Human case of swine influenza A (H1N1), Aragon, Spain, November 2008

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A human case of swine influenza A (H1N1) in a 50-year-old woman from a village near Teruel (Aragón, in the north-east of Spain), with a population of about 200 inhabitants, has been reported in November 2008.

On 8 November 2008, a 50-year old woman developed fever, cough, extreme tiredness, myalgia, irritation of the nasal/oral mucosae and shivers of sudden onset. During a medical visit on 12 November 2008, the general practitioner (GP) who treated the case and is a member of the sentinel influenza surveillance system, took a throat swab sample and sent it to the Microbiology Laboratory of the Miguel Servet University Hospital in Zaragoza, Aragón in the context of the Spanish Influenza Surveillance System. The patient, with no history of recent travel, did not need specific treatment or hospitalisation and recovered fully.

Epidemiological investigation

The case worked on a family swine farm and had direct and close exposure to pigs. No other family members or co-workers reported flu-like symptoms before or after this case and no symptoms were observed in the pigs. However, the GP who took the throat swab sample reported influenza-like illness (ILI) after visiting the patient. No samples from the GP were taken at that time.

A low level influenza activity, with no activity for the geographical spread indicator, was reported in Spain and specifically in the province of Teruel during week 46/2009 when the case was notified. The GP did not report any other influenza case for the whole season up to week 53.

After the initial report of a possible case of A(H1N1) of swine origin from the National Influenza Reference Laboratory on 13 January, the following actions were taken: an active surveillance was implemented on site, including collection of blood samples for serological investigations from the case, the treating physician and the four household contacts of the case on January 20. Informed consent was required from all of them and a specifically designed questionnaire was used to interview the six mentioned people. So far, no more cases related to the farm have been detected.

Following the requirements of the International Health Regulations (IHR, 2005), this event was notified to the World Health Organization (WHO) as a human case of influenza caused by an influenza virus different from those circulating in humans.

Laboratory investigation

Respiratory secretions were first inoculated in cell cultures (MDCK) at the Microbiology Laboratory of the Miguel Servet University Hospital. The cell cultures were positive for influenza A virus, but the assays routinely used in this laboratory (immunofluorescence with monoclonal antibodies and PCR assay) failed to subtype the virus. After consulting the National Influenza Reference Laboratory (National Influenza Centre-Madrid, Instituto de Salud Carlos III, Spain) the specimen and influenza isolate were sent to this laboratory for further characterisation. Different PCR approaches allowed to partially sequence and identify the haemagglutinin gene. On 13 January, 2009, the Reference Laboratory reported an influenza A subtype H1 phylogenetically close to the human isolate A/Switzerland/8808/2002 of swine origin [1] indicating a sporadic human infection of possible swine origin.

Other genes (NA, M, NP and NS) were also sequenced and analysed, which confirmed that the influenza A virus was phylogenetically related to swine H1N1 viruses. Partial sequences of the five genes have been submitted to the GenBank database (accession numbers from FJ713784 to FJ713788)PPB. Avian-like H1N1 swine influenza viruses are enzootic in the swine population of Western Europe. In order to undertake a serological survey and further virological studies the virus is being propagated in embryoned hen eggs.

Discussion

The epidemiological and virological information points towards a human infection with an influenza virus of swine origin in a person with professional exposure to pigs. No further cases have been identified amongst family members or fellow workers. Sporadic human infections due to influenza viruses of swine origin have been described previously, mostly in young persons (<25 years) in contact with pigs [2-4]. Transmission to humans for unknown reasons seems to be inefficient. Although it is expected that similar

cases could appear in the future this event could not be considered unexpected. All these considerations have led us to investigate this case in order to contribute to a better knowledge of the interaction between swine and human influenza.

The treating physician reported mild influenza-like symptoms after contact with the patient. Based on the available information, human to human transmission could not be confirmed. Ongoing serological studies may be of help to determine whether further transmission of the swine virus has taken place. Human to human transmission has been reported before; however in these cases transmission was limited to one generation [5].

To conclude, this event cannot be considered unexpected and does not pose a public health risk which would require specific public health measures.

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