

Epidemiological surveillance for *Trichinella britovi* infection in free-ranging pigs of Sardinia

Cossu P.¹, Pozio E.², Liciardi M.¹, Piroddi R.³, Murgia M.C.¹, Soddu M.¹, Secchi F.⁴, Ludovisi A.², Marucci G.², Marongiu E.¹, Firinu A.¹

¹Istituto Zooprofilattico Sperimentale della Sardegna, Sassari, Nuoro, Cagliari sections, Italy; ²Department of Infectious, Parasitic and Immunomediated Diseases, Istituto Superiore di Sanità, Rome, Italy; ³Assessorato Regionale Igiene e Sanità, Servizio di Prevenzione, Cagliari, Italy; ⁴Servizio Veterinario Ispettivo Alimenti, Azienda Sanitaria Locale, Nuoro, Italy.

Aim of the work. In the past 60 years, no *Trichinella* sp. infections have been reported on the Mediterranean islands. In April and December 2005, two family outbreaks of trichinellosis involving 19 people (11 and 7 people, respectively), were documented in Sardinia. In both episodes, the source of infection was traced back to pork and pork products (sausages) from two free-ranging sows bred in the forest of Orgosolo municipality and clandestinely slaughtered at home. In Sardinia, it is forbidden to raise free-ranging swine because of the presence of both classic and African swine plague. Nonetheless, in remote areas of the island there are thousands of free-ranging pigs. This illegal situation does not allow the evaluation of their number and the veterinary control on them. The unfortunate episodes of human trichinellosis forced the regional and local health authorities to overcome the problem allowing the slaughter of two pigs per family under the veterinary control. The aim of the present work was to investigate on *Trichinella* sp. infection in free-ranging pigs of the Orgosolo municipality.

Methods. Muscle samples (about 40-50 g from diaphragm and masseters) were collected at slaughtering and forwarded to the Istituto Zooprofilattico Sperimentale of Nuoro for *Trichinella* larvae detection by HCl-pepsin digestion according to the Commission Regulation No. 2075/2005. Each digestion was performed pooling 5 g or more of muscle tissue from each pig according the current legislation. *Trichinella* larvae isolated from positive animals and from sausages, which were the source of infection of the two human outbreaks, were identified at the species level by a multiplex-PCR analysis.

Results. Between January and March, 2006, muscle samples from 681 swine were tested; of them, 325 were free-ranging and 356 were bred in small corrals with pigsty. *Trichinella* larvae were detected in four sows (1.2%) from the free-ranging group. The number of larvae per g of diaphragm was: 0.1, 0.9, 4.0 and 34.0. All larvae, including those isolated from the sausages, were identified as *Trichinella britovi*. The age of the infected sows was 2, 2, 9 and 10 years. All infected pigs originated from the same area of the Orgosolo municipality. The two sows of 2 years of age with a very low worm burden (0.1 and 0.9 larvae/g) acquired the infection for the consumption of scraps from the sow, which was the source of infection of the first outbreak.

Conclusions. Sardinia has always been considered "*Trichinella*-free" because of the lack of reports of infection in humans and in domestic and sylvatic animals. The four infected pigs were reared in the same area, where the two pigs, which were the source of infection of the two human outbreaks originated. The extremely localization of these six infected pigs strongly suggest a common origin of the infection not in a distant time. To support this hypothesis, an epidemiological survey to detect *T. britovi* in wildlife (wild boars and foxes) living in the surrounding areas of this focus will be important to trace back the origin of the infection. If the parasite was still restricted to free-ranging pigs living in the focus, there is the chance to be in time to prevent the spread of this zoonotic pathogen among domestic and sylvatic animals of Sardinia. In 2004, one year before the outbreaks occurred in Sardinia, a focus of *T. britovi* was reported in domestic pigs, wild boars, and a red fox in a remote area on the island of Corsica, which was considered to be *Trichinella*-free. The origin of the parasite was not determined. The low level of infection in muscle tissues of pigs of Sardinia poses the question on the sensibility of the test and the amount of muscle tissues, which should be examined to be able to identify the infected ones.