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Original Contribution

CLINICAL COURSE OF TRICHINOSIS IN HOSPITAL PATIENTS FROM THE REGION OF STARA ZAGORA IN BULGARIA

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ABSTRACT

The clinical course of trichinosis in 18 patients aged between 6 and 59 years is analysed. The patients were 7 men and 11 women. All of them had consumed pork of domestic pig origin, reared in a yard in the Gurkovo region and had not had trichinoscopy. The onset of disease was after an incubation period of 7 to 12 days and presented high fever, severe muscle pain, swellings, especially of the face, diarrhoea and maculopapular rash. Hepatomegaly was present in 17 of the 18 patients. The laboratory studies showed leukocytosis with eosinophilia, increased activity of liver transaminases and creatine phosphokinase (CPK). The diagnosis was confirmed using Parasitological Morpho-Diagnostics. The treatment of hospital patients was done with Vermox, as well as with corticosteroids, antihistamine drugs, non-steroid anti-inflammatory drugs, and vitamins. All patients, subject of our study, were treated succsessfully.

Key words: trichinella, clinical signs, laboratory investigations

INTRODUCTION

Trichinosis is a universally encountered helminthiasis It occurs following consumption of raw or undercooked meat, infected with *Trichinella* spp. – a viviparous nematode belonging to the *Trichinella* genus of the Trichinellidae family (1, 2).

The manifestations of the disease range from an asymptomatic stage to a lethal proportion (1, 2, 3). The asymptomatic carriership is more commonly encountered (4). The clinical trichinosis is manifested by fever, facial swelling, myalgia, leukocytosis with eosinophilia (1, 2, 5, 6, 7, 8).
Since 1910, the obligatory trichinoscopy of pork meat during meat production was introduced by a law in Bulgaria. During the period from 2001 to 2005 in our country the outbreaks caused by consumption of trichinella-infected meat from domestic pig are predominating (5, 9, 10, 11).

The aim of the present study was to analyse the clinical and laboratory characteristics in hospital patients with trichinosis.

MATERIALS AND METHODS

Patients: The present study was performed on 18 patients with clinically manifested trichinosis, treated in the Unit of Infectious Diseases of the Multiprofile Hospital for Active Treatment "Prof. Dr. Stoyan Kirkovich", Stara Zagora in February 2004. They were 7 men and 11 women of the age range of 6 to 59 years (28±15.7) (**Figure 1**).

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Methods: epidemiological study, clinical and laboratory methods, parasitological morpho- and immunodiagnostics. Values were expressed as mean ± SD.

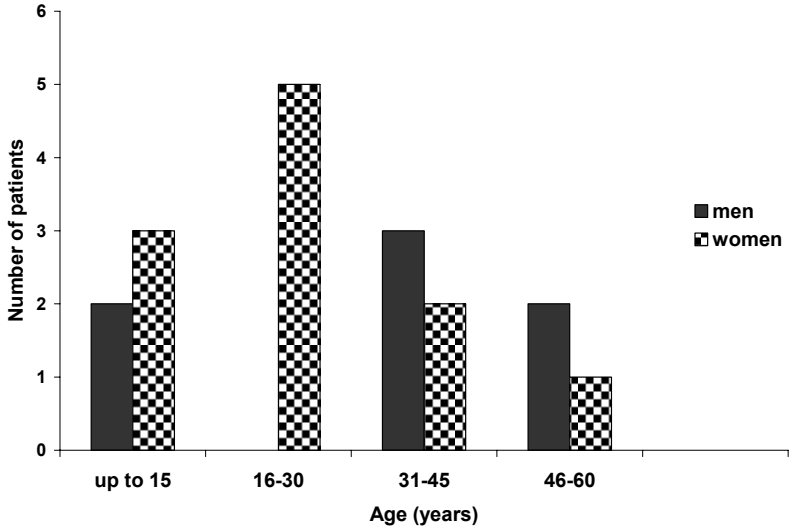

Figure 1. *Distribution of patients (n=18) in accordance with age and gender*

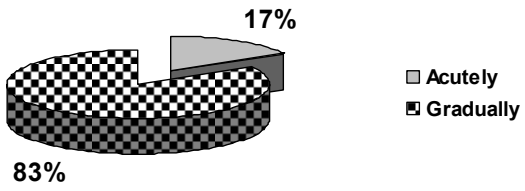

Figure 2: *The onset of the illness in patients (n=18) with trichinosis*

The epidemiological study was provided by interview with all persons who had subsisted on the pork under reference. Clinical examinations were evaluated every day on visitation during their hospital stay and subsequently on the first, third and sixth months.

Laboratory investigations in the hospital were done with *COBAS INTEGRA 400, Bayer Diagnostics, Germany*. The method was approved by the Bulgarian National Standard of Clinical Laboratory. Such parameters as haemoglobin, leucocytes with differential count, liver transaminases and creatine phosphokinase, total and partial albumin, urea and creatine in the blood samples and albumin, billirubin, urobilinogen and sediment in urine were investigated.

