



# The Spread of Emphysematous Carbuncle in Cattle

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**Abstract:** *The article presents the results of epizootic research carried out in dysfunctional farms on the emphysematous carbuncle of cattle, where mortality is often observed. The clinical signs of the disease are described. The results of pathologically examinations of dead animals are also presented. The causative agent of the disease was isolated, and it infected experimental animals, which showed clinical signs and pathological changes identical to the emphysematous carbuncle of cattle.*

**Key words:** *Emphysematous carbuncle, cattle, clinical signs, pathological material, edema, lameness, pathogen, Kitt-Tarozzi, culture, guinea pig, Cl. Chauvoei, microscopy*

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## Introduction

The increase in the production of milk, meat and other animal products is associated with the cultivation of a healthy number of young cattle.

The problem of emphysematous carbuncle of cattle is one of the main tasks in the economic development of our country. Increasing attention to farm animals, their proper feeding, increasing the efficiency of increasing the number of livestock, preserving young cattle, as well as the introduction of new technologies is the main task in improving livestock products. Infectious diseases and the death of animals create serious obstacles in the production of animal products and causes great economic damage to farms and reduce the profit of animal husbandry, creates a great obstacle when increasing the number of livestock. Among the diseases of farm animals caused by pathogenic anaerobes, emphysematous carbuncle of cattle caused by Cl. Chauvoei deserves special attention. This disease occurs in all parts of the world, including in Uzbekistan, and causes great economic damage to animal husbandry, which consists of the death of sick animals, forced vaccination of animals in case of the disease in dysfunctional farms, as well as the cost of burning the corpses of those who died from emphysematous carbuncle of cattle and mechanical and chemical disinfection of the area where the sick animal was preserved.

Emphysematous carbuncle of cattle is increasingly found in some farms of our Republic and causes great economic damage to the national economy.

This report provides data on the spread of emphysematous carbuncle of cattle in some farms of the Samarkand region.

To solve these problems, trips were organized to the farms of the Samarkand region, they examined the area where animals are often grazed, checked their watering place, that is, from where they drink water. We met with veterinary specialists and local residents. They were interested in the issues of emphysematous carbuncle of cattle, that is, about the spread, the number of sick animals in previous years, the age of sick animals, as well as the time of year when this disease is most common. After determining the unfavorable points, we examined the area where animals are often grazed and their watering place. To isolate the

causative agent of infection, samples of feed, water, soil, manure were taken from these places. If possible, pathological material was taken from fallen animals.

**Material and methods of research.** The material for the study was the farms of seven districts of the Samarkand region in which emphysematous carbuncle of cattle often occurred, which led to a fatal outcome. To detect the disease, the method of epizootological examination was used, as well as clinical, bacteriological and pathoanatomic diagnostic methods. During the epizootological examination of the disease, the main attention was paid to the morbidity, mortality, prevalence, seasonality, infectability of different animal species and duration. In a clinical study of more than 600 heads of animals, attention was paid to the clinical condition of the animal, that is, to body temperature, pulse, respiration. As well as the behavior of the animal, the reception of writing, on the gait, on the configuration of the animal's body. For bacteriological research, more than 800 samples of water, soil, feed, manure from animal grazing sites and, in some cases, blood from animals that were kept together with the fallen animal, as well as pathological material (pieces of liver, affected muscles and heart) were used. From water and blood, crops were sown on BCH, MPA, MPPB (Kitt-Tarozzi Medium) in a straight line and for the growth of microflora they were placed in a thermostat at 37°C. The feed was first crushed, then dissolved in warm physiological water. The solution was filtered through 4 layers of gauze. The liquid was centrifuged at 3000 rpm for 10-15 minutes. From the upper part of the liquid, crops were sown on nutrient media with a sterile Pasteur pipette and placed in a thermostat at 37°C. Samples of soil and manure were also dissolved in warm physiological water. The solution was filtered through 4 layers of gauze and centrifuged at 3000 rpm for 10-15 minutes. From the upper part of the liquid with a Pasteur pipette, crops were sown on nutrient media and also put in a thermostat at 37°C for culture growth. By changing the turbidity of nutrient media and the formation of gas bubbles, the presence of pathogens in these samples was determined. Smears were prepared from daily cultures, which were examined under a light microscope after Gram staining. Thus, the presence of pathogens in the studied samples was determined. During the pathoanatomic examination of 7 corpses of fallen animals, attention was paid to its age and fatness, to the state of natural holes, to the swelling of the animal, whether there is a tumor, to the presence of crepitation when pressing on the tumor site.

**Research results.** As a result of an epizootological survey of disadvantaged farms in the above-mentioned regions, it was determined that the disease was more common in summer and autumn, less often in winter and spring. The incidence was 3-5%, sometimes up to 8 % of the total livestock. The mortality rate from the number of sick animals was 100 %. In some farms, the disease is widespread and there are several cases every year. Only cattle aged from 8 months to 3 years of average and above average fatness became ill. After the manifestation of clinical signs, the disease lasted from 18 hours to 2 days and ended in a fatal outcome.

In sick animals, the state is depressed, refusal to take food and water. Their body temperature rose sharply to 41-42 °C, their pulse reached up to 110-120 beats per minute. Breathing is difficult and shallow. In some cases, lameness of animals that could hardly move was observed. In some cases, the animals are lying down and cannot get to their feet. Edematous swellings were often found in the shoulder, sacrum, and hip area. When pressing on the place of swelling, the animal worries, feels soreness. By touch, with palpation, you can notice crepitation in the subcutaneous tissue. During the bacteriological study, more than 800 samples of water, soil, feed, manure and blood, as well as pathological material (pieces of liver, affected muscles and heart) were sown on nutrient media: MPB, MPA, MPPB (Kitt-Tarozzi medium). The crops were sown according to the above mentioned method. According to the change in the turbidity of the nutrient media and the formation of gas bubbles, smears were prepared from them. and they were colored by Gram and looked under a conventional light microscope. After isolation of a pure culture, they infected the most sensitive laboratory animals to emphysematous carbuncle - guinea pigs. At the death, which was carried out a pathoanatomic autopsy, smears were prepared, prints from the organs were prepared and crops were sown on nutrient media. Thus, the presence of pathogens of emphysematous carbuncle in the studied samples and pathological material was determined.

Pathoanatomic studies of 7 fallen animals showed that all the fallen animals were of average and above average fatness. There is no discharge from the natural orifices, in some cases a foamy, bloody liquid was released from the nasal openings. The corpses were swollen, had swellings, with pressure on which crepitations are noticeable. When cutting edematous swellings, a dark red liquid with gas bubbles was

detected. The muscles are black and red in color. Regional lymph nodes are enlarged and hemorrhage was observed on the incision.

**Conclusion.** Emphysematous carbuncle of cattle is often found in the farms of the Samarkand region and tends to be widespread. The morbidity rate in disadvantaged farms is 3-6 % of the total livestock, and the mortality rate is 100 % of the number of cases. The disease occurs not only in the summer-autumn period, but also in the winter-spring periods.

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