



A review on Epidemiology and Prevention of camel bites

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Submitted: 05-02-2023

Accepted: 20-02-2023

INTRODUCTION

Camel bites are a common and significant public health concern in many countries where camels are present. Camels are widely used for transportation, agriculture, and as a source of food and income in many regions, including Africa, the Middle East, Central Asia, and Australia.

The incidence of camel bites varies widely depending on the country and region, with some areas reporting rates as high as 20 cases per 100,000 population (1). Children and young adults are the most commonly affected, accounting for the majority of bite cases.

A. Definition of Camel Bites

Camel bite is a bite inflicted by a camel, a large domesticated or wild mammal found in many regions of the world. Camel bites can cause significant injury and are associated with a high risk of infection due to the presence of bacteria in the animal's mouth.

Camel bites can occur as a result of improper handling techniques, feeding camels by hand, and camels in heat, medical conditions, and location. Individuals who work with camels, such as herders and handlers, are at increased risk of being bitten. Children living in rural communities where camels are common are also at high risk of being bitten.

B. Importance of Camels in Arid and Semi-Arid Regions

Camels are essential to the livelihoods and cultures of many people living in arid and semi-arid regions around the world. In these regions, camels serve as a source of food, transportation, and income, and play an important role in cultural and religious traditions.

In arid and semi-arid regions, camels are often the only means of transportation due to their ability to traverse long distances over challenging terrain, such as deserts and dry steppes, without access to water. Camels are also a primary source of food for many people in these regions, providing

milk, meat, and hides for both human consumption and trade.

In addition to their practical uses, camels also play a significant role in cultural and religious traditions in arid and semi-arid regions. For example, camels are often used in festivals and celebrations, and play a key role in religious ceremonies and rituals.

In conclusion, camels are an essential component of life in arid and semi-arid regions and play a critical role in the livelihoods and cultures of many people. By understanding the importance of camels in these regions, it is possible to develop strategies to sustainably manage these animals and their role in local communities.

C. Threat to Human Health and Safety

Camels can pose a significant threat to human health and safety, particularly through the transmission of diseases and the risk of bites and injuries. Camels can carry a range of diseases that can be transmitted to humans, including rabies, brucellosis, and tuberculosis. (2)

In addition, camel bites can cause serious injury and are associated with a high risk of infection due to the presence of bacteria in the animal's mouth.

In addition to the health risks posed by camels, they can also pose a threat to human safety through their size and strength. Camels are large and powerful animals that can cause injury if they become frightened or aggressive. This can pose a particular risk to children and people who work with camels, such as herders and handlers.

In order to reduce the threat to human health and safety posed by camels, it is important to implement measures such as avoiding close contact with camels, avoiding feeding camels by hand, and seeking medical attention following a bite. In addition, it is important to manage camels in a responsible manner, including providing proper care, handling techniques, and housing, to reduce the risk of injury and disease transmission.



Epidemiology of camel bites Estimation of Bite Cases per 100,000 Population

Accurately estimating the number of camel bites per 100,000 population can be challenging due to a lack of consistent data and reporting systems in many countries. However, some studies have attempted to estimate the incidence of camel bites in different regions(3).

For example, a study in Saudi Arabia reported an incidence of camel bites of 2.9 per 100,000 population per year. Another study in Iran reported an incidence of 7.3 per 100,000 population per year (4). In other regions, such as Australia, the incidence of camel bites is much lower, with only a few reported cases per year (5).

It is important to note that these estimates may not accurately reflect the true incidence of camel bites in these regions, as many cases may go unreported. However, these studies highlight the need for consistent data collection and reporting systems to accurately estimate the incidence of camel bites and to monitor trends over time.

In Saudi Arabia, for example, camels have been identified as a potential source of MERS-CoV (Middle East respiratory syndrome coronavirus) infection in humans. A study conducted in 2013 found that among people with confirmed MERS-CoV infection (7), exposure to camels was significantly associated with illness. Similarly, in Oman, camels have been implicated in the transmission of rabies to humans, with several reported cases of human rabies infection following camel bites.

In addition to infectious diseases, camel bites can also cause significant physical harm, including deep tissue damage, nerve and tendon injuries, and bone fractures. These injuries can be particularly severe in children, who are more vulnerable to bite-related injuries due to their smaller size and less developed anatomy (6).

