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CLINICAL MANIFESTATIONS OF BRUCELLOSIS AND DISTRIBUTION FEATURES

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Abstract
In terms of the incidence of brucellosis among the population in areas of developed animal husbandry, the Bukhara region occupies a special place in the republic. The frequency and prevalence of brucellosis in Uzbekistan, despite the implementation of preventive and anti-epidemic measures, continues to maintain a high proportion among infectious diseases.

Keywords: brucellosis of small cattle, luminescent sera, clinical manifestations of brucellosis, Brucellosis melitensis, phenomenon of brucella antigen.

Introduction

The fight against this disease is not only of great medical and social importance, but also of national economic importance, since this infection causes significant economic damage to the livestock sector of agriculture. Brucellosis causes severe, usually chronic diseases of people, leading to long-term disability, and sometimes to disability [6].

The main epidemiological and epizootic troubles for brucellosis are determined by carriers of three types of pathogen (B. melitensis, B. abortus, B. suis) - farm animals: sheep, goats, cattle and pigs. The ubiquitous distribution of farm animals determined the global introduction of the listed species of Brucella on all continents in the vast majority of countries of the world. [9,10]

Farm animals with brucellosis excrete pathogens in their urine and feces. Thus, brucella can get into water bodies. In the aquatic environment, brucella can survive for up to 4.5 months. Anthropogenic pollution causes changes in the composition and structure of aquatic communities, which are expressed in a change in the dominant complexes of organisms, a simplification of the ecological structure, and the appearance of highly advanced species in dominants. This can further contribute to the preservation of pathogenic microorganisms in water. Thus, it is very important to protect the water of reservoirs from various agricultural flows [7,11].

High titers of specific antibodies were found in waterfowl - ducks and geese. This group of game animals and birds is closely related to carnivorous and carrion-eating predators. The authors of the work believe that surface waters close the circle of links between brucellosis of wild and domestic animals [8].

Brucellosis is one of the most dangerous quarantine infections. From animal's sick with brucellosis, people become infected by eating infected meat, milk, dairy products. The causative agent of brucellosis in sheep and goats is especially dangerous. [11]

During bacterial infections, it has been noted that a number of microorganisms are inaccessible to the cells of the central organs of the immune system and other immunocompetent cells. [2, 4].

The basic material was obtained on the territory of the Bukhara region, this served as a theoretical basis for developing the improvement of methodological and organizational approaches for the prevention of brucellosis.

Purpose of the Work:

Observation of the peculiarities of the manifestation of clinical signs in persons who have a positive reaction to brucellosis, during laboratory examination.

Materials and Methods

This study is based on: archival materials, SES reporting data, current epidemiological analysis, results of bacteriological (380), immunological (8340) and allergic (215) studies for brucellosis. Brucella cultures were grown on the following nutrient media: Meat-peptone liver agar with 1% glucose and 2% glycerol;

Preliminary experiments were carried out to study the activity and specificity of luminescent sera. For this, a 1-billionth suspension was prepared from daily cultures of Brucella in physiological saline according to the optical turbidity standard. From this suspension, 1 ml was transferred into a test tube containing 9 ml of physiological solution, then successive two-fold dilutions were made up to 1:10. Thus, in subsequent dilutions we had 100,000, 10,000, 1,000, 100, 10 microbial cells in 1 ml of solution. Solutions of these dilutions were centrifuged and smears were prepared from the sediment. The smears were marked and fixed with ethyl alcohol and acetone for 15 minutes. Then they were fixed in a glass vessel with alcohol and acetone in an upright position. After fixation and evaporation of alcohol, the smears were rinsed with physiological sodium chloride solution with phosphate buffer, pH 7.4.

Phosphate buffer pH 7.4 was prepared as follows: 9.078 g of chemically pure mono-substituted potassium phosphate was poured with distilled water to 1 l. Then 11.876 g of disubstituted sodium phosphate in another volumetric flask was brought to 1 liter with distilled water. The resulting buffer was added to physiological saline in a ratio of 1:50.

On a slightly dried smear, 1 drop of brucellosis luminescent serum was applied with the following dilutions: 1:10; 1:16; 1: 8.

The serum smears were placed in a humid chamber - in Petri dishes with wet filter paper at the bottom and kept in a thermostat at 37 ° C (temperature optimum) [1].

