Faculty of Veterinary medicine Belgrade, University of Belgrade
Department of infectious animal diseases and diseases of bees
Section of zoonoses of Serbian Veterinary Association

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2. SWINE TRICHINELLOSIS IN SERBIA – LEGISLATION IN RELATION TO THE EUROPEAN UNION

Urosevic I.M., Aleksic Z., Petrovic J., Pusic I., Radovic I., Stojanac N.*

Abstract

Trichinellosis is a cosmopolitan zoonosis, which is among the systemic disease, and in our region is mostly caused by larval forms of roundworm Trichinella spiralis. Based on the actual data on the occurrence of this disease, and numerous scientific research has shown that for several decades Trichinellosis is our reality, and the territory of Serbia is an epidemiological area. Of these reasons, the national veterinary legislation from its inception to the present day, gave trichinellosis a significant place. Nowadays, the Veterinary Law ("Off. Gazette of RS" br.91/2005, 30/2010) obliges the trichinoscopic method of all slaughtered domestic pigs, wild boar, horses and other animals whose meat can this disease transmitte to humans. The importance of this process is emphasized by its appropriation from other diagnostic procedures in Article 16 of the Law, which defines the activities of veterinary ambulance. The Regulations on conditions of facilities, equipment and operating assets, as well as for professional staff to be met by legal entities for carrying out veterinary activities (Off. Gazette RS no. 91/05), highlighted the requirement that a veterinarian who performs trichinoscopic method on the first place must complete specialized training in the relevant scientific institution. Regulations on measures for the Suppression of animal trichinellosis ("Off. Gazette of RS" no. 20/95), among others, in Article 3 lists the methods premortal and postmortal diagnosis. A detailed description of the examination pig meat for trichinellosis (Articles 39-43) is prescribed in the Regulations on the Method of veterinary-sanitary inspection and control of animals before slaughter and animal products ("Off. Gazette of SFRJ no. 68/89, Off. Gazette Serbia and Montenegro no. 10/03, Off. Gazette of RS no. 68/2010). Regulation on the establishment of animal health care measures for 2011. year ("Off. Gazette of RS" no. 24/11) highlight the obligation examination for trichinae, also if pigs are slaughtered for the own use in household, also when it comes to the shot wild boar is required pooled sample digestion method. In force is also Instruction on the procedure for determining Trichinella spiralis in swine, horses, wild animals and meat products of pigs, horses and wildlife, issued by the Ministry of Agriculture and Water Management, 12.11.2002, no. 323-022873/2002-09. According to the strategy of our country's accession to the European Union, and the commitment to harmonization of regulations related to human

* Miroslav I. Urosevic, PhD, DVM, Institute of Food Technology, University of Novi Sad, Bul. Cara Lazara 1, Novi Sad, Serbia; E-mail: uros_vet@yahoo.de; Zoran Aleksic, PhD, DVM, full Professor, Faculty of Veterinary Medicine University of Belgrade, Bul. Oslobodjenja 18, Belgrade, Serbia; Jelena Petrovic, PhD, DVM, research fellow; Pusic Ivan, MSc, research associate, Scientific Veterinary Institute "Novi Sad", Rumenacki put 20; Novi Sad, Serbia; Ivan Radovic, PhD, Ass. Professor, Nenad Stojanac, MSc, DVM, PhD-Student, Faculty of agriculture, University of Novi Sad, Trg D. Obradovica 8; Novi Sad, Serbia
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and animal health and health safety of food of animal origin, there is space for
correction and supplement of legislation relating to swine trichinellosis. In EU
countries, examination of pig meat for trichinellosis is described in detail in Laying
down specific rules on official controls for Trichinella in meat published in the Official
Journal of the European Union as EC-Commission Regulation No 2075/2005 in
Brussels. It was written in 23 pages with 17 article and four annexes. In it are prescribed
methods of searching for the presence of Trichinella in meat, the obligations of
competent authorities, subjects in the food industry, the Recognition and withdrawal of
officially Trichinella-free status, veterinary requirements for imports, as well as
implementation of official controls and monitoring of trichinellosis. Interestingly that, as
opposed to our legislation, this regulation allows the marketing of pig meat - also
without examination for trichinosis, if the competent national authority and control of
EU conducted risk assessment for many years and found that it is negligibly small. In
"Recognition of officially Trichinella-free holdings" serological tests of pig blood have
also significant role. Especially they discussed methods of detection in the meat, which
is taken as a reference: the magnetic stirrer method for pooled-sample digestion, and as
the equivalent are: mechanically assisted pooled sample digestion method/sedimentation
technique, mechanically assisted pooled sample digestion method/on filter isolation
 technique, Automatic digestion method for pooled samples of up to 35 g. On the other
side trichinoscopic examination (with 56 oat-kernel-size pieces/one pig.) is allowed
only in in exceptional cases (small number of pigs slaughtered per week) however, this
method should be replaced by a more reliable detection method within a transitional
period.

