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## E Leeches

### *General Statements*

Since antiquity leeches played an important rôle in medicine in different parts of the world. In Europe they were chiefly used for blood-letting, while in the East, for example in China, they were usually given internally as medicine in various preparations.

Temporary endoparasitism of leeches, especially if swallowed with polluted water, was well known since ancient times and was discussed by numerous medical authors: MOQUIN-TANDON, 1827; BRANDT and RATZEBURG, 1829, 1833; HUBER, 1891; SEYFARTH, 1917; HOEPPLI and C. C. TANG, 1941; HOEPPLI, 1950, 1959.

The fact that certain tropical leeches drop from trees in order to attack men and animals, caused travellers, for example IBN BATTŪTA, to believe in 'flying leeches' (mentioned in the *Rihla* of IBN BATTŪTA).

In exceptional cases leeches were known to enter the anal opening (ZACUTUS LUSITANUS, 1575–1642) and the urethra (MITRA, 1926) while the person was bathing or standing in the water. There are also cases on record that leeches entered the vagina or the conjunctival sac of the eye (KUWAHARA, 1903).

### *Endoparasitism of leeches*

#### *Africa*

It is well known that small leeches, swallowed with polluted drinking water, attach themselves to the mucosa of the throat, nasal cavity, larynx and more rarely of the oesophagus.

Such temporary endoparasitism of leeches was comparatively frequent in the mediterranean region, in North Africa, Algiers, Tunis, Egypt, Palestine, and Syria (GUYON, 1941; BAIZEAU, 1963; R. BLANCHARD, 1891; HUBER, 1891).

Man and especially horses, mules, camels and cattle became infected. During Bonaparte's expedition to Syria and Egypt, the French soldiers suffered greatly from leeches when in May 1799 they returned from Syria to Egypt and on their march drank polluted water from leech-infested ponds (LARREY, 1812) (note 1).

The parasites involved were in most cases young specimens of *Limnatis nilotica* (see WITENBERG, 1944).

Swallowed leeches as a rule do not remain in the mouth and throat, but migrate to the nasal cavity and the larynx, more rarely into the oesophagus. In horses they attach themselves also by preference to the nasal mucosa. In consequence there is bleeding from the nostrils as a sign of infection.

This was well known not only in North Africa but also in other parts of the globe, e.g. in China. T. H. CHIN, 1941, reported that native inhabitants of Kweichow informed him that in their region horses are occasionally infected, having leeches protrude from their nostrils, especially when drinking water, therefore the name 'Lung Hsu Ma' (dragon beard horse).

MANSON, 1875, made a similar observation in Takow, Taiwan; he found leeches protruding from the nostrils of wild monkeys.

In Europe and Africa endoparasitism of leeches in man must have been quite frequent in the past, to judge from the references by numerous authors recommending methods for the removal of the parasites.

The therapy consisted generally in the immediate removal of the leech by some kind of forceps, if possible, or after previous application of various substances, especially vinegar and salt solutions. Similar methods were used in the case of horses and mules. The Arabic farriers in North Africa and Egypt had the reputation of being very clever and experienced in removing leeches from horses. Abu'l-Qāsim (Abulcasis), 936–c. 1013, born near Cordova in Spain, recommended the removal of leeches with a special instrument (ALDROVANDI, 1638, p. 732).

The leeches, if not soon removed, caused great suffering. The patient had frequent cough and expectoration of blood, nausea and rapid loss of weight by his inability to take sufficient food. If larynx and trachea were obstructed, he might die from suffocation (see LARREY, 1812; SEYFARTH, 1917) (note 1).

Endoparasitism of leeches in the throat is mentioned in the Hippocratic collection, Proorrh. II. 17<sup>1</sup>.

HERODOTUS, c. 484–425, stated that the bird *Trochilus* removed the leeches from the mouth of the Nile crocodile, which apparently appreciated the bird's attention and did it no harm. Several species of leeches such as *Limnatis nilotica* and *Lophobdella quadrefagesii* were regarded as representing the species in question (HUBER, 1891) (note 2).

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<sup>1</sup> It has to be added that some later translators and commentators regarded the respective expression *bdella* as referring to a varicose vein and not to a leech.

It may be added that this relation between the crocodile and a bird apparently exists also in the Congo (note 3).

