



Legal aspects associated with the lack of possibilities of preventing the spread of toxocarosis and toxoplasmosis in Poland

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Abstract. The aim of the study is to examine the impact of changes in Polish law the possibility of interrupting the roads spread toxoplasmosis and toxocarosis. The authors' assumption is to review the changes in Polish legal acts (acts and regulations) made in recent years in the context of combating toxocarosis and toxoplasmosis by the authorities of Pol-

ish government administration. An analysis was made of Polish laws regulating the control of zoonotic diseases (toxoplasmosis and toxocarosis), in particular acts which have been amended and changed in the last dozen or so years. The results of the analysis of changes in Polish law, relating to coping with toxocarosis and toxoplasmosis, clearly indicate the lack of legal grounds for effectively combating these diseases. The state public health services do not currently possess the legal means necessary to take effective action leading to the blocking of pathways along which these zoonoses spread. Currently the Polish law does not protect people against the possibility of contagion with toxoplasmosis and toxocarosis. The rights of animals, especially homeless cats, stand above the right of humans to protect themselves against parasites spread in public places by dogs and cats.

Keywords: Toxocarosis; toxoplasmosis; public health care; public health and veterinary law; cats; dogs.

Introduction

Source of zoonosis are the sick and infected animals that have direct contact with humans as well as animals which constitute a source of food for people [1-12]. The development of civilization does not always limit incidents of contagion with a disease, which could not be eliminated even in developed countries [14, 13-20]. Although there are effective ways to stop the spread of these diseases, they cannot always be used. Changes in laws introduced in Poland in recent years have made it impossible to combat toxocarosis and toxoplasmosis. They aren't adequately handled by the state public health services despite the fact that the number of incidences of contagion isn't decreasing and knowledge of the very serious effects of these two zoonosis is widespread.

Material and Methods

Changes in Polish legal acts made in recent years in the context of toxocarosis and toxoplasmosis have been investigated and evaluated. Their effects were examined in relation to the difficulties in combating these diseases.

Results

The main legal act regulating control of infectious diseases in Poland is the Act of 2008 on preventing and combating infections and infectious diseases in people [21]. It superseded the infectious diseases and infections Act of 2001 on [22]. The Act of 2001, in art. 1, defined the rules and procedure for the prevention and control of infectious diseases and infections in humans [22]. It prescribed the monitoring of the epidemiological situation and undertaking of anti-epidemic measures, including disposal of infection sources and blocking disease pathways. The Act only applied to infectious diseases listed in its Annexes (item 58 and 59) (art. 3).

Doctors and managers of diagnostic laboratories, in accordance with art. 20 and 21, were obliged to report cases of contagion to the state sanitary inspector within 24 hours. The inspectors kept a register of infectious diseases, as obliged by art. 23 of the Act and in accordance with art. 24, after receiving notification about the disease had to immediately take official steps to prevent the spread of the disease or infection. In case of zoonosis the inspector was also obliged to notify the official Veterinary Inspector. Based on Article 26 of the Act, a nationwide network for epidemiological surveillance and control of infectious diseases was established.

This law was superseded by the Act of 2008 which is currently in force [21]. Art. 1 of this Act defines the principles and procedure for preventing and combating infections and infectious diseases. In addition, the Act requires taking anti-epidemic and preventive actions, including neutralizing the sources of infection and blocking the disease pathways. Additionally, it defines the tasks of public administration bodies in the field of preventing and combating infections and infectious diseases in people. As in the Act of 2001, its application is limited to infections and infectious diseases listed in its Annexures. Art. 22 of the act introduces a number of obligations for property owners and managers, including the duty to remove dead animals and animal droppings. Similarly to the previous act, doctors are obliged to inform the state sanitary inspector (SSI) about all contagion (article 27). In the case of diagnostic tests, this obligation is ex-

tended to laboratory diagnosticians (Article 29). Regulations on keeping registers remains unchanged (art. 30). SSI obligations upon notification of contagion have been expanded and clarified (Article 32). An additional annex is attached to this Act – a list of infectious and infectious diseases, in which congenital toxoplasmosis appears under item 44. There is however no mention of toxocarosis in the attachment. Consequently, only congenital toxoplasmosis is subject to reporting and as such it is difficult to speak of officially controlling this disease.

