

## Case study

### Heavy leech infestation in imported camels to Iran

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#### Abstract

Leeches are parasitic segmented worms, some of which have been historically used in medicine to remove blood from patients. In this report, heavy leech infestation of Afghani and Pakistani camels imported to Iran for their meat is described. All of the removed leeches were *Limnatis nilotica*. Worldwide there has been only one other study of a camel leech infestation, 19 years ago in Iraq.

**Keywords:** Camel, leech, *Limnatis nilotica*, Iran.

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## Introduction

Leeches are parasitic segmented worms that belong to the phylum Annelida and the class Hirudinea (Fooanant et al., 2006; Guerrant et al., 2006; Magill et al., 2012). *Limnatis nilotica* is an aquatic leech which inhabits lakes and streams. It may enter the animal's body through drinking of infested waters. Most of them attach to the oral cavity or respiratory passages (Fooanant et al., 2006; Guerrant et al., 2006; Magill et al., 2012).

Leeches are parasites that feed on the blood of humans and animals; they attach themselves to the host using their anterior and posterior suckers (Fooanant et al., 2006).

The anterior sucker has sharp teeth used to cut into the mucous membrane of the host. It releases a special chemical called Hirudin enzyme. This enzyme numbs the area where the leech is feeding, so the host does not feel it. It is also an anticoagulant agent to help blood flow freely (Walz et al., 1988).

Leeches are hermaphrodites (Soulsby, 1986; Fooanant et al., 2006) and reproduce by reciprocal fertilization. Sperm transfer occurs during copulation. Leeches lay eggs in cocoons and the larva that hatch out look and behave like little adults. They don't change much as they grow, they just get bigger. Leech growth rate is strongly affected by temperature and food supply. Most species can mature in a few weeks or months if conditions are good. Some leeches complete their life cycle in a few months, but many can live for several years (Fernandez et al., 1990).

As a medical aid in certain countries, leeches may be applied to the skin in order to initiate blood flow or deplete blood from localized areas of the body. Some leech species are used to prepare drugs from their peculiar mouth parts and the

pharmacologically active substances present in their saliva (Lapage, 2000).

## Case report

One hundred 10- to 15-year-old camels (Figure 1) were imported from Afghanistan and Pakistan to Iran. They were kept in quarantine near Semnan city (located about 300 km southeast of Tehran). Twenty of them had a leech infestation inside the oral cavity. Most of them were stuck on the lower jaw mucous membrane and sublingual region. The heaviest case of infestation was detected with 10 leeches; that camel was restless and had difficulty in breathing and swallowing, the other cases were infested by one or two leeches. All of the collected leeches were *Limnatis nilotica* (Figure 2). This kind of leech attaches to animals when they are drinking the water of an infested spring or pond. The average size of the leeches was 2.8 cm×1.2 cm.

## Literature review

A few cases of several types of leech infested animals were reported. This can be illustrated by the clinical report of a rare case of stillbirths among goats (Gharedaghi et al., 2010). In Iran there are reports of leech infested animals such as sheep (Bahmani et al., 2013), cattle, dogs, monkeys (Mehrzadi et al., 2007; Moghaddar, 2011; Bahmani et al., 2011; Bahmani et al., 2012; Bahmani et al., 2013) and goats (Bahmani et al., 2013). In all these cases, respiratory disorders and anemia were dominant signs (Bahmani et al., 2013). One report of a camel leech infestation was made 19 years ago in Iraq (Al-Ani and Al-Shareefi, 1995).

## Discussion and conclusion:

This case is the second report of *L. nilotica* infested camels in the world and the first one in imported camels to Iran. In Iraq, eight *L. nilotica* leeches were found attached to the pharyngeal mucosa of a 2-year-old male dromedary. The camel had difficulty in breathing and had developed

signs of oedema on the face and neck. It released snoring sounds and had difficulty in swallowing food and water (Al-Ani and Al-Shareefi, 1995).

This report is important because these leeches were removed from imported camels. If these camels had not been quarantined, they could have infested bodies of water or even other animals in Iran. The infestation rate (20%) was relatively high and one case with high infestation showed clinical signs. It points to the need for more consideration of external parasites in animals' importation. The inspection can be done premortem or during meat inspection. These inspections can help prevent changes in the parasitic fauna and infestation of water or other animals.



**Figure 1:** Imported camels from Afghanistan and Pakistan to Iran.



**Figure 2:** *Limnatis nilotica* removed from camel

## References

- Al-Ani, Al-Shareefi, 1995. Observation on medical leech (*Limnatis nilotica*) in a camel in Iraq. J. Camel Pract. Res., 2, 145.
- Bahmani M., Nekouei S.H., Parsaei P., Saki K., Banihabib E.K., 2011. Case report infestation with *Limnatis nilotica* in a Persian male dog from Shahrekord. JMVR, 2(6), 29-32.
- Bahmani M., Eftekhari Z., Mohsezaadeghan A., Ghotbian F., Alighazi N., 2012 . Leech (*Limnatis nilotica*) causing respiratory distress in a pregnant cow in Ilam province in Iran. Comp. Clin. Pathol., 21, 501-503.
- Bahmani M., Rasouli M., Parsaei P., Bahnihabib E., Saki K., Zarrin R., Ghotbian F., 2013. Case Report: *Limnatis nilotica* Infestation in Ram and Kid in Dehloran City, Ilam Province, West of Iran. Asian Pac. J. Trop. Dis., 3(2), 155-157.
- Fernandez J., Olea N., Tellez V., Matte C., 1990). Structure and development of the egg of the glossiphoniid leech *Theromyzon rude*: reorganization of the fertilized egg during completion of the first meiotic division. Dev. Biol., 137 (1), 142-154.
- Foanant S., Puntasri W., Manorot M., Niwasabutra S., 2006. A leech in the nasal cavity: case report. Chiang Mai Med. Bull., 45 (1), 27-30.
- Gharedaghi Y., Razlighi Elmi V., Yeganeh Zad M., 2010. Clinical report: a rare case of stillbirths in goat due to *Limnatis nilotica* species. Vet. Med. J. Isl Azad Uni Tabriz, 42(14), 817-820.
- Guerrant R.L., Walker D.H., Weller P.F., 2006. Essentials of tropical infectious diseases. Principles, Pathogens, and Practice. 2nd ed. Elsevier Churchill, Livingstone; Philadelphia, pp. 607-608.

- Lapage G., 2000. Monings veterinary hematology and entomology. 5th ed. Greenworld, London, UK.
- Magill A.J., Ryan E.T., Solomon T., Hill D.R., 2012. Hunter's tropical medicine and emerging infectious disease. 9th ed. W.B.Saunders Company, Philadelphia, 895 pp.
- Mehrzadi, S., Razi Jalali M.H., Bahmani M., Rahbar A., 2007. Report infestation of *Limnatis nilotica* (leech) in sheep, cattle, dog and donkeys in the city of Dehloran. 6th national conference veterinarians clinical science. Islamic Azad University of Tabriz, 648.
- Moghaddar N., 2011. Fatal hirudiniasis in a cow. *Comp. Clin. Pathol.*, 20(3), 205-207.
- Soulsby E.J.L., 1986. Helminths, arthropods and protozoa of domesticated animals. 8th ed. Balliere Tindall, London, UK.
- Walz B., Schaffner K.H., Sawyer R.T., 1988. Ultrastructure of the anterior salivary gland cells of the giant leech, *Haementeria ghilianii* (Annelida, Hirudinea). *J. Morphol.*, 196, 321-332.