TRICHINELLOSIS TODAY: DIAGNOSIS

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Trichinellosis is a foodborne zoonosis caused by the parasitic nematode Trichinella which is characterized by an extremely wide host range and geographical distribution. Nowadays, nine different species are recognized, distinguished in two clades: encapsulating species (including Trichinella spiralis, Trichinella nativa, Trichinella britovi, Trichinella nelsoni, Trichinella murrelli and the recently described Trichinella patagoniensis) and non-encapsulating species (Trichinella pseudospiralis, Trichinella papuae and Trichinella zimbabwensis) and at least four genotypes.
By multiplex-PCR carried out from one single muscle larva it is possible to identify the species.
Three trichinellosis outbreaks occurred in Italy, during the last years, one in the Sardinia island in 2011, one in the Tuscany region in 2012, which involved 6 and 34 people who had consumed raw pork from a free-ranging pig and from a hunted wild boar, respectively. In both outbreaks, the etiological agent was identified as Trichinella britovi, and finally, one in Liguria region in 2014.
The Sardinia Island was considered Trichinella-free up to 2005 when two outbreaks of trichinellosis (one in 2005, involving 19 subjects and another in 2007) were documented for the consumption of raw pork from free-ranging pigs.
Using the algorithm proposed by Dupouy-Camet and Bruschi (2007) it was possible to verify that all the patients were infected, although one was asymptomatic.
In the Tuscany region, a trichinellosis outbreak (4 patients) had been documented for the consumption of raw pork from a free-ranging pig only once in 1993. During the last outbreak, out of 36 patients who had claimed to have consumed raw sausages, 34 resulted serologically positive, using a validated ELISA test and a Western blot confirmatory test. Out of the 34 serologically positive patients, 33 were symptomatic and one was asymptomatic. Over 89% suffered of fever, more than 60% presented facial oedema, and over 80% eosinophilia and increased serum levels of LDH and CPK. The clinical and laboratory data allowed to re-consider the case definition according to the above cited algorithm.
During an outbreak occurred near Genoa (Italy) in 2014 52 people were involved, out of t4em 38 resulted symptomatic (89% with fever, 74 % with arthromyalgias, 61% with gastrointestinal signs, 29% with night sweats). Only 36 resulted serologically positive, using a validated E.L.I.S.A. Unfortunately, it was not possible to identify the Trichinella species involved, since the infected meat was not collected by public health authority, however, by studying of species-specific cellular immune response, using excretory/secretory (E/S) antigens of Trichinella spiralis or Trichinella pseudospiralis, in one patient we observed a higher response to T. pseudospiralis than to T. spiralis E/S antigens, suggesting that the former may be considered the aetiological agent of infection.
It was the first time that cellular immune response was used to identify the Trichinella species responsible for a human trichinellosis outbreak.