In 1997, a new animal protection act was passed in Poland, superseding the previous one after almost 70 years [23]. It has been amended since on a number of occasions. Today's version largely deviates from the original with a number of changes made under the influence of animal rights organizations. The act, in art. 1, defines animals as a living creature capable of experiencing suffering, which humans should respect, protect and care for. In the original version of the law, in particular dogs and cats were considered as pets. Dogs and cats with an undetermined owner were considered homeless (Article 4, paragraphs 16 and 17). The local authorities were obliged to capture as well as provide care for homeless animals (Article 11). Free-living (wild) animals had to be provided with conditions for development and free living (Article 21).

In 2002, amendments to this law revised art. 11. To the effect that now local authorities have to consult with animal protection organizations and a local official veterinarian (LOV) on their animal capture program. Article 11a was introduced prescribing the local authorities to adopt a sterilization program for homeless animals and a program to find them new owners. In 2011, the Act on the Amendment of the Animal Protection Act and the Act on Maintaining Cleanliness and Order in Municipalities were published [24]. On this basis, Art. 11 of the original law (from 1997) was modified, preventing local authorities from catching homeless animals without providing them with a place in an animal shelter and further charging them with the duty to prevent animal homelessness and providing care for homeless animals. Article 11a underwent radical changes. Currently, the municipal authorities must, by March 31st, adopt an annual program for the care of homeless animals and the prevention

of animal homelessness. This program includes providing animals with animal shelter, caring for free-living cats, obligatory sterilization and castration of animals in shelters, as well as searching for owners for homeless animals. Every year, by February 1st, the local authorities present the program outline, to the LOV, animal protection agencies and the local hunters associations. The current version of the Act on the protection of animals in art. 21 stipulates that free-living (wild) animals constitute national wealth and must be provided conditions for development and free living with the exception of animals referred to in art. 33a. This article allows action to reduce animal populations in event of extreme threats to their lives, health and human economy.

The Act of 2011 amending the Animal Protection Act and the Act on Maintaining Cleanliness and Order in Municipalities introduced a fundamental change in the latter legal act. [24] From 2011, the prevention of animal homelessness under the rules set out in the Act on animal protection has become the municipality's own task (Article 3, paragraph 2, point 14 of the Act of 1996 on maintaining cleanliness and order in communes).²⁵ This duty was also included in the Act on animal protection in 2016.²⁶ The maintenance of cleanliness and order in municipalities Act defines duties of local authorities in regards to acceptance of cleanliness and order regulations in the commune. These regulations specify in requirements for maintaining cleanliness and order on premises, including obligations of persons keeping pets (Article 4). These regulations require a positive opinion from SSI.

There have been no recent changes to the State Sanitary Inspection Act of 1985 in relation to combating zoonotic diseases.²⁷ This normative act regulates the functioning of state public health authorities. The Inspection carries out public health duties in order to prevent diseases, including infectious and occupational diseases (Article 1). Performing these duties consists, among other things, of carrying out preventive and anti-epidemic activities in the scope of infectious diseases (Article 2). The scope of the Inspection's operation includes sanitary supervision over compliance with provisions concerning, inter alia, maintenance of sound hygienic condition of real estate (Article 4). The inspector performs epidemiological

analyses and evaluations, prepares preventive and anti-epidemic plans and programs (Article 5). SSI has a number of administrative powers. In the case of threats to human health and life, he may issue administrative decisions demanding immediate execution of orders and prohibitions, including orders to liquidate farms or breeding of animals (Article 27).

Similarly, in the Veterinary Inspection Act of 2004, no changes affecting the Inspector's activity in the scope of combating zoonotic diseases have been noted. 28 According to art. 3 LOV performs tasks in the field of animal health protection to ensure protection of public health. This applies, inter alia, to the control of infectious animal diseases including zoonoses (Article 3, paragraph 2, point 1).

The animal health protection and combating infectious animal diseases Act of 11 March 2004 defines veterinary requirements for conducting specific activities (Article 1, paragraphs 1 and 2) and the principles of combating infectious animal diseases, including zoonoses (Article 1, 3). 29 The duties of owners of animals suffering from infectious diseases and the rights and obligations of the Veterinary Inspection authorities refer only to diseases subject to mandatory control and monitoring (Articles 42-62). According with annex No. 3 to the Act, toxoplasmosis detected in animals, is only subject to registration by an official veterinarian. Although, according to art. 62 par. 1 of the Veterinary Inspection Act, LOV is obliged to cooperate with other state and local authorities in combating zoonotic diseases, but principles of this cooperation are not specified.

