



Lymphangitis in Camels

KADYR BIYASHEVICH BIYASHEV*, ARMAN ZHETPISBAEVICH ZHYLKAI DAR, SAPARKHAN DEMEUOVICH ZHANABAI, ABDIRAZAK ERKINOVICH ALTENOV, ERSULTAN BAKYTOVICH SHAYAKHMET

Kazakh National Agrarian University, 050010, Almaty, Abay ave., 8, Republic of Kazakhstan.

Abstract | In Kazakhstan, camel breeding is an important source for production of meat, wool and milk. Camel breeding in the country is facilitated by the presence of extensive deserts and semi-deserts, peculiar climatic and feeding conditions that match the biological characteristics of this unique animal species. A significant factor that restricts the development of camel breeding, along with poorly organized zootechnical and pedigree work is infectious diseases. One of such diseases often encountered in camels is lymphangitis. The disease is characterized by purulent inflammation of lymph nodes and vessels with the formation of abscesses. At farms affected by this disease, up to 15 % of camels suffer from it. Out of the ill animals, 10 – 30 % die of the disease. The lack of knowledge of camel lymphangitis, the significant prevalence rate and economic losses caused to camel breeding at the farms in the Republic of Kazakhstan were the preconditions for the need for more detailed studies in epidemiology, peculiarities of clinical manifestations, etiology of the disease, and developing specific means of fighting it.

Keywords | Camels, Lymphangitis, Clinical picture and course of the disease, Pathoanatomical picture

Received | June 12, 2019; **Accepted** | August 30, 2019; **Published** | October 15, 2019

***Correspondence** | Kadyr Biyashevich Biyashev, Kazakh National Agrarian University, 050010, Almaty, Abay ave., 8, Republic of Kazakhstan; **Email:** Kadyr.Biyashev@kaznau.kz

Citation | Biyashev KB, Zhylkaidar AZ, Zhanabai SD, Altenov AE, Shayakhmet EB (2019). Lymphangitis in camels. *Adv. Anim. Vet. Sci.* 7(s1): 6-8.

DOI | <http://dx.doi.org/10.17582/journal.aavs/2019/7.s1.6.8>

ISSN (Online) | 2307-8316; **ISSN (Print)** | 2309-3331

Copyright © 2019 Lukkananukool et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

The agro-industrial complex of the Republic of Kazakhstan faces the task of achieving sustainable growth in agricultural production, reliable provision of food products and agricultural raw materials to the country, combining efforts of all sectors of the complex for obtaining high final results.

The most important areas for resolving this problem have accelerated the introduction of intensive methods and advanced technologies in animal breeding, increasing animals' population and their efficiency, particularly, developing the industries such as camel breeding, horse breeding, rabbit breeding, and beekeeping. Certainly, the development of these sectors will help meet the growing needs of the population for high-quality food (Ermagambetova, 2018).

In the republic, camel breeding is an important source for the production of meat, wool, and milk. Camel breeding

in Kazakhstan is facilitated by the presence of extensive deserts and semi-deserts, peculiar climatic and feeding conditions that match the biological characteristics of this unique animal species.

One of the factors hampering camel breeding is related to infectious diseases, particularly, camel lymphangitis.

The economic damage caused by this infection to farms is determined as direct loss of animals and considerable expenses associated with animal keeping, care for sick animals, organization of restrictive measures, and reduced productivity of sick and recovering animals (Zhanabaev, 2019).

MATERIALS AND METHODS

The issues of epidemiology and prevalence rate of camel lymphangitis were studied directly at farms in the Republic of Kazakhstan. Special attention was paid to the prevalence rate of the disease among camels and infestation of the

animals in the context of age. The clinical course of the disease was studied on spontaneously diseased animals in the conditions of an unsuccessful farm. In this project, we used the latest certified and standardized results of biochemical, microbiological, and molecular biological research. Standard methods of finding average values and their mean errors were used for mathematical processing of the results.

RESULTS

Literature sources relating to this disease are very scarce. Domestic and foreign literature sources contain only isolated reports about this camels' disease that is clinically manifested by formation of abscesses in various parts of the body, purulent inflammation of lymph nodes and blood vessels.

Cross (1917) describes the camel disease in India, where the local population calls it "Giuling". The symptoms of the disease are the following: one or more hot swells up to 10 cm in diameter appear on the neck, the hind legs, in other parts of the body. At first, the swell is solid and painful, but after a few days it suppurates, the pain disappears, and strong itching appears. When the swell is opened, thick and white pus is discharged. The causes of the disease are unknown.

According to A.N. Kambulin, this disease has been known in Kazakhstan since old times as infectious subcutaneous abscesses, in Kazakh- "Ak bas", "Ksaga". The causes of the disease were unknown. The rapid spread of the disease among camels has allowed the author to consider the disease to be infectious (Kambulin, 1937).

A disease of camels with the symptoms of purulent lymphadenitis was described by N.R. Semushkin, V.A. Shtanko (Semushkin, 1958; Shtanko, 1958). However, these publications do not contain comprehensive information about the etiology of the disease. The epizootological and clinical and pathological-anatomical data about this infection are inconsistent. Control and prevention measures have not been developed. In 1968, at a number of farms of Russia and Kazakhstan, K.N. Buchnev, G.R. Sadykov and J.S. Dadabayeva (Sadykov and Dadabayeva, 1976) found a disease of camels that was clinically accompanied by purulent lesions of the lymph nodes and surrounding lymph vessels.

