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Faculty of veterinary medicine

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**CLINICAL AND ABATTOIR STUDY
OF DIGITAL DISORDER IN CAMEL
IN (FARS, ESFAHAN AND YAZD).**

By

Dr. Mahboubeh Kohkiloyehzadeh

Supervised by

Dr .S.Deighani Nazhvani

August 2012

IN THE NAME OF GOD

Declaration form

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DISORDERS IN CAMEL IN FARS, ISFAHAN AND YAZD**

BY
MAHBOUBEH KOHKILOEZADEH

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EVALUATED AND APPROVED BY THE THESIS COMMITTEE: **EXCELLENT**


.....**DR.S.DEHGHANI NAZHVANI, DVM, MVSC**, PROFESSOR OF
VETERINARY SURGERY, SHIRAZ UNIVERSITY, SHIRAZ, IRAN
(CHAIRMAN)

.....**DR.M.TADJALLI, DVM, Ph.D.**, PROFESSOR OF VETERINARY
ANATOMICAL SCIENC, SHIRAZ UNIVERSITY, SHIRAZ, IRAN.

.....**DR.A.TABATABAEI NAINI, DVM, DVSC.**, PROFESSOR OF
VETERINARY SURGERY, SHIRAZ UNIVERSITY, SHIRAZ, IRAN.

.....**DR.M.SAYARI, DVM, Ph.D.**, ASSOCIATE PROFESSOR OF
VETERINARY DEPARTMENT OF PATHOLOGY, SHIRAZ
UNIVERSITY, SHIRAZ, IRAN.

.....**DR.A.H.MEIMANDI PARIZI, DVM., DVSC.**, PROFESSOR OF
VETERINARY SURGERY, SHIRAZ UNIVERSITY, SHIRAZ, IRAN

.....**DR.M.ARASTEH , MD.**, PROFESSOR OF RADIOLOGY , SHIRAZ
UNIVERSITY OF MEDICAL SCIENCES, SHIRAZ, IRAN.

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Abstract

Clinical and abattoir study of digital disorder in camel In (Fars, Esfahan and Yazd).

By

Dr. Mahboubeh Kohkiloyehzadeh

The objectives of this study were to investigate the frequencies and classification of lameness in dromedary camels and to evaluate the clinical relevance of lameness. The available literature lacks detailed data about prevalence and classification of lameness in camels. There were few reports on the incidence of lameness in camels. Camel lameness is poorly understood so far because of a lack of comprehensive studies on diagnosis of lameness, treatment and healing. The principles of bovine and equine lameness cannot be applied on camels in absolute terms. On the other hand, Camelid are known to tolerate well different lameness conditions. The objective of this study was to evaluate the different lameness condition in camels of Shiraz and Yazd province.

Two hundred (200) camel limbs were collected from the slaughter house of the Shiraz and three different cities of Yazd province. They were brushed and dirt washed away. The skin of the foot, sole or hoof pad, margin of the skin pad area and the nails were examined carefully and abnormalities were recorded. The effect of camel breed, sex, age, history, cause and type of lameness were determined and analyzed statistically. Also one hundred live camels were visited and examined in their farm in the Shiraz and Yazd province to determine the prevalence of lameness conditions. Horn erosion were presented more in the hind legs ($P=0.05$). Nail problems such as elongated nail, avulsed nail and wounded coronary region were observed in all limbs.

Since lameness of any origin directly affects the production of animal such as weight gain, fertility, wool production, therefore early diagnosis of lameness, treatment or prevention can increase animal production and reduces early call of the lame animals.

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Chapter One

INTRODUCTION

About one third of the land surface of the earth is composed of arid zone. Camel pastoralist is the only subsistence strategy that makes it possible to utilize this vast area for food production in a sustainable way. From such meager and useless resources, camels are able to produce large, quantities of milk, meat, wool and dung thrown in as by-products. Camels are crucial for the survival of many nomads and camel husbandry thus has the potential to make a substantial contribution to global food production (TK. Gahlot, 2000). While some domesticated animals such as cattle, horses, sheep, goats and dogs have spread all over the world, the camel belongs to a category of domesticates whose distribution is restricted and limited to geographical zone(arid zone) providing certain ecological conditions. The one-humped camel is adapted to hot deserts. Intolerance for humidity and incidence of disease transmitting insects are among the factors limiting expansion of its range beyond the arid and semiarid zones (T.K.Gahlot, 2000). More than one third of Iran lands are deserts consisting of Dasht-E-Kavir and Dasht-E-Lute, which can be turned into elective camel production and industry. The ecologic conditions of the deserts of Iran are very well for the production of one humped camel and other parts of Iran such as mountain and colder area are suitable for production of two-humped camel such as North West of Iran. One-humped (dromedaries) and two humped (bacterianus) are referred to as old world camels. The new world camels include llama, Alpaca and guanaco which are well known for their expensive and delicate wool production can also be raised in Iran in indoor husbandry system.