The aetiological diagnosis trichinellosis was made on the basis of morpho-diagnostics (capsulated muscle trichinellae, detected by muscle trichinoscopy and digestion of remnants of consumed meat with artificial gastric juice). A species diagnostics was done in the National Centre of Infectious and Parasitic Diseases. The parasitological immunodiagnosis was done using reverse phase passive haemagglutination test (RPHA).

RESULTS AND DISCUSSION

About mid-January 2004, pork from domestic pig reared in a private yard in Gurkovo town, and not yet subjected to trichinoscopy was found to have been consumed by 6 of the 15 patients – multiple times. All of the patients were of Roma origin and had been known to have prepared the pork by subjecting it to various degrees of cooking.

The period of incubation was from 7 to 21 days, corresponding to literature data (1, 2, 4, 6, 12, 13, 14).

In the first patients with clinical manifestations of trichinosis, the disease began acutely (diarrhoeic stools 3-5 times a day, skin rash, more severe in the truncal region, muscle weakness and myalgia) within 2-3 days in 3 of the 18 patients whereas in the other 15, the symptoms appeared gradually (**Figure 2**).

One of the commonest signs of the disease was elevated body temperature, present in all hospitalised patients (1, 2, 4, 6, 12). Body temperature ranged from 37.2 to 40 ºC (39.2±0.8) (**Figure 3**). It persisted on the average for 8.9±3.9 days and thereafter returned to normal values.

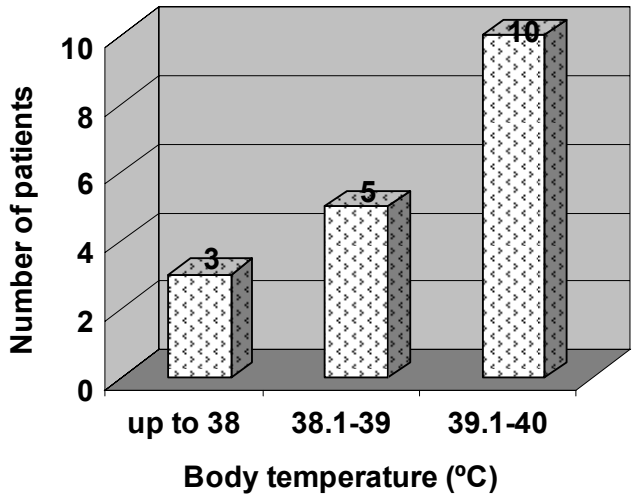

Figure 3: *Body temperature rate in patients (n=18) with trichinosis*

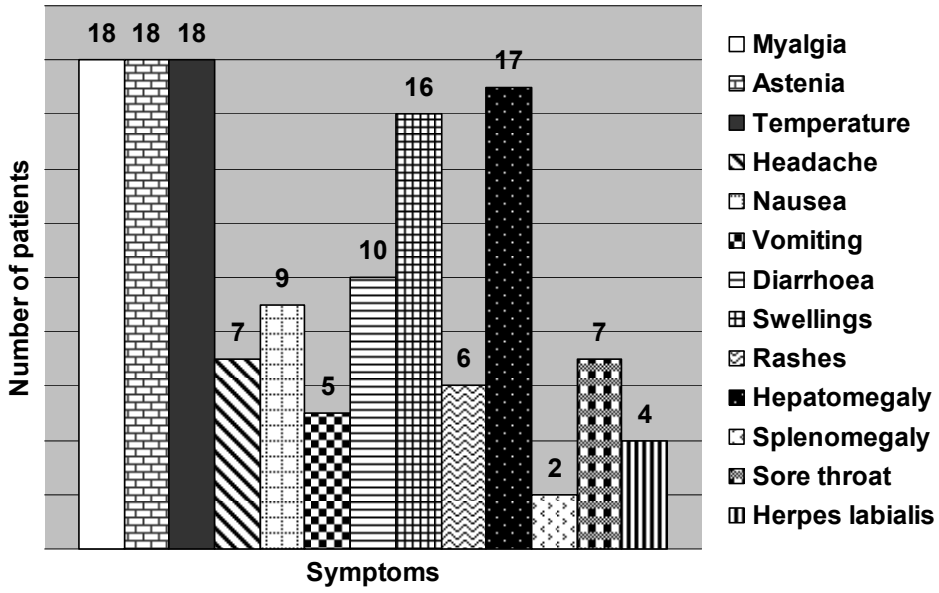

Figure 4: *Clinical manifestations of trichinosis in our patients (n=18)*

Thirteen patients of all 18 presented with fever.