Risk Factors and prevention of camel bites :-

Risk Factors for Camel Bites:

1. Lack of proper handling techniques: Handling camels without proper training and equipment can increase the risk of bites. Camels are known to be aggressive and unpredictable animals, and improper handling techniques can trigger their natural defense mechanisms, leading to bites.
2. Feeding camels by hand: Feeding camels by hand or coming too close to their food can also increase the risk of bites. Camels have a natural defense mechanism that triggers when they feel threatened, and approaching them too

closely during feeding can trigger this mechanism and lead to bites.

3. Camels in heat: Female camels in heat are known to be particularly aggressive and bites are more likely to occur during this time. This is because camels become more defensive and territorial during mating season.
4. Medical conditions: People with medical conditions such as diabetes or immunosuppression are at increased risk of severe infections following a camel bite. This is because their immune systems are weakened, making it more difficult for their bodies to fight off infections.
5. Age: Children and young adults are more likely to come into contact with camels through play or work, and are therefore more susceptible to bites. Children are also more vulnerable to the consequences of bites, as they may have weaker immune systems and may not be able to seek medical attention as quickly as adults.
6. Location: People living in rural communities where camels are common are at higher risk of being bitten, as they are more likely to come into contact with these animals on a regular basis.

It is important to note that these risk factors can interact with one another, increasing the overall risk of a bite. For example, a young child living in a rural community who is feeding camels by hand during the mating season would be at a particularly high risk of being bitten. By understanding these risk factors, individuals can take steps to minimize their risk and reduce the incidence of camel bites.

Prevention of camel bite:-

1. Respect their space: Camels are large and powerful animals, and they can feel threatened when people invade their personal space. Keep a safe distance from camels, especially if they seem agitated or aggressive.
2. Avoid sudden movements: Camels can be easily startled, so avoid sudden movements or loud noises when you're near them.
3. Know their body language: Camels communicate through body language, so it's important to know what different postures and gestures mean. For example, a camel that's bobbing its head or curling its upper lip is likely to be aggressive.
4. Avoid direct eye contact: Direct eye contact can be perceived as a challenge by camels, so it's best to avoid it.



5. Handle food carefully: Camels are known to be protective of their food, so be cautious when feeding them or handling food near them.
6. Avoid teasing or hitting the animal: Camels can become aggressive if they're teased or hit, so it's important to treat them with respect and kindness.
7. Seek help from professionals: If you're unsure about how to interact with camels, it's best to seek help from trained professionals, such as camel handlers or trainers.

Benefits of seeking help from professionals:-

1. Expert knowledge: Camel handlers and trainers have a deep understanding of camels and their behavior. They can provide guidance on how to approach and interact with camels in a way that reduces the risk of a bite or other aggressive behavior.
2. Safety: Camel handlers and trainers have the knowledge and experience to keep both you and the camels safe. They can provide a safe and controlled environment for interacting with camels and can take appropriate precautions to prevent bites and other incidents.
3. Reduced stress: Interacting with camels can be stressful, especially if you're unfamiliar with the animals. Camel handlers and trainers can help you feel more at ease and reduce your stress levels.
4. Improved experience: Working with a professional can help you have a more enjoyable and meaningful interaction with camels. They can provide information about the animals and help you understand their behavior and habits.

By following these precautions, you can reduce the risk of being bitten by a camel. However, it's important to remember that camels are wild animals, and their behavior can be unpredictable, so always exercise caution when interacting with them

Camel Bites in the Gulf Cooperation Council (GCC) Region:

The Gulf Cooperation Council (GCC) region, which includes countries such as Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates, is home to a large population of camels. Camels are an important part of the cultural and economic heritage of these countries, and are widely used for transportation, agriculture, and as a source of food and income.

However, the close proximity of camels to humans in the GCC region has led to a high incidence of camel bites. Studies have estimated that the incidence of camel bites in the GCC region is between 5 and 20 cases per 100,000 population, with the majority of victims being children and young adults. (6)

Risk factors for camel bites in the GCC region include improper handling techniques, feeding camels by hand, camels in heat, medical conditions, and location. Children living in rural communities where camels are common are at particularly high risk of being bitten.

To reduce the incidence of camel bites in the GCC region, it is important to follow simple prevention measures such as avoiding handling camels without proper training and equipment, maintaining a safe distance from camels' food, avoiding approaching camels during the mating season, wearing protective clothing, and seeking immediate medical attention following a bite.

In conclusion, camel bites pose a significant public health concern in the GCC region, and it is important to raise awareness of the risk factors and prevention measures to reduce the incidence of bites and associated infections.

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