Due to big differences in the regulations which are applied in Serbia in relation
to the European Union, we think that is necessary to proceed to their adjustment, not
only because of food safety, but also the conditions that require our importers of meat in
the EU.

Key words: Trichinella, Swine, legislation, EU, Serbia

Introduction

Trichinellosis is a disease that affects both humans and animals, caused by a
parasite from the Trichinellidae family and Trichinella genus. So far this parasitic
infection was discovered in over a hundred species of mammals on all continents
(Murrell et al., 1987), and the most common among them in our country is Trichinella
spiralis (Djordjevic, 1989; Teodorovic et al., 1999).

The high number of infections in domestic pigs in eastern and central European
countries represents a serious problem for the meat trade within this area and for the
exportation of pig meat outside EU countries. Recent outbreaks of trichinellosis in west
and central Europe indicate that wherever indigenous pigs were involved, they
originated from small farms with outdoor access (organic, ecological, free-ranging, etc.)
and where the meat is used for local or regional consumption, only. The highest number
of infected humans is in the 20-50 age groups, which is precisely the age group which
can consume the largest quantity of dry-cured and air-dried meat products containing T.
spiralis (Stojiljkovic, 2005; Mirilovic, 2006). Of these reasons, the national veterinary
legislation in Serbia from its inception to the present day, gave trichinellosis a significant place.

In many European countries, trichinellosis has been declared a disease that must be monitored, and for European Union Member States, this is obligatory according to the European Union directive on zoonoses, 2003/99/EC. Cases of trichinellosis must be reported, but further actions are not necessarily taken. However, the European Commission (EC) has edited legislation laying down rules for the official controls for Trichinella in meat in order to improve food safety for European consumers (Regulation -EC no. 2075/2005). According to regulation (EC) no. 2075/2005, meat inspections are required for domestic pigs and wild boars, and other farmed and wild animal species that are susceptible to Trichinella infection and that are slaughtered for consumption.

Overview of legislation in Serbia

Nowadays, the Veterinary Law ("Official Gazette of RS" br.91/2005, 30/2010) obliges the trichinoscopic method of all slaughtered domestic pigs, wild boars and other animals whose meats can this disease transmit to humans. The importance of this process is emphasized by its appropriation from other diagnostic procedures in Article 16 of the Law, which defines the activities of veterinary ambulance. In addition, Article 102 of the Law describes the procedure Veterinary-sanitary control of animals before, during and after slaughtering. It highlights that in the case of slaughtering pigs and wild boar meat inspections on Trichinella is obligatory if they are used in the household.

