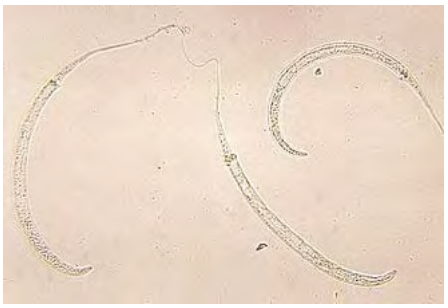
Dracunculus (nematode)

From Wikipedia, the free encyclopedia

Dracunculus is a genus of spiruroid nematode parasites in the family Dracunculidae. Some species infest humans and alter their hosts' behaviour in a way that supports the worm's reproductive cycle. Dracunculus causes a blister to form on the host, often on the foot or lower leg, causing severe pain and a boiling sensation. This will cause the human host to dip the affected area in water to sooth the pain which will cause the blister to burst, allowing reproductive larvae into the water where they can await the next host to infect.

The worms can reach a metre in length. If one simply pulls off the protruding head of the worm, the worm will break and leak high levels of foreign antigen which can lead to anaphylactic shock and fast death of the host. Hence it is important to remove the worm slowly (over a period of weeks). This is typically undertaken by winding the worm onto a stick (say, a matchstick), by a few centimetres each day.

Dracunculus



Dracunculus medinensis larvae

Scientific classification

Kingdom:	Animalia
Phylum:	Nematoda
Class:	Secernentea
Order:	Camallanida
Superfamily:	Dracunculoidea
Family:	Dracunculidae
Genus:	***Dracunculus***

Species

Dracunculus alii
Dracunculus dahomensis
Dracunculus fuelliborni
Dracunculus globocephalus
Dracunculus insignis
Dracunculus lutrae
Dracunculus medinensis
Dracunculus ophidensis

Contents

Species

D. medinensis and *D. insignis*

The best known species is *D. medinensis*, known commonly as the Guinea worm. This parasite is frequently found in the subcutaneous tissues and muscles of humans, dogs, and sometimes cattle and horses. The medical name for this condition is dracunculiasis. The disease causes cutaneous nodules and subsequent ulcers. The anterior end of the adult female worm protrudes from the host animal's body, most commonly on a lower limb, through an ulcer. When the worm feels the presence of cold water, muscle contractions in its body cause its uterus (which fills the whole body cavity) to burst, releasing hundreds of thousands of first-stage larvae into the water, where they can find new hosts.[1]

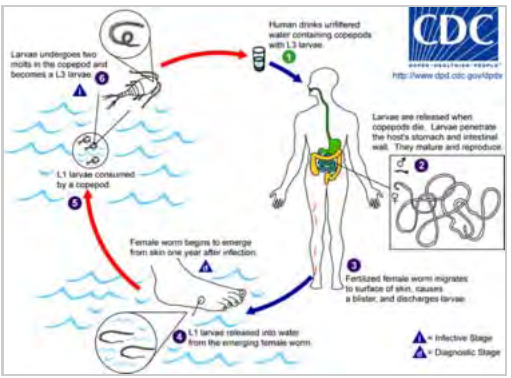
D. insignis infects dogs and wild carnivores, causing cutaneous lesions, ulcers, and sometimes heart and vertebral column lesions. Like *D. medinensis*, it is also known as Guinea worm, as well as *Dragon* or *Fiery*

Dragon. The range of *D. insignis* is limited to North America.

DNA fingerprinting can differentiate between *D. medinensis* and *D. insignis*, which is important to efforts to eradicate dracunculiasis.[2]

Other species

D. fuelliborni parasitizes opossum, *D. lutrae* parasitizes otters, and *D. ophidensis* parasitizes reptiles.



The life cycle of *Dracunculus medinensis*

Distribution and eradication

The species *Dracunculus medinensis* which infects humans, requires a human host to reproduce. Thus the elimination of human infection will lead to the extinction of *Dracunculus medinensis*.

In 2011 only four countries still had the human-infecting *Dracunculus medinensis* – and of these, Ghana, Ethiopia and Mali have nearly eliminated it. Of the 1785 cases found in 2010, 1690 were in south Sudan, which is 38 per cent fewer than the number of cases in 2009.[3]

In January 2013, the World Health Organization reported finding only 521 cases between January and September 2012.[4]

***Dracunculus medinensis* Eradication: % reduction in cases**

year	total cases	%
2009	2463	NA
2010	1785	38%
2011	1006	77%
2012	521	96%

Life cycle

The life cycle was elucidated in 1870 when Alexei Pavlovich Fedchenko of Russia discovered the copepod crustacean intermediate host stages.

Rod of Asclepius

It has been suggested that the Rod of Asclepius (the symbol which represents medical practice since ancient times) once represented a worm wrapped around a rod; parasitic worms such as the guinea worm (*Dracunculus medinensis*) were common in ancient times, and were extracted from beneath the skin by winding them slowly around a stick. According to this theory, physicians might have advertised this common service by posting a sign depicting a worm on a rod. However plausible, no concrete evidence in support of this theory has been

adduced.[5]

See also

- List of parasites (human)

References

1. "Dracunculiasis (Guinea Worm Disease) Eradication" (http://dx.doi.org/10.1016/S0065-308X(05)61007-X), Ernesto Ruiz-Tiben and Donald Hopkins, *Advances in Parasitology*, vol. 61 (2006), pp. 275-309.
2. Bimi *et al.*, 2005
3. New Scientist: South Sudan's votes could kill an ancient disease (http://www.newscientist.com/article/dn19975-south-sudans-votes-could-kill-an-ancient-disease.html)
4. http://www.who.int/mediacentre/news/releases/2013/ntds_report_20130116/en/index.html
5. Emerson, John (July 2003). Eradicating Guinea worm disease: Caduceus caption. Social Design Notes. http://www.backspace.com/notes/2003/07/27/x.html. Retrieved 2007-06-15.

- Bimi, L.; et al. (2005). "Differentiating *Dracunculus medinensis* from *D. insignis*, by the sequence analysis of the 18S rRNA gene" (PDF). *Annals of Tropical Medicine and Parasitology*. **99** (5): 511–517. doi:10.1179/136485905X51355. PMID 16004710. Retrieved 2007-02-27.
- "Dracunculus". Integrated Taxonomic Information System. Retrieved February 27, 2007.

Categories: Nematode genera | Parasitic nematodes | Secernentea

---