

Letter to the Editor

Leech therapy for pain relief: Rational behind a notion

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Dear Editor,

While practicing Neurosurgery in a society invaded by various cultures and neurosurgical philosophies, one should expect facing different traditional remedies in his/her daily practice. A 34-year-old woman with one-year history of left L5 radiculopathy was referred to our outpatient clinic. In physical examination, there were papules seen behind her lateral malleolus from which she was suffering the worst [Figure 1]. She reminded leech therapy performed a couple of weeks before, by a “traditional healer” at her rural area resulting in temporary pain relief. The patient underwent L4/L5 discectomy and the symptoms recovered completely. Similar traditional ways of treatment for sciatica have been reported by the authors from our community,^[6] but the question is: “does newly emerging evidence consider any role for leech (*Hirudo medicinalis*) therapy in pain relief of sciatica?”

The medicinal leech is one of the few examples of the use of invertebrates in the treatment of human diseases. Leech therapy, mentioned as “Jalaukavacharan” in Ayurveda (Hirudotherapy), was used for medicinal “blood-letting” and “purification”, believed to cure a variety of ailments such as gout, skin diseases, blood disorders, alopecia, filariasis, headaches, etc., The use of leech therapy became less widespread toward the end of 19th century but now has emerged again as a widely useful therapy attracting the researchers all over the world. In Ayurveda, its easy applicability without producing any adverse effects is another reason why leech therapy has been used since ancient times.^[3] Although leech therapy is known as a therapeutic option in the traditional medicine, some modern indications for leech therapy have also been proposed by Food and Drug Administration (FDA).^[7]

The exact mechanisms through which leech therapy may exert analgesic effect(s) are not well understood. Besides of a possible placebo effect, leech therapy may exert some direct anti-inflammatory and pain-killing effects through the components of the leech saliva. Platelet-derived growth factor (PGF) is assumed to play an important role in producing the signals of neuropathic pain in spinal cord and inhibition of its release by intrathecal injection of Hirudin has been reported to suppress thermal hyperalgesia and tactile allodynia in mice.^[5] We may



Figure 1: Appearance of leech therapy behind the lateral malleolus where the most severe pain was felt by the patient

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also hypothesize that the strong sensory stimulus caused by the pain and burning sensation of the leech bite can alleviate the symptoms of the patient through the “gate theory” as well.

Some recent randomized controlled trials have shown leech therapy to be effective in knee and metacarpal osteoarthritis.^[4,8] Leech therapy has also been successfully applied to treat severe lumbar pain due to cancer.^[2] These local effects can be due to the anti-inflammatory effects of substances in the leech saliva other than Hirudin, such as histamine-like vasodilators, kallikrein and trypsin inhibitors. Also, the role of thrombin in pain-control mechanisms is suggested by some researchers,^[1] while Hirudin itself exerts some anti-inflammatory effects by inhibiting thrombin.^[1]

Considering far advanced methods of treatment available nowadays, this mode of therapy may look redundant. However, in medically high-risk/aged patients and those reluctant to undergo surgery, less aggressive treatments including leech therapy can be assumed as a temporary solution. Further studies to

evaluate effectiveness of leech therapy in lumbago and sciatica are warranted.

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