

PALLIATIVE CARE SECTION

Case Report

Leech Therapy for Symptomatic Relief of Cancer Pain

Mehmet Emin Kalender, MD,* Gazi Comez, MD,†
Alper Sevinc, MD,* Ahmet Dirier, MD,‡ and
Celalettin Camci, MD*

Departments of *Medical Oncology,

†Internal Medicine, and

‡Radiation Oncology, Gaziantep University, Gaziantep,
Turkey

Reprint requests to: Alper Sevinc, MD, Gaziantep
University, Gaziantep Oncology Hospital, Gaziantep,
Turkey. Tel: +90 342472 07 17; Fax: +90 342 472 07
18; E-mail: sevinc@gantep.edu.tr.

Abstract

Objective. Most patients with advanced stage cancer report moderate to severe pain. The leech (*Hirudo medicinalis*) is commonly used in traditional medicine for relief of localized pain.

Design. We report a case of severe pain related to advanced stage cancer successfully treated by self-applied leeches.

Setting and Patients. A 62-year-old male patient with synchronous renal cell carcinoma and leiomyosarcoma was admitted with severe pain in the lumbar region. The pain was refractory to radiotherapy, and systemic and epidural analgesic infusion.

Results. Two months the patient came to the clinic in good condition free of pain. The patient reported outpatient self-treatment with seven leeches to the lumbar region in the interim that resulted in complete healing of pain.

Conclusions. This is the first report indicating possible activity of leeches in cancer pain.

Key Words. Cancer Pain; Leech; Leiomyosarcoma; Renal Cell Carcinoma

Introduction

Most patients with advanced stage cancer report moderate to severe pain. A multimodal approach to cancer pain includes non-opioid analgesics, opioid analgesics, adjuvant medications, local anesthetic blocks, spinal analgesics, neurolytic/neuroablative blocks, ablative surgery, and radiotherapy.

The leech (*Hirudo medicinalis*) is commonly used in traditional medicine for relief of localized pain, and leech therapy has been used for treatment of pain for many centuries. It is still widely used in traditional healing procedures in Asia and Africa. There is a great interest in leech therapy in pain treatment as a complementary medicine. Leeches have been mostly studied in the treatment of osteoarthritic pain [1–4]. We found no published articles about leeches in the treatment of cancer pain. We report a case of an advanced stage cancer patient with severe pain, who has successfully treated his pain with self-applied leeches at his neighbor's advice.

Case Report

A 62-year-old male patient was admitted to hospital with complaints of pain at multiple levels (pelvis, lumbar region, and left leg) and numbness at the right foot for 7 months. Whole body bone scintigraphy was performed, and increased activity has been detected in the lumbar spine consistent with metastatic disease. The patient had been diagnosed 3 months earlier with leiomyosarcoma from an L4 lesion excision. Abdominal computerized tomography showed a mass of 10 × 10 cm diameter, involving L3–4–5 vertebrae and infiltrating the spinal canal, and a second mass at the left kidney with a size of 5 × 5 cm diameter. A biopsy result of the left renal mass revealed renal cell carcinoma. The patient complained of severe pain in the lumbar region of a visual analog score (VAS) for pain was 9/10. The patient's pain remained refractory in spite of lumbar radiotherapy and systemic chemotherapy. An epidural catheter was applied at the algology department, and 1 mg morphine, 12.5 mg bupivacaine HCl, and 0.025 mg fentanyl combination was started three times daily via catheter. However, the pain remained severe. The patient was lost to follow-up and then showed up 2

months later at a visit in good condition. The patient's pain was greatly improved, and he was using paracetamol 500 mg occasionally for mild discomfort. The patient informed us that he has applied seven leeches to the lumber region for 2 days a month: four leeches at the first day and three leeches at the second day. His neighbor had advised him on the use of leeches for pain treatment, and the leeches were applied by his son. He has bought the leeches from a pet market. The patient is still alive with good pain control several months after leech application, with no opioid use and visual analog scale (VAS) of 1/10.

Discussion

Alternative or complementary medicine is commonly used in the treatment of chronic, functional, and malignant disorders [5]. *H. medicinalis* (leech) is an example of alternative/complimentary therapy dating back to ancient times cited in ancient medical literature and was a part of common practice in folk medicine as a healing aid for thousands of years. Whereas its therapeutic application was one of the well-known procedures in 19th century, it was looked down upon in the beginning of the 20th century [6].

Leeches have got suckers at the front and rear of their body. At the front, the animal has three jaws each and a jaw contains 100 teeth. Leeches can suck nearly 5–15 mL of blood at one attachment; if the leech's intestinal tract is opened with a small incision, the sucking capacity can be increased. Leeches are armed with a range of pharmacologically active ingredients: a local anesthetic substance, a vasodilator, and the hirudin, which is a long-acting anticoagulant [7]. It has been suggested that the analgesic effect of leeches in osteoarthritic pain may be due to salivary secretion of analgesic agents, such as inhibitors of kallikrein [8], and anti-inflammatory agents, including protease inhibitors [9]. Met-enkephalin and Leu-enkephalin are small endogenous peptides and bind to the same specific receptors as opiate analgesics. Zipser reported an enkephalin-like moiety, which is localized in one of the 400 cells of each posterior mid-body ganglion of the leech with an immunocytochemical technique [10].