Discussion

Biological factors causing toxocarosis and toxoplasmosis occur commonly in human environments.^{3-5,14,16,18,20,30-40} Antibodies found in humans indicate these factors affect a large human population in every part of the world.^{14,41-46} The sources of these diseases and routes of transmission to humans are well known.^{3,31,47-50} In the case of toxocarosis, invasive eggs derive from dogs and cats. In toxocarosis only cats ^{.3,5,12,32-35,38}

The authors of the publication draw attention to the diversity of threats, not only between countries and cities, but even between nearby areas.^{3,5,7,17,19,30,31,33,37,44} In the light of the above, changes to the Polish law in the field of public health protection, which have occurred in recent years, are very questionable. The removal of diseases with dangerous and irreversible effects to human health and life from the list of infectious diseases defies logical explanation. In the case of toxoplasmosis and toxocarosis, there is currently a lack of knowledge about their occurrence, which makes it impossible to carry out epidemiological analyses and prevents effective breaking of disease pathways.

There are available results of studies on soil and sand pollution in habitable places, including children's play areas.^{5,31,55,56} There is also a widespread presence of parasites in dogs and cats and antibodies in their blood indicative of infection. ^{53,57} Many studies indicate continuous exposure of people in Poland to contact with the described parasites, and clinical data bears testimony to the difficulty associated with diagnosing these diseases.⁵⁸⁻⁶¹ Analysis of cases of toxoplasmosis and toxocarosis, not only in Poland, indicate serious consequences of these diseases.^{50,51,69,62-74.}

The current Act on combating infectious diseases in humans covers only cases of congenital toxoplasmosis and is not concerned with toxocarosis. Consequently, SSI duty is limited to keeping a register of cases of congenital toxoplasmosis, i.e. end cases of the epidemiological chain. In accordance with the law, cases of toxocarosis and toxoplasmosis are only recorded in the medical records of individual patients, which makes it impossible to connect individual cases in the epidemiological chain and carry out epidemiological analyses. Moreover, as a result of the statutory restrictions both Sanitary and Veterinary Inspection authorities, cannot, in case of toxocarosis and toxoplasma, undertake any official actions. Consequently these diseases are uncontrolled by public health services. This is despite many reports indicating the need for monitoring the dangers for people, especially children, coming from the animals constituting the links of the epidemiological chain. ^{30,31, 38,51,75-79} Based on data obtained from the National Health Fund, the number of cases of toxoplasmosis and toxocarosis in Poland is not decreasing . Many authors

state the constant risk of human contact with factors causing both diseases. 1,3,4,8,14,18,30,31,38,53 Despite difficulties in diagnosing toxoplasmosis and toxocarosis in humans sanitary services, without keeping records of these diseases and without knowing local threats, cannot take preventive action. 43,58,80-84.

Authors of scientific publications advocate conducting a broad education of the population on risks of these diseases. 4,8,11,19,31,43,48,85-88 Failure of such programs cannot be the basis for their abandonment, rather, the cause for their ineffectiveness should be considered, 31,89 as it is known that such programs do bring results. 19, 88 In Poland, the authorities and state institutions do not provide any such educational programs.

The only obligatory research in Poland to detect toxoplasmosis or toxoplasmosis infection is the examination of pregnant women, before the 10th week of pregnancy for toxocarosis (IgG and IgM antibodies). 90 Possibility of finding a fetus infection, congenital toxoplasmosis, seems to be a late reaction and not relevant to the stopping and prevention of this disease. 1,6,43,54,82,84,4,91-97.

In Poland, as in other countries, animal protection agencies have increasing influence on the law-making process. Although the idea of legal animal protection is noteworthy, putting animal well-being before human well-being can be controversial. This is all the more important when welfare of animals is placed before that of people, including the right of people to protect their own health and life. Lack of attention on the part of members of these organizations to the danger posed to people by dogs and cats may result from their ignorance of existing of these threats. Many authors point to a general lack of knowledge about threats, even among employees of the public health system. 4,7,9,11,16,30,31,51,98.

