

## EPIDEMIOLOGICAL STUDIES ON *TRICHINELLOSIS* AMONG SWINE, WILD BOARS AND HUMANS IN POLAND

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### Summary :

The introduction of the digestion method (the magnetic stirrer type) resulted directly in the reduction of *Trichinella* sp. infection among people in Poland.

Pork and its products are still the main cause of human trichinellosis in Poland. However, epidemics caused by eating wild boar meat suggested that this way of the transmission of *Trichinella* sp. larvae to humans might be of considerable importance.

**KEY WORDS :** *Trichinella*, wild boar, pig, Poland.

*Trichinellosis* is one the most important parasitic zoonosis in the world. It is still a disease of epidemiological importance in Poland and every year some seropositive cases are found among people (Adenajlo *et al.*, 1993; Duffy *et al.*, 1985). In Poland, the adaptation of an artificial digestion method for pig and wild boar meat (van Knapen *et al.*, 1980; Köhler, 1979) has been introduced in slaughterhouses to prevent human *Trichinellosis* infection. Some questions are connected with the incidence of *Trichinella* sp. infection sources among pigs. The aim of the studies was to investigate the prevalence of *Trichinella* sp. among pigs and wild boars and seropositive cases among people in Poland in the years 1993-1998.

### MATERIAL AND METHODS

In the years 1993-1998 an analysis of data of *Trichinella* occurrence in pork and wild boar meat was carried out, on the basis of annual reports obtained from the Ministry of Agriculture and Food Economy. At that time the total number of 97.193.480 pork and 309.040 wild boar meat samples were examined

for *Trichinella* infection using the artificial digestion method with our adaptation. The *Trichinella* sp. seropositive cases among people were examined by the ELISA test. Between 1993-1997, people in forty-seven foci and fifty individual persons were examined for *Trichinella* antibodies using ELISA.

### RESULTS AND DISCUSSION

Epidemiological studies conducted in Poland between 1993-1998 showed a drop in the number of *Trichinella* cases among pigs and wild boars (Table I). In the years 1997-1998 6.3 times less infected with *Trichinella* pigs and 2.7 times less infected wild boars were found as in the years 1993-1994. The digestion method (the magnetic stirrer type), according to Köhler (1979; 1977) and Ramisz *et al.* (1996), was introduced in Poland in 1987. According to Van Knapen (1980) this method is about three times more sensitive than traditional trichinoscopy.

It should be noted that the introduction of the digestion method resulted directly in the reduction of *Trichinella* infection among humans. In 1997 only 20 *Trichinella* seropositive persons were found. It means that the number of the infected persons is four to five times smaller than in the years 1993-1994 (Table II).

Pork meat is still the main source of human *Trichinellosis* in Poland. In the years 1993-1997 about 75.3 % of clinical cases were caused by the consumption of pork meat or its products. Wild boar meat was the source for 24.7 % of cases of *Trichinellosis*. It is worthy to note that all these clinical cases were caused by meat that had not been examined.

The question is how pigs become infected. The important role of garbage feeding for *Trichinella* infection among swine was emphasised by Kozar *et al.* (1965) in the sixties. Leighty (1983) has analysed the role of garbage feeding in the USA. He has concluded that this type of feeding was responsible for most swine infections in the USA. An analysis carried out in Poland in the years 1983-1986 confirmed that garbage feeding was the main cause of swine trichinellosis, too. *T. spi-*

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Year	Number of wild boars			Number of swine		
	Examined	Infected	%	Examined	Infected	%
1993	56,985	212	0.37	16,678,207	429	0.0026
1994	50,338	251	0.50	14,067,561	465	0.0032
1995	74,348	183	0.25	12,139,975	272	0.0016
1996	51,768	145	0.28	18,257,375	172	0.00094
1997	33,713	105	0.31	17,567,346	75	0.00043
1998	41,868	69	0.16	18,483,016	66	0.00036

TABLE I. – The prevalence of *Trichinella* sp. among wild boars and swine in the years 1993-1998.

Year	Number of foci (number of patients)	Individual infection	Number of seropositive persons	Cause of infection	
				Pork meat	Wild boar meat
1993	16 (74)	15	89	74	26
1994	11 (106)	11	117	96	21
1995	8 (78)	7	85	70	15
1996	10 (33)	8	41	21	20
1997	2 (11)	9	20	15	5

TABLE II. – Epidemiological data on *Trichinella* infection among patients detected by ELISA in Poland in the years 1993-1997.

*ralis* larvae were found in about 70 to 75 % swine fed on the carcasses of breeding foxes.

Large-scale studies in Poland (Seroka, 1997) and in the USA (Ramisz & Balicka-Laurans, 1980) proved that the role of rats in the epidemiology of trichinellosis was overestimated. Studies conducted by Ramisz & Balicka-Ramisz (1996) showed that in some cases rats could be the cause of infection among swine on production farms.

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