Often, an astheno-adynamia syndrome was encountered – moderate in 6/18 and severe in 12/18 (**Figure 4**).

In the patients, visible myalgia was present – one of the most important signs of the disease (1, 2, 4, 11, 13). Muscle pain complaints were made by 10 of the 18 patients, more commonly in the lower extremities, especially in the gastrocnemius muscles in 4/18, with concurrent effect in the masticatory muscles and lower extremities – in 4/18.

The average duration of myalgia was 9.5±4.3 days. Three patients were with severe generalised muscle pain with an inability to move. Seven patients reported headache.

Dyspeptic signs such as nausea were observed in 9/18, and vomiting – in 5/18. The

patients with vomiting had consumed about twice more of the infected meat. They also exhibited intensive diffuse colic-like abdominal pain. Ten patients were with a diarrhoeic syndrome for 3–5 days (4.3±0.6). The faeces with a loose consistency in 7/10 and watery consistency in 3/10 occurred with a frequency of 2-5 times a day. There was no pathological matter within.

In 6/18 patients there were maculopapular rash located on the face and the body for 5.5±1.2 days on the average. In 3 out of 6 patients the rash was itchy.

Swelling in different parts of the body occurred in 16 patients. It persisted on the average for 7.7±1.9 days. In 8/16, oedemas appeared as early as the beginning of the disease whereas in the other 8 – following 7–10 days.

By the time of hospitalisation, 16 of the 18 patients were in a moderately impaired general condition and 2 of the 18 – in a severely impaired condition.

Hepatomegaly was present in 17 patients. The liver sizes ranged from 1 to 2.5 cm under the rib arc, with a slightly denser consistency. Three patients exhibited splenomegaly.

The laboratory examinations revealed leukocytosis in 16 of the 18 (**Table 1**). Eosinophilia was present in 17/18 and a slight anaemia – in 6/18. Increased activity of liver transaminases was present just in 2/18, whereas the CPK levels were elevated in 16/18.

Table 1: *Pathological changes in laboratory data of patients with trichinosis*

Laboratorial findings (Units)	***Number of patients***	***Minimum***	***Maximum***	***Mean±SD***
Leucocytes (.10^9/L)	16	11	27.4	17.4±5.2
Lymphopenia[1]	10	9 %	15 %	13.5±4.3 %
Eosinophilia[1]	17	10 %	58 %	25.4±4.6 %
Haemoglobin (g/L)	6	105.3	113.2	112.5±3.7
Thrombocytes (.10^9/L)	2	120	136	128±12.8
Increased ALT[2] (U/L)	2	63	115	89.1±8.2
Increased CPK[3] (U/L)	18	286	650	379.3±39.3

[1] *Recorded by the differential leucocyte count;*
[2] *Alanine aminotransferase;*
[3] *Creatine phosphokinase*

The parasitological immunodiagnosis showed negative results during the hospital stay and only in two patients low titres of trichinella antibodies 1:200 were present in RPHA.

All patients were treated with Vermox with gradually increasing doses, non-steroid anti-inflammatory drugs and antipyretics. Such protocol of treatment was used by other authors with a good therapeutic effect (1, 2, 5, 6, 11). In these patients, a corticosteroid therapy with Dexamethasone was applied for ending the acute toxico-allergic manifestations.

The clinical diagnosis of trichinosis (*Trichinellosis*) was made on the basis of clinical, laboratory and epidemiological data: high temperature, strong muscle pain, swellings, rash, elevated creatine phosphokinase activities, eosinophilia with leukocytosis. The epidemiological data for consumption of meat from a domestic pig not subjected to trichinoscopy and which underwent various degrees of cooking, including raw meat as well, along with the extent of morbidity, also pointed out to the correct diagnosis.

The aetiological diagnosis showed *Trichinella britovi.* That agent of infection was common for Bulgaria (10, 11).

The average hospital stay was 4 days during which the acute life-threatening signs of the disease existed. The treatment was pursued in home/ambulatory conditions.

After discharge from the hospital, the patients were registered for a dispensary observation by a parasitologist and the active monitoring lasted for 6 months.

According to literature data, the outcome of the disease is favourable in 87% of cases, treated adequately (12, 13, 14). All hospital patients, subject of our study, were treated effectively.

CONCLUSIONS

In all 18 patients, the clinical course of the disease was moderately severe or severe.

The trichinosis in hospital patients was manifested by the classical symptoms of the

disease: fever, muscle pains, swellings, and eosinophilia.

Clinical and laboratory alterations consisted in eosinophilia in all patients, leukocytosis and increased CPK activities in most of them.

In 17 of the 18 patients, a slight hepatomegaly was observed and in 2/18 – splenomegaly.

The described outbreak resulted from consumption of pork infected with *Trichinella britovi*.

The dispensary observation showed a favourable outcome, with full recovery of all trichinosis patients.

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