In recent years (2010–2018) the government of the country has been paying special attention to the development of camel breeding as an important part of the meat, wool, and milk production. High overall productivity of camels determines the profitability of their breeding.

Among the negative factors that hamper the development

of this branch of agriculture, great significance, along with the poor organization of zootechnical and breeding work, belongs to infectious diseases, camel lymphangitis in particular, and recently noted mastitis in female camels caused by machine milking.

At a number of breeding farms, as well as at private farms of the Republic, the authors studied diseases of camels that were clinically manifested by formation of abscesses in various parts of the body, purulent inflammation of the lymph nodes and blood vessels.

The disease was manifested sporadically or in the form of enzootic outbreaks. Camels of all ages were infected, but young camels of 2 – 4 years of age were infected most frequently. The sources of the infection were sick animals that secreted the pathogen with pus from the opened abscesses. In individual animals, itching is often observed at the location of the lesion, which makes camels scratch the itchy location, thus infecting both the environment and other animals with the pus.

The incidence rate in camels usually grows in the summer, and frequently covers up to 15 % of the population. In the winter, this infection is often registered in the herds affected by sarcoptic mange. Mortality is 10 – 30 %, depending on the timeliness and intensity of therapy applied.

The incubation period lasts 3 – 10 days. Clinical symptoms are characterized an increased surface of regional lymph nodes (submandibular, prescapular, supra-mammary, etc.), followed by abscess formation. On various parts of the body, swells of the size from a pigeon egg to the fist of an adult person and larger are formed. When the swells are opened, thick cream-like pus is discharged without a smell. Damage of joints and articular bursae is often observed, which results in persistent limping. The temperature of the body mainly remains in the normal range, and insignificantly increases by 0.5 – 1° during pointing of abscesses. Two – three weeks' later, after the spontaneous or artificial opening of the abscesses and local therapy, clinical recovery occurs.

Along with the typical picture of the disease, there are cases of its severe manifestation determined by various complications such as purulent metastases in certain internal organs (lungs, kidneys, spleen, lymph node and subcutaneous tissues). The disease often ends in the death of the affected animal. Self-recovery is long and slow.

In young animals, the disease is the most severe. Along with the lesion of the lymph system and joints, overall depression, weakness, frequent cough attacks, and fever may be observed. It is this course of the disease that usually quickly ends in death.

Along with purulent lesion of lymph nodes and joints, postmortem examination of dead camels revealed purulent foci in the lungs, kidneys, and metastatic apostems in the subcutaneous tissues.

Cases of the disease in other animal species (cattle, horses, sheep, and goats) and people in direct contact with sick animals have not been noted.

CONCLUSION

Analysis of the statistical data and examination of the affected farms by the authors have shown that there is no strictly pronounced seasonality, and outbreaks of lymphangitis in camels at farms of the Republic are noted continuously. Lethality of the disease in the farms examined by the authors ranges between 10 and 30 %. Since most of the infected animals die, the economic loss to the farms is very high.

Summarizing the results of the research for studying the epizootiology and clinical course of camel lymphangitis at farms in the Republic of Kazakhstan, one should first note the significant prevalence and stationarity of this disease. The disease is manifested sporadically or in the form of enzootic outbreaks.

ETHICAL PERMISSION

The permission was obtained from the Committee on Bioethics of the Noncommercial Joint-Stock Company Kazakh National Agrarian University dated August 29, 2017.

SOURCE OF FUNDING

The source of funding was a grant from the Ministry of Education and Science of the Republic of Kazakhstan on the topic Development of the technology for manufacturing probiotic preparation Enterocol and obtaining a pilot

sample.

AUTHORS CONTRIBUTION

K.B. Biyashev: general guidance, A.Z. Zhylkaidar: microbiological and biochemical research, S.D. Zhanabai: molecular biological research, A.E. Altenov and E.B. Shayakhmet: research on the distribution of lymphangitis in camels on various farms in Kazakhstan.

CONFLICT OF INTEREST

There is no conflict of interest.

REFERENCES

- Cross HE (1917). The camel and its diseases. Balliere, Tindall and Cox, London.
- Yermagambetova SE, Sarybaeva DA, Zhumanov KT, Kulpybai EE and Zhanabay S (2018). Characteristics of the causative agent of camel lymphangitis. Bull. Contemp. Stud. Issue No. 12-1 (27) Omsk, pp. 332-336.
- Zhanabaev SD, Biyashev KB, Altenov AE, Shayakhmet YB, Kulpybai EE (2019). Survival of the causative agent of camel lymphangitis in environmental objects. Bull. Contemp. Res. Issue No. 2-12 (29). Omsk, pp. 32-35.
- Kambulin NA (1937). Zaraznye bolezni verbludov i mery borby s nimi [Infectious diseases in camels and measures of fighting them]. Kazgosizdat, Alma-Ata, pp. 30 – 32.
- Sadykov RG and Dadabayeva JS (1976). O gnoinom limfangoite verbludov v Kazakhskoi SSR [About purulent lymphangitis in camels in the Kazakh SSR]. Infectious and parasitic diseases of farm animals. Alma-Ata, XXX1Y: 73 – 76.
- Semushkin NR (1958). Diagnostika zabolevanii verbludov [Diagnostics of diseases in camels]. Selkhozizdat, Moscow, pp. 272 – 273.
- Shtanko VA (1958). O zabolevanii verbludov s priznakami gnoinykh limfadenitov [About camel disease with the symptoms of purulent lymphadenitis]. Ashgabat, pp. 393 – 395.