

Medical leech therapy (Hirudotherapy)

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ABSTRACT

Leeches have been used in medicine long time before BC. In recent years medical leech therapy has gained increasing interest in reconstructive surgery and pain management and other medical fields. The possible indications and success rates of this treatment are discussed. There is a special interest in salvage of flaps and grafts by the use of medical leeches. Retrospective analysis indicates a success rate of >80%. Randomized controlled trials have been performed in osteoarthritis. Case reports and smaller series are available for the treatment of chronic wounds, post-phlebotic syndrome and inflammatory skin diseases. The most common adverse effects are prolonged bleeding and infection by saprophytic intestinal bacteria of leeches. Medical leech therapy is a useful adjunct to other measures wound management.

Key words: Acute wounds; Chronic wounds; Medical leech therapy; Reconstructive surgery; *Hirudo medicinalis*

Key Messages:

- medical leeches offer several advantages in venous congestive syndrome seen after reconstructive surgery
- medical leeches secrete substances which can reduce pain and itch
- infection control is necessary for safe medical leech therapy

HISTORY

Therapy with leeches is one of the oldest minor invasive procedures in medicine that was already mentioned 1,500 BC in Egypt. Sanskrit writings described leech therapy from 1,300 BC on. Hippocrates introduced leech therapy in Greece but the method was also known to ancient Mesopotamians, Egyptians and Aztecs, and Mayans. Medical leech therapy is part of the concept of the Greko-Arab Unani System of Medicine [1].

The procedure has seen a first renaissance in the 18th and early 19th century when it became extremely popular again. This has led to an eradication of naturally occurring leeches in Ireland where leech export was an important trade [2].

Medical leech therapy reemerged in the 70ies of the last century as an adjuvant to surgery. In 2004 the FDA

approved medical leeches as medical devices in plastic and reconstructive surgery [3].

LEECHES

Leeches are hermaphroditic, bloodsucking annelid worms. Medicinal leeches belong to the order *Arhynchobdellida*, family *Hirudinidae*. Only 15 of the more than 600 of the known species are classified as medical leeches, such as *Hirudo medicinalis*, *H. verbana* and *H. orientalis* [4].

H. medicinalis has 33 to 34 body segments, is brown or black, and has six long reddish stripes on the back. The cylindrical body is slightly flattened and can measure up to 20 cm. Although they have 5 pairs of eyes they use the olfactory system to find their hosts. Adult animals have two suckers at the end of their body, a

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