Economically, in today's world, camel has a special place and from the standpoint of providing protein, it is of great importance. Lameness is one of undesired side effects in camel. Lameness reduces food consumption and thus reduces the production of milk. In addition to medical costs, it leads to the unexpectedly early cull of the animal .Different diseases

conditions of foot pad, especially infection diseases, if not treated early, can result in the spread of the infectious germs in deeper internal tissues and would bring about other undesired complications. The camel population in world is 19,000,000 and in the Iran is 153, 000, therefore the population of camel of the Iran rank 7th in Asia and 20th in the world. From the abattoir standpoint, the weight of the carrion was on average (with the average amount of fat) 50 percent of the weight of the live animal and the ratio of muscle to bone is more than that in a cow, therefore the camel play an important role in the production of milk as well as production of meat. In addition the camels are used for Portage, working in the farm as well as transportation, riding. Camel Sports are common in many countries. And has received more attention recently, therefore lameness of the camel renders the animal from sports which would cause another economic loss to the owners.

The Purpose

The purpose of this study was to:

- 1) To determine the prevalence of lameness, its causes and the distribution of lameness lesions in the different parts of the digit in the camel in slaughtered animals.
- 2) To determine the prevalence of lameness, its causes and the distribution of lameness lesions in the different parts of the digit in the camel in live animals.
- 3) To observe normal walking and normal gait of the camel and compare with the lame camel.

Chapter Two

Review of the Literature

Camel have possesses vital potentials and diversified products (meat, milk, skin, qualified fats, etc.). There exist about 145,600-153,000 camels including 100 Bactrian camels (two-humped) in East-Azerbaijan and Ardebil provinces, and the Arabian camels (single humped) who are widely scattered in the great desert and central region of Iran. Single humped camels include Kalkuie, Baluchi, Bandari and Turkemini populations that spread in 14 provinces with the highest density in Sistan & Balouchestan and Khorasan provinces. In northwest, two-hump breeds followed a decreasing trend in number, and hence stayed at risk. Existing system is mostly traditional in nature and low in population, which has a negligible contribution in providing employment opportunities. Camel products are domestically consumed with no export demand. Camel milk and meats production scaled up over the past years principally due to their growing demands and increased economic values. The Main priorities in management of camel genetic resources are improvement of production and reproduction efficiency, international and regional collaborations focused on Persian Gulf countries and optimized use of rangelands. The future management of camel genetic resources was predicted in strategic program on conservation of Farman Animal Genetic Resources (AnGR). This program was designed in five main topics including monitoring, conservation, using, management and socio-economic studies (Banabazi et al., 2009).

Camel is among the animal that is adapted to dry, low water and grass environments. This animal can continue his life for long time, with foods that have not good quality and quantity for other ruminants and are undesirable and insufficient for them. One of the valuable products of this animal is his milk and its byproduct especially yogurt and water of camel (chal), butter, cheese and dried whey which is produced from milk. It is the main food of people who live on desert. In this respect we can rely on

camel for good resource to produce milk. Camel milk has a special white color and is similar in taste and smell to buffalo milk, because of its sweet taste, in some areas , it is more desirable than cow milk and in comparison with other animals milk, it ferments quickly and decays very late, this adds to desirable taste and flavor of milk. It is notable that camel milk rather than cow and buffalo milks has less sensitiveness and decays late, therefore for this reason, it is possible to preserve the camel milk at 30 degree centigrade, Average percent of camel milk compounds is: water, fat, dry matter, protein, ashes, calcium and phosphorus 86.9, 3.9, 12.12, 3.5, 0.66, 0.32, 0 and vitamin C, 5.6(mg), energy (kilo calorie in 100 gm), 70 respectively. Recognition of the compounds and properties of camel milk and advising the habits of using camel milk in people's diet can have an important role in feeding and health of society (Rahanjam et al., 2009).

Breeds of camel in Iran:

In Iran, according to the statistics of the Ministry of Agriculture, the number of camels is about 153,000 at present. There are three breeds of camels in Iran: Arabian camels, Bactrian camels, and cross-breed camels. Most camels in Iran are Arabian which are scattered in fourteen provinces especially in Sistan, Baluchistan, and Khorassan provinces. There are four classes of Arabian breeds of camels in Iran (Ahmadi et al., 2003).