PLINY, *Hist. nat. XIII*, X, knew of leeches in the trachea of elephants and Caius Julius Solinus, third century A.D., mentioned *dracones* – apparently leeches, from the eyes and ears of elephants.

#### *America*

References to the parasitism of leeches have so far not been found by the present writer in the early Spanish and Portuguese literature of the New World. There was obviously no transmission of leeches by negro slaves from Africa to the Western Hemisphere.

#### *Notes*

1. Avant notre arrivée à Sâlehyeh, on avait rencontré de distance en distance quelques bassins d'eau douce et bourbeuse comme nous en avons vu depuis dans les déserts qui bordent la Libye, remplis de petits insectes, parmi lesquels il existe une espèce de sangsue . . . qui paraît avoir quelque rapport avec celle qu'on trouve dans l'île de Ceylan ; elle a quelques millimètres de longueur. Quoiqu'elle ne soit pas naturellement plus grosse qu'un crin de cheval, elle est susceptible d'acquérir le volume d'une sangsue ordinaire gorgée de sang. Sa couleur est noirâtre et sa forme ne m'a rien offert de particulier.

Nos soldats, pressés par la soif, se jetaient à plat ventre sur le bord de ces lacs et sans penser au nouvel ennemi qui les attendait, buvaient avec avidité ; plusieurs d'entre eux ne tardèrent point à ressentir la piqûre des sangsues qu'ils avaient avalées. Les premiers effets de cette piqûre étaient un picotement douloureux qu'ils éprouvaient vers l'arrière-bouche, une toux fréquente, suivie de crachats glaireux légèrement teints de sang et d'envies de vomir. A cette irritation, que déterminait la sangsue dans les parties sensibles de la gorge, succédaient bientôt l'engorgement de ces mêmes parties et des hémorrhagies fréquentes. Dès lors la déglutition devenait difficile, la respiration laborieuse, et les secousses produites par la toux sur les poumons et le diaphragme causaient au malade des douleurs vives dans toute la poitrine. La toux augmentait en raison des attouchements que faisait la sangsue avec l'extrémité de sa queue sur l'épiglotte ou sur les bords de la glotte. (Le sang qui se porte sur cette ouverture, peut produire les mêmes effets).

Les sujets maigrissaient à vue d'œil perdaient l'appétit et le sommeil ; ils étaient inquiets, agités ; et si on ne leur administrait pas à temps les secours nécessaires, ces accidents les mettaient en dan-

ger et pouvaient les conduire à la mort, comme on a vu les exemples. — D. J. LARREY, Mémoires de Chirurgie militaire et campagnes. Tome I, pp. 259–260. 1812. Paris.

2. HERODOTUS: "Since it (the crocodile) lives in the water, its mouth is all full within of leeches. All birds and beasts flee from it, except only the sandpiper (Egyptian spur-winged lapwing *Hoplopterus armatus*) with which it is at peace, because this bird does the crocodile a service; for whenever the crocodile comes ashore out of the water and then opens its mouth (and this it does for most part to catch the west wind), the sandpiper goes into its mouth and eats the leeches; the crocodile is pleased by this service and does the sandpiper no harm." Book II, 68. Loeb Classical Library.

In this connection we quote from ROTHSCHILD and CLAY, 1952, pp. 23–24: "To-day there is no known bird which habitually enters the mouth of the crocodile to de-leech its gums, although Meinertzhagen has seen the Egyptian plover do so on more than one occasion. For all we know, the species referred to by HERODOTUS as the 'Trochilus' may now be extinct. However, it is generally believed that the Egyptian plover (*Pluvianus aegyptius*) is the species concerned and it is to-day referred to as the crocodile-bird."

3. The relation between the Nile crocodile and a bird apparently exists also in other parts of the world. In an article which appeared in the *Sunday Times*, Singapore, February 13, 1955, dealing with the experiences of a Swedish professor of African languages, Dr. Berndt Storesen, who went to the (former) Belgian Congo, it is mentioned that a small bird, called 'zig-zig' by the natives, behaves similarly as the plover in Egypt. It not only enters the open mouth of the crocodile, but even warns the reptile, by a piercing cry, of approaching danger, with the result that on such occasions the crocodile returns to the water with great speed.

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