Results and Discussion

In order to identify clinical signs in persons who have a positive reaction to brucellosis, during laboratory research, a clinical and laboratory examination of workers of all

divisions of farms in the territory of the Kagan district of the Bukhara region was carried out over the past several years.

Each farm had its own technological features, a different degree of mechanization of the production process, etc. As a result, the risk of infection with brucellosis also differed.

The results of the research showed that among the 650 individuals surveyed, 310 workers with brucellosis infection were identified. Brucellosis infection was 46.2%. Of these, at the breeding unit of a sheep farm-129 people (41.7%), at the reproductive unit of a sheep-breeding farm-118 people (38.3%), at the fattening unit of the farm-62 people (20.0%). These figures are associated with the peculiarities of the production process of these functional units of farms [6].

It should be noted that among the above units, the distribution of persons infected with brucellosis, within them, is uneven. Thus, the main percentage of cases of brucellosis was observed in breeding and reproductive divisions of farms. This indicator falls on the feeding subdivision of farms.

Detailed analysis showed that conditions conducive to infection of workers were mainly observed when working with aborted sheep during childbirth and caring for sick animals.

Analysis of the dynamics of detecting persons with a positive reaction to brucellosis during laboratory examination for the specified period shows that at the beginning of the analyzed period, their percentage of the total number of those examined was 53.0%, and at the end it was already 58.9%. Consequently, the brucellosis infection situation among workers was difficult.

Of the workers with a positive reaction to brucellosis, laboratory examination during the study period revealed 34 patients with characteristic and clearly expressed clinical manifestations of the type of chronic forms of the disease.

For clarity, we present separate extracts from the cards, since we have not come across a description of the clinic of brucellosis in the focus of brucellosis in the available literature.

1. Farm worker S., born in 1982, has been working on a farm for 16 years. According to medical records, he has been suffering from chronic arthritis of the knee joint for the last 5 years. Complaints at the time of examination of pain in large joints of the upper and lower extremities, restriction of movement, moderate sweating, chills, low-grade fever. An additional survey revealed sleep disturbance, deterioration in appetite, pain in the calf muscles, ankle joints, the liver does not protrude beyond the costal arch, the spleen is not palpable in the lateral position, the sensitivity of accessible peripheral lymph nodes with mild pain is noted, the patient has an increase in submandibular lymph nodes to size peas, and groin enlarged to the size of a bean. On the part of the cardiopulmonary system, there are no special pathological changes.

Considering the above, we assume the diagnosis “brucellosis is a primary chronic form in the phase of subcompensation”.

2. Farm worker F., born in 1978, has been working on a sheep farm for 14 years, suffers from chronic sciatica. Anamnesis reveals: the patient 1.5 years ago fell ill with acute angina, accompanied by high fever, moderate sweating, chills. During this period, the patient turned to the polyclinic at the place of residence, where he was diagnosed with ARVI. Symptomatic treatment was prescribed. After 10-15 days, against the background of the aforementioned symptoms, pain appeared in the calf muscles, in large joints, especially in the ankle and shoulder. Further progression of the disease is noted, which is manifested in a worsening the state of health of the patient every day. The prescribed symptomatic treatment did not give positive results. It was assumed that the patient had brucellosis and appropriate treatment was carried out. After that, the patient's condition improved. Diagnosis "primary chronic brucellosis in the phase of subcompensation". The patient was recommended general strengthening symptomatic treatment [6].

3. Farm worker D., born in 1978, has been working on a farm for growing karakul sheep for 12 years. For the last 10 years he has been suffering from chronic sciatica. Complaints at the time of examination of fatigue, back pain, sleep disturbance, sweating, chills. Six months after starting work on the farm, pains first appeared in the lumbosacral region, which were accompanied by low-grade fever, chills, and sweating. Pains are noted in the calf muscles, in the large joints - ankle, knee. The duration of the above symptoms for 1-2 months with a progressive deterioration in health, forced the patient to go to the clinic at the place of residence. The diagnosis was made: lumbosacral radiculitis, polyarthritis of unknown etiology. He was treated on an outpatient basis, symptomatically. Not examined for brucellosis.