Thanks to animal protection organizations in 2011, stray cats living in public places were considered as animals under special protection. After the adoption of this change, local authorities are obliged to create and implement yearly protection programs for these animals. Protection consists, among other things, of providing care and food. In practice, "cat's booths" are placed in the immediate vicinity of buildings, often next to children's play areas, and even near kindergartens. The number of forms

of invasive parasites excreted by these animals and their presence in soil and sand in public places, is evidence of the seriousness of environmental threats from all, not only stray, un-withered cats and dogs. Many researchers point to the need to protect public areas from dogs and cats. This is the best way to protect the environment from the invasive forms of these parasites. Although Polish law requires local authorities to ask LOV for an opinion on the protection of free-living cats, this opinion does not have to be taken into account, and it does not even have to be drawn up. The opinion-giving authority is a veterinarian whose opinion refers to animals, not to people. SSI, responsible for human health, does not give an opinion. The inspector, despite having many rights, in the case of toxocarosis and toxoplasmosis cannot execute them.

The Act of 2008 on preventing and combating infections and infectious diseases in people charges property owners with removal of animal waste from premises. Its creators probably did not realize the absurdity of this law in the case of cats burying their droppings. It is common knowledge that cats like to bury their droppings in soil with low cohesion, sand in particular. Not all playgrounds, including sandboxes, are protected against cats, especially since these animals are active at night.^{3,4,7,30,31,33,36,40,51,102-105} The risks to children is amplified due to their geophagy, and frequent face touching especially around the mouth and nose. Also, due to their small posture, children are exposed to airborne forms of invasive parasites which rise up with the dust.^{4,6,18,30,33,40,64,75,96,106} In the case of exposure to the larva of *Toxocara canis*, the authors observed a certain paradox. Dog feces are removed in public space only from sidewalks and squares, possibly from the roadway, i.e. from hard surfaces. They are not removed from green areas (from the soil based surface), although it is in the soil that invasive forms of *Toxocara canis* mature. Studies carried out all over the world indicate the role of contaminated soil in the epidemiology of toxocarosis and toxoplasmosis, and the greatest risk of infection of children through this route.

The requirement of the law on maintaining cleanliness and order in municipalities requires the local authorities to develop and approve the regulations of maintaining cleanliness and order in the commune by SSI.

In contrast to the regulations on the protection of cats, these regulations cannot enter into force without the consent of the sanitary authorities, however, prohibitions and orders regarding toxoplasmosis and toxocarosis cannot be included in these regulations.

As in the case of the powers held by the Veterinary Inspection, the broad powers held by the Sanitary authorities, including the power to liquidation of breeding or rearing animals, do not apply to combating the diseases in question.

Currently in Poland, due to legal regulations, it is impossible to effectively combat toxoplasmosis and toxocarosis. Not only is there no legal way to stop the spread of these diseases, even preventive activities cannot be conducted, because public areas are appropriated for erroneously understood protection of animals.

Dogs and cats are a source of infections and diseases of other animals, including those that are a source of food for people.^{8-10,12,54,60,107} This aspect of threats should also be taken into account in the creation and application of laws regulating protection of public health. It is also worth paying attention to other issues; Factors causing toxoplasmosis and toxocarosis can be transferred to humans through blood transfusions and transplants.^{45,108,109} Related illnesses and infections pose a serious public health problem, and the treatment of these diseases is expensive.^{48,50,51,78,110} Toxoplasmosis can also be the cause of an increased number of vehicular accidents.¹¹¹ Keeping in mind that the effects of toxoplasmosis and toxocarosis often affect those closest to the patients, and that in majority of cases the infected are children. Every case of contagion is associated with irreversible health effects. Pollution of the environment with invasive forms of the parasites often affects people who are distant links of the epidemiological chain (hunters, butchers, veterinarians, etc.)^{14,46} In the face of treatment, often very costly, patients with rare diseases can be considered as unfortunate victims of the changes in Polish law, who consequently contribute to the inability to stop the chain of spread of toxoplasmosis and toxocarosis.

Conclusions

The Polish law favors the spread of toxoplasmosis and toxocarosis. The misunderstood care for animals exposes people, especially children, to risk of loss of health and life. There is an urgent need to amend normative rules in the scope of public health protection against biological pathogenic agents, which originate from dogs and cats.

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Competing interests

The authors have no competing interests to declare.

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