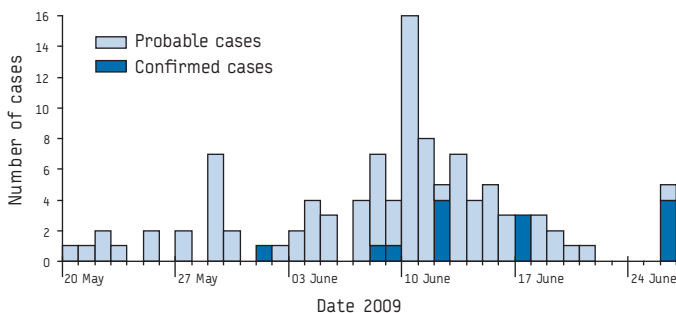
It is believed that a large number of cases were due to the significant invasion of *Trichinella* larvae in the meat.

Wild boar meat is the second most common cause of trichinellosis in Lithuania. Another larger outbreak had been registered in 2001, in which 65 persons fell ill with trichinellosis (69 cases or 65% of all cases in 2001). Investigations performed in 2000-2002 showed that about 0.5% of wild boars in Lithuania are infected with *Trichinella* [2]. The infected animals are evenly distributed in the whole country. Therefore the meat of wild boar remains an important source of infection in Lithuania.

According to legislation in Lithuania all slaughtered pigs and hunted wild boars must be examined for *Trichinella*. Presently there are two methods used to detect *Trichinella* in meat: trichinostomy (compressorium) and artificial digestion method. Epidemiological data suggests that in spite of these regulations, consumption of uninspected meat still occurs. Therefore, intensive public education, especially for small pig breeders and hunters, is needed in order to prevent human trichinellosis in Lithuania.

**FIGURE 1**

Cases of trichinellosis reported in an outbreak in Lithuania, May-June 2009, by date of disease onset (n=107)



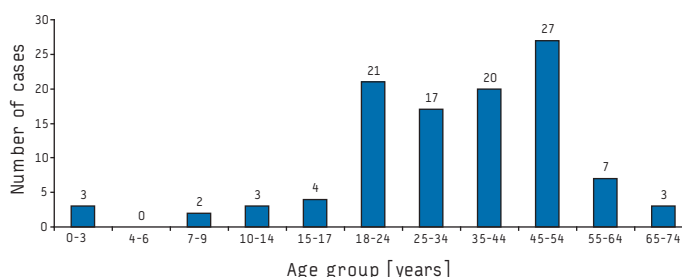
**TABLE**

Geographical distribution of cases of trichinellosis, Lithuania, May-June 2009, by municipality (n=107)

Municipality	Number of cases (%)
Ukmerge	56 (52.3%)
Vilnius	9 (8.4%)
Kaunas	16 (15.0%)
Kedainiai	21 (19.6%)
Jonava	4 (3.7%)
Zarasai	1 (0.9%)
<b>Total</b>	<b>107 (100%)</b>

**FIGURE 2**

Age distribution of cases of trichinellosis, Lithuania, May-June 2009 (n=107)



#### References

1. Lithuanian Centre for Communicable Disease Prevention and Control. Statistical report form N 4 Morbidity of infectious diseases. Lithuanian. Available from: <http://www.ulpkc.lt/ulpkc.ataskaitos.php>
2. Bartulienė A, Jasulaitienė V, Malakauskas A, Marcinkutė A, Virbalienė R. Trichineliozės epidemiologinės ir epizootologinės priežiūros ir kontrolės bei diagnostikos, gydymo ir persirgusiųjų stebėjimo metodinės rekomendacijos. [Methodical guideline for trichinellosis epidemiological and epizootological surveillance and control, diagnostics, treatment and monitoring of recovered patients]. Vilnius: Lithuanian Centre for Communicable Disease Prevention and Control; 2003. Lithuanian. Available from: <http://www.ulpkc.lt/tekstai/teises%20aktai/trich.doc>