After treatment, she noted some improvement in her health, which was short-lived. With the above mentioned diagnosis, he was periodically treated 2-3 times during the year. This condition has persisted for the last 8 years. Objectively: the skin and mucous membranes are slightly anemic, the lymph nodes are enlarged, the inguinal nodes are especially pronounced, which reach the size of large beans. There is bursitis of the knee joint and limited movement, the liver along the edge of the costal arch, sensitive to palpation, the spleen is not enlarged. On the part of the cardiovascular, pulmonary and reproductive systems, no special changes could be found. Laboratory data: Heddelson's reaction - positive, Wright's reaction - negative, RPHA 1: 100, Burne's test - positive, edema at the injection site of the allergen measuring 4 x 4.5 cm large joints [6].

Conclusions

Taking into account the analysis of the development of the disease, work on farms and laboratory data, a diagnosis of "primary chronic brucellosis in the phase of subcompensation" was made.

From the studies carried out, it becomes obvious that brucellosis infection in the focus proceeds mainly as a primary chronic form of the disease. This, in all likelihood, is associated with the source of infection with the causative agent of the disease.

It is known that Brucellosis melitensis is more pathogenic, but there was evidence of isolation of the culture of Br. abortus bovis, the causative agent of brucellosis in cattle, and the main route of transmission was unpasteurized dairy products. This requires further scientific research to determine their virulence.

Persons with a positive reaction to brucellosis, upon laboratory examination (126), in whom the clinical diagnosis of brucellosis was not immediately confirmed, were attributed to the primary latent form of the disease. A careful clinical examination of these patients revealed a moderate increase in the inguinal, axillary lymph nodes. Periodic deterioration in health is manifested by a mild degree of sweating, against the background of which weakness develops. On the part of other organs and systems, no special changes are observed.

Those who test positive for brucellosis on laboratory examination (126), in whom the clinical diagnosis of brucellosis was not immediately confirmed, were distributed as follows. Primary latent brucellosis - 40.7%, upper respiratory tract diseases 18.1%, rheumatism 13.0%, intestinal dysfunction 5.5%, tuberculosis 2.5%. The remaining 20.2% of patients suffer from diseases of various etiologies. The high percentage of primary latent brucellosis dictates the need for strict clinical examination within one year.

Clinical examination does not reveal in the dynamics the progression of activity, that is, the transition to clinical forms of the disease (acute, primarily chronic brucellosis).

The rest of the number of persons who have a positive reaction to brucellosis, during laboratory examination, were assessed as such, due to a positive reaction with a cross-reaction of the phenomenon of brucella antigen. This phenomenon is observed when the Brucella antigen reacts with other heterologous antigens in rheumatism, catarrh of the upper respiratory tract due to viral and bacterial infection, intestinal dysfunction and tuberculosis. It was also noted that brucellosis infection is more severe in individuals with various diseases of the gastrointestinal tract. For example, a person suffering from a duodenal ulcer is characterized by a deep deficiency of most parameters of the body's immune system. They have a significant decrease in the number of CD3 and CD4, as well as a decrease in the concentration of IgA [9].

Considering the above, we made a brief analysis of the epizootic situation of farms in the Kagan district of the Bukhara region. Among the sheep examined for brucellosis, seropositive results of serological reactions are recorded annually. The indisputable confirmation was the isolation of Brucella cultures from small ruminants. Bacteriologically examined (during the analyzed period) - 235 people, isolated cultures of Brucella - 28. Therefore, all this dictates the differentiation of functional and production units of farms into zones with a high risk of disease, including the following:

idle animals with a moderate degree of danger, including a pen for sheep with young stock and a feeding area with a low risk of infection. All this allows for more rational planning of anti-epidemiological and anti-epizootic measures on farms.

The criterion for this assessment was the infection of workers and small ruminants with brucellosis, often with bacteriological confirmation. So, for a high degree of risk of infection, farms were singled out, where the percentage of positively responding to brucellosis, both people and small ruminants, exceeds more than half of the total number of those surveyed.

A similar percentage of people who have a positive reaction to brucellosis, in laboratory examination, from 25 to 50% are attributed to a moderate degree of danger, and finally, up to 20% - a low degree of danger.

This took into account all the phenomena of cross-reactivity of Brucella antigen with heterologous antigens [3].

From this, the following conclusions can be drawn:

1. Clinical decoding of persons with a positive reaction to brucellosis, during laboratory examination, indicates the existence of infection exclusively in the primary chronic form and latent brucellosis, which is 52.5%.
2. A high percentage of primary latent brucellosis dictates the need for strict clinical examination within one year. Clinical examination does not reveal in the dynamics the progression of activity, that is, the transition to clinical forms of the disease (acute, primarily chronic brucellosis).

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