The Regulations on conditions of facilities, equipment and operating assets, as well as for professional staff to be met by legal entities for carrying out veterinary activities (Off. Gazette RS no. 91/05), in Article 8 and 13 highlighted the requirement that a veterinarian who performs trichinoscopic method

Regulations on measures for the Suppression of animal trichinellosis ("Off. Gazette of RS" no. 20/95), among others, in Article 3 lists the methods premortal and post-mortem diagnosis. Regulation on the establishment of animal health care measures for year 2011 ("Official Gazette of RS" no. 24/11) highlight the obligation of Trichinella examination, also if pigs are slaughtered for the own use in household, also when it comes to the shot wild boar is required pooled sample digestion method. It states that the slaughter of pigs for their own purposes the owner/holder of the animals with the prescribed pattern for meat inspection for trichinellosis veterinary organization shall review also the ear tag for identification and recording samples of slaughtered animals and to inform the Central Database. In addition, the veterinarians in the slaughterhouse records each identified case of trichinosis and notify the veterinary inspector in the area of animal origin in order to take measures and report the appearance of disease.

In force is also Instruction on the procedure for determining Trichinella spiralis in swine, horses, wild animals and meat products of pigs, horses and wildlife, issued by the Ministry of Agriculture and Water Management, 12.11.2002, no. 323-022873/2002-09.

Overview of legislation in European Union
According to the strategy of our country's accession to the European Union, and the commitment to harmonization of regulations related to human and animal health and health safety of food of animal origin, there is space for correction and supplement of legislation relating to swine trichinellosis. In EU countries, Trichinella examination of pig meat is described in detail in Laying down specific rules on official controls for Trichinella in meat published in the Official Journal of the European Union as EC-Commission Regulation No 2075/2005 in Brussels. It was written in 23 pages with 17 article and four annexes. In it are prescribed methods of searching for the presence of Trichinella in meat, the obligations of competent authorities, subjects in the food industry, the Recognition and withdrawal of officially Trichinella-free status, veterinary requirements for imports, as well as implementation of official controls and monitoring of trichinellosis.

Interestingly, there are many exceptions to this Regulation. In the Article 3 states that meat of domestic swine that has undergone a freezing treatment in accordance with this Regulation under the supervision of the competent authority shall be exempt from Trichinella examination. Also, carcasses and meat of domestic swine kept solely for fattening and slaughter shall be exempt from Trichinella examination where the animals come from a holding or category of holdings that has been officially recognised by the competent authority as free from Trichinella in accordance with the procedure set out in this Regulation. The Article 4 described that Animal waste and animal by-products not intended for human consumption and not containing striated muscle may leave the premises before the results of the Trichinella examination are available. In the case of positive findings, in Article 6 states that all positive samples shall be forwarded to the national reference laboratory or the Community reference laboratory for determination of the Trichinella species involved.

But that, contrary to our valid low recommendation, this regulation allows the marketing of pork—also without Trichinella examination. It foresees the possibility of derogation from the testing program for herds, categories of herds, or regions where the risk of Trichinella infection in domestic swine is officially recognized as being negligible. Trichinella-free herds or categories of herds will have to meet several requirements. Most requirements are related to general hygiene and rodent control. Additionally, fattening pigs are not allowed to have access to outdoor facilities as of their fourth week and only if strict conditions are met during the first 4 weeks. Additional requirements apply to categories of herds that may be recognized as Trichinella free, including the need for a 10-year national surveillance program that would have detected a prevalence exceeding 0.0001%.

Prescribes are the procedures for importing meat from countries outside the EU as: the Import health requirements (Articles 13 and 14). Meat of animal species that may be carriers of Trichinella, containing striated muscles and coming from a third country may only be imported into the Community if it has been examined for Trichinella in that third country before export. Derogations from Article 13 is that the meat of domestic swine may be imported without having undergone the examination, provided it comes from a holding in a third country that has been recognised by the Community as officially free from Trichinella in accordance with Regulation (EC) No 854/2004 on the basis of a request from the competent authority of that country, accompanied by a report to the Commission providing evidence. Meat of domestic
swine may be imported without having undergone the examination referred to in Article 13, provided it has undergone a freezing treatment in accordance with this Regulation carried out under the supervision of the competent authority in the third country.