Iran:

1. The Turkman breed is considered a dairy camel and is also used for carrying loads and riding. It is mostly found in Turkman Sahra, Gorgan and Gonabad as well as north of Khorasan. It is usually light brown to dark brown in color. Its wool is curly to a certain extent, which distinguishes this breed from others.

2. The Baluchi breed is a dual-purpose breed for meat and milk production. It is distributed in certain provinces of Iran such as Zahedan, Khash, Iranshahr and Chabahar.

3. The Bandari breed is used for riding purposes. They are light weight with erect and elongated bodies, long legs and relatively small heads. They are thin and run fast so they may be used for racing purposes. It is distributed in Kerman, Boushehr and South of Hormozgan provinces.

4. The Kalkooi breed is commonly used by mounted police forces. The Kalkooi tribe raises this breed of camels (T.K.Gahlot, 2000).

Azerbaijan, Kazakhstan, Kirgizestan, Turkmenistan, Uzbekistan, Tajikistan and Russia:

The camels that live in the former Soviet Union are mostly Asiatic camels (Bactrian camels) in Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, and Russia. In Kazakhstan, camel farms by breed selection are able to raise milk production from 5 liters a day to 18 liters a day. The largest camel stocks are in the Mangistau, Atyau, Shymkent, Kyzylorda, and Zhymbyl Provinces. The total camel population in Kazakhstan for the year 2003 was 111,000 animals, a 3.8% increase since 2002.

Each farmer keeps 5-10 camels, uses camel milk for their own consumption, and makes blankets and other clothes from camel hair to sell. Camels also play roles in transportation and act as draught animals (T.K.Gahlot, 2000).

Locomotors System:

Conformation:

This depends on the type of work needed by a particular breed of camel (Leese, 1927; Mukasa-Mugerwa, 1981). The riding camel should be slender, long legged with strong thin bone structure. In the meantime baggage camel has variable shape depending on whether this camel is to be used for walking or for trotting (Mukasa-Mugerwa 1981). This camel has well developed hump and plenty of space behind the hump for the saddle. The draught camels may be used for a variety of functions and the qualities needed from this breed is a strong flat feet and to go without water for long period.

The locomotion:

The primary gait of the camel is the walk, pace (trot) and gallop (Leese, 1927; Dagg, 1974; Mukasa-Mugerwa, 1981, Alexander et al 1982).

The walk: The walking stride is long and slow, with the body supported for much of each stride on the two right or two left legs. The pattern of supporting legs varied with age and type of work but it was the same for the same animal either loaded or unloaded (Dagg, 1974).

The pace: is the common fast (symmetrical) unstable gait exhibited by camels when chased. During the pace the ipsilateraf legs are moved

together in pairs in the same way that the diagonal legs move together in pairs in the trot. The latter is considered as a medium-speed gait where the animal is supported for most of each stride by lateral legs. The gallop is an asymmetrical gait where the camel has brief periods of suspension and is not supported by both front and hind feet at any one time. During the slowest strides often the camel is supported by both front and hind legs ; three legs support the camel in 8% of the strides, while two legs are used in 35% of the strides almost twice as often lateral legs as diagonal ones (R.O.Ramadan BVSc, .1994).

Locomotors System Disorders of Foot:

1. Oedema

If camels are kept tied in one place for several days and not allowed to walk freely they will develop gravitational edema in their feet. The fore feet are more prone but the hind feet can also be affected. This oedema subjects the animal to more injuries. Vashishta and Singh (1977) treat this condition with potassium nitrate but it is also possible for local politics (Richter; C.Richter& Co. KG Wels Austria) and diuretics together with frequent exercise to give good results.

2. Gangrene:

The condition starts with moist and bluish areas at the dorsal part of the foot, with a foul odor. The lesion soon coalesces to form larger areas associated with oedema. It dries off and the digits tend to slough. After amputation of the digit at the fetlock, the camel will walk on sandy areas without difficulty but it is advisable to apply suitable boots as a protection from injuries. The condition most commonly affects the fetlock region of the front legs. One leg or both forelegs can be affected. *Proteus vulgaris* was encountered in one instance but other possible causes should be considered.

3. Elephant:

This is a chronic diffuse cellulitis leading to proliferative foot lesions involving all the soft tissues of the foot except the pad. The lesion is most commonly seen in one foot and it rarely progress above the fetlock. There is extensive fibroplasia. The cause is uncertain but it may result from lymphangitis through the bite of sand flies where this insect is present (R.O.Ramadan BVSc, .1994).