More recently, this treatment has been described to prove benefit in microsurgery, postphlebotic syndrome, and acute venous congestion in reconstructive surgery [11]. The analgesic effect of leech application was mainly studied in osteoarthritic pain. In a randomized study, Andereya et al. showed the effect of leeches in symptomatic osteoarthritis. They have enrolled 113 patients with advanced knee osteoarthritis, and there was a significant reduction in pain complaint and improvement at VAS after leech application [1]. In another study, Michalsen et al. studied the analgesic effect of leeches at osteoarthritis of the first carpometacarpal joint (thumb saddle joint). They have randomized 32 women with symptomatic painful osteoarthritis of the first carpometacarpal joint to two groups. The first group used a single treatment with two to three locally applied leeches (leech group), and the second group used a 30-day course with topical

diclofenac twice a day. They observed effectiveness of leech therapy in relieving pain, improving disability and quality of life [2].

In the last decade, the effectiveness of leech therapy in symptomatic osteoarthritis of the knee was reported by Michalsen and colleagues. In one of these studies, they used a single treatment with four to six locally applied leeches (leech therapy group) or a 28-day topical diclofenac regimen (control group). There was significant relief in pain complaint in the leech group [3,4].

There are a few clinical studies showing leeches to have other benefits beyond pain relief. Leeches are used for venous congestion after cosmetic surgery in the 1980s [12], and leech therapy is still well established for this purpose today [13]. Moreover, leeches are used experimentally in varicose veins [14], paronychia [15], purpura fulminans [16], and hematomas [17]. The complication risk of leech therapy is low. The most common risk is infection from bacteria in the leech's gut (which is normal to human's skin). Infections are rare because as the blood flows out of the bite, the bacteria cannot enter the area [18].

Recently, we have analyzed the usage of complementary medicine in our cancer patients. However, we have not noted any other leech therapy in this patient group [19].

Finally, the analgesic benefit of the leech therapy is not fully understood. Pain relief could be due to the active substances released from the leech or the human body during the leeching, or the strong expectations of the patient from this unusual traditional method. The potential of leech therapy in treatment of refractory cancer pain and especially the underlying mechanisms need further investigation.

References

- 1 Andereya S, Stanzel S, Maus U, et al. Assessment of leech therapy for knee osteoarthritis: A randomized study. *Acta Orthop* 2008;79:235–43.
- 2 Michalsen A, Lütke R, Cesur O, et al. Effectiveness of leech therapy in women with symptomatic arthrosis of the first carpometacarpal joint: A randomized controlled trial. *Pain* 2008;137:452–9.
- 3 Michalsen A, Klotz S, Lütke R, et al. Effectiveness of leech therapy in osteoarthritis of the knee: A randomized, controlled trial. *Ann Intern Med* 2003;139:724–30.
- 4 Michalsen A, Moebus S, Spahn G, et al. Leech therapy for symptomatic treatment of knee osteoarthritis: Results and implications of a pilot study. *Altern Ther Health Med* 2002;8:84–8.
- 5 McGinnis LS. Alternative therapies, 1990. An overview. *Cancer* 1991;67(6 suppl):1788–92.

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- 6 Wells MD, Manktelow RT, Boyd JB, Bowen V. The medical leech: An old treatment revisited. *Microsurgery* 1993;14:183–6.
- 7 Ernst E. Born to suck—The return of the leech? *Pain* 2008;137:235–6.
- 8 Baskova IP, Khalil S, Nartikova VF, Paskhina TS. Inhibition of plasma kallikrein. Kininase and kinin-like activities of preparations from the medicinal leeches. *Thromb Res* 1992;67:721–30.
- 9 Schoofs L, Clynen E, Salzet M. Trypsin and chymotrypsin inhibitors in insects and gut leeches. *Curr Pharm Des* 2002;8:483–91.
- 10 Zipser B. Identification of specific leech neurones immunoreactive to enkephalin. *Nature* 1980;283:857–8.
- 11 Eldor A, Orevi M, Rigbi M. The role of the leech in medical therapeutics. *Blood Rev* 1996;10:201–9.
- 12 Thearle MJ. Leeches in medicine. *ANZ J Surg* 1998;68:292–5.
- 13 Chepeha DB, Nussenbaum B, Bradford CR, Bradford CR, Teknos TN. Leech therapy for patients with surgically unsalvageable venous obstruction after revascularized free tissue transfer. *Arch Otolaryngol Head Neck Surg* 2002;128:960–5.
- 14 Bapat RD, Acharya BS, Juvekar S, Dahanukar SA. Leech therapy for complicated varicose veins. *Indian J Med Res* 1998;107:281–4.
- 15 Graham CE. Thumb paronychia treated with leeches. *Med J Aust* 1992;156:512.
- 16 DeChalain T, Cohen SR, Burstein FD. Successful use of leeches in the treatment of purpura fulminans. *Ann Plast Surg* 1995;35:300–6.
- 17 Lee NJ, Peckitt NS. Treatment of sublingual hematoma with medicinal leeches: Report of a case. *J Oral Maxillofac Surg* 1996;54:101–3.
- 18 Bickel KD, Lineaweaver WC, Follansbee S, et al. Intestinal flora of the medicinal leech *Hirudinaria manillensis*. *J Reconstr Microsurg* 1994;10:83–5.
- 19 Ucan O, Pehlivan S, Ovayolu N, Sevinc A, Camci C. The use of complementary therapies in cancer patients: A questionnaire-based descriptive survey from southeastern Turkey. *Am J Clin Oncol* 2008;31:589–94.