Special attention was paid to the method of meat inspection, where Magnetic stirrer method for pooled sample digestion is taken as a reference of collective samples, and equivalent methods are: mechanically assisted pooled sample digestion method/sedimentation technique, mechanically assisted pooled sample digestion method on filter isolation technique and automatic digestion method for pooled samples of up to 35 g.

Various laboratory methods have been approved for the detection of Trichinella in fresh meat. The magnetic stirrer method for pooled-sample digestion is recommended as a reliable method for routine use. Sample size for parasitic analysis should be increased if the sample cannot be collected at the predilection site and if the type or species of animal is at higher risk of being infected. Trichinoscopic examination fails to detect non-encapsulated Trichinella species infecting domestic and sylvatic animals and humans and is no longer suitable as a detection method for standard use. The trichinoscopic method should only be used under exceptional circumstances for the examination of a small number of animals slaughtered per week, provided that measures are taken by the food business operator to process the meat in such a way that it is completely safe for consumption. However, the method should be replaced by a more reliable detection method within a transitional period. Other methods, such as serological tests, can be useful for monitoring purposes once the tests have been validated by a Community reference laboratory as soon as such a laboratory has been appointed by the Commission. Serological tests are not suitable for detecting Trichinella infestation in individual animals intended for human consumption.

Freezing treatments procedures are also described in detail. The temperature in the refrigeration room must be at least –25°C. It must be measured using calibrated thermo-electric instruments and recorded continuously. The instruments must be kept under lock and key. The temperature charts must include the relevant data from the meat inspection register on import and the date and time of commencement and completion of freezing, and must be retained for one year after compilation. Meat of a diameter or thickness of up to 25 cm must be frozen for at least 240 consecutive hours, and meat of a diameter or thickness of between 25 and 50 cm must be frozen for at least 480 consecutive hours. This freezing process must not be applied to meat that is thicker or of a larger diameter. The freezing time is calculated from the point when the temperature in the freezing room reaches that specified in. There are two more methods of freezing, depend of meat diameter, thickness and time-temperature combinations.

Conclusions and Recommendations

It is clear that Trichinella infection in animals is a continuing threat to food safety and prosperity in many countries, especially in resource-poor areas. This may be due, in part, to the absence or suspension of control measures which are routinely employed at the farm, processing and consumer levels (Gajadhar et al., 2006). During the post-war period in the Balkans, Trichinella was one of the most serious food-borne pathogens in the region. A dramatic increase in the number of positive pigs was a
consequence of breaches of control measures in a number of areas where the prevalence was previously low (Blaga et al., 2007, Djordjevic et al., 2003).

Until now, our regulations consistent only in part on the maximum allowable pieces of meat samples a day, which can inspect veterinarian - trichinoscopic examiner. Anyway, it should be determine the transitional period before the entry into force of provisions the Regulation -EC no. 2075/2005 to amend in the current Serbian regulations. And in the meantime, it should further specify role and importance of the national reference laboratory for trichinellosis, in the relation to the legal acts of veterinary medicine relating to trichinellosis, and according to European Union standards.

After that, we recommend that the subordinate legal acts to be describe in detail all the reference method for Trichinella examination, as specified in the EU regulation. It is necessary to harmonize the provisions of regulations on freezing as a possibility for destroying Trichinella larvae in meat. As the following measure should be make a research and/ or feasibility study when to introduce provisions on the establishment of a farm free of trichinosis in our legislation. Obligatory measure should be also the training of the veterinary staff for inspection a sample of meat to all methods of artificial digestion. It is necessary to raise the awareness of owners and keepers of pigs, and a slaughterhouse about the proper taking of samples for Trichinella examination, and the importance of it.

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**ТРИХИНЕЛОЗА СВИЊА У СРБИЈИ – ЗАКОНСКА РЕГУЛАТИВА У ОДНОСУ НА ЕВРОПСКУ УНИЈУ**

Урошевић И.М., Алексић З., Петровић Ј., Пушчић И., Радовић И., Стојанач Н.

Кратак садржај

Трихинелоза је космополитска антропозооноза, која се убраја у групу системских болести, а у нашим крајевима проузрокована је најчешће ларвеним облицима ваљкастог црва Trichinella spiralis. На основу актуелних података о појави овог обољења и бројних научних истраживања, уочава се да је Трихинелоза већ неколико деченија напаја стварност, а територија Србије епидемиолошко подружње. Из ових разлога је национално ветеринарско законодавство од самог започетка, до данашњих дана, тривиелози давало значајно место. Данас, Закон о ветеринарству ("Службени гласник РС" бр.91/2005, 30/2010) обавезује на трихинелозског прегледа меса свих заклањаних домаћих свиња, дивљих свиња, коња и других врста животиња чијим месом се ово обољење може пренети на људе. Значај овог поступка наглашен је његовим издавањем од других дијагностичких процедура у члану 16 Закона, који дефинише послове ветеринарске амбуланте. У Правилнику о условима у погледу објеката, опреме и средстава за рад, као и у погледу стручног кадра које мора да испуњава право лице за обављање ветеринарске делатности (Сл. гласник РС бр. 45/10), истакнута је обавеза да ветеринар који обавља тривиелозског, мора претходно да заврши специјалистичку обуку у одговарајућој научној институцији. Правилник о мерама

У складу са стратегијом наше земље ка приступању Европској Унији, и обавезом за хармонизацијом прописа везаних за здравље људи и животиња, односно здравственом безбедности храни животињског порекла, постоји простор за корекцију и допуну законске регулације која се односи на трихинелозу свиња. У земљама Европске Уније, преглед меса свиња на трихинелозу је на детаљан начин описан у „Правилнику о начину обављања службене контроле меса на трихинелу“ (Ориг.: Laying down specific rules on official controls for Trichinella in meat) објављеном у службеном гласнику Европске Уније као Регулатива Европске Комисије у Бриселу бр. 2075/2005 (Commission regulation-EC No 2075/2005). Написан је на 23 страних са 17 чланова и четири анекса. У њему су пропишане методе претраживања на присутност трихинеле у месу, обавезе надлежних органа и субјекта у послову с храни, проглашавање и опозивање здравствених статуса, ветеринарски услови за увоз, као и спровођење службених контрола и мониторинга трихинелозе. Занимљиво, да, насупрот нашем прописима, ова регулатива допушта пуштање у промет свињског меса - и без прегледа на трихинелозу, ако је надлежна национална комисија и контрола из ЕУ обавила вишегодишњу процену ризика и утврдила да је он занемарљиво мали. У „признавању службеног статуса фарме слободне од трихинелозе“ значајну улогу имају и серолошки прегледи крви свиња. Посебно су обрађене методе прегледа меса, где се као референтна узима вештачка дигестија збирних узорака, а као еквивалантне: Механичка метода дигестије збирног узорка/техника седиментације, Механичка метода вештачке дигестије збирног узорка/техника „издаваја на филтер“, Метода аутоматске вештачке дигестије за збирни узорак тежине до 35 г. Са друге стране, трихинелоскопија - методом компресије (са 56 исечака по свињи) дозвољава се само у изузетним случајевима (мали број закланцих свиња/недељно) и означава као непоуздана, коју треба само привремено користити и постепено је заменити методом вештачке дигестије.

Обзиром на велике разлике у правилницима који се примењују у Србији у односу на Европску Унију, мишљења смо да је неопходно приступити њиховом прилагођавању, не само због здравствене безбедности храни, већ и услова које захтевају увозници нашег меса у ЕУ.

Кључне речи: Trichinella, свиње, прописи, ЕУ, Србија

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