

## Case Report

# Effectiveness of medicinal leech therapy on infected postauricular ulcer: a case report

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**Received:** 16 September 2019

**Revised:** 29 November 2019

**Accepted:** 06 January 2020

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## ABSTRACT

Trauma induced auricular partial defect very common. Due to the aesthetic value, proper reconstruction has to be done preserving the symmetry of bilateral auricles. The reconstruction of auricle is difficult due to the intricate anatomy of the auricle, limited and inconsistent vascularization and the high ratio of cartilage to skin. Historically, Susruta was the first author to describe about auricular repair. In Ayurveda, medicinal leech therapy is praised for its usefulness for the healing of ulcers. In this case report, a male of 30 years with a trauma induced postauricular infected ulcer was successfully treated with the application of medicinal leeches for multiple sittings.

**Keywords:** Traumatic postauricular wound, *Hirudo medicinalis*, Medicinal leech therapy

## INTRODUCTION

External ear is frequently affected by trauma induced auricular defects mostly partial, because of its prominent position and delicate skin cover of the complex cartilaginous framework.<sup>1</sup>

These deformities diminish facial esthetics and cause psychological distress so prompt reconstruction has to be done. The reconstruction must yield optimum symmetry with contralateral ear in size, shape, orientation maintaining proper relation to the periauricular skin and scalp while preserving the postauricular sulcus.<sup>2</sup> However, the intricate anatomy of the auricle, limited and inconsistent vascularization and the high ratio of cartilage to skin makes these goals difficult to attain.<sup>3</sup>

Historically, the concept of ear reconstruction can be traced out on an Ayurvedic text named Susruta Samhita written by Susruta.<sup>4</sup> Medicinal leech therapy is a multi-faceted therapeutic concept which comprises the biting stimulus, blood drawing and release of

pharmacologically-active substances from leeches' saliva into patients' blood and tissues.<sup>5</sup> Its therapeutic effects include anti-coagulation, blood and lymph flow stimulation and the reduction of both inflammation and pain.<sup>6</sup>

In Ayurveda, leech therapy (*Jalaukavacharana*) is praised for its varied role in the healing of different types of ulcers.<sup>7</sup> In this article we present a case of infected postauricular ulcer following road traffic accident managed successfully through medicinal leech therapy.

## CASE REPORT

A 30 years old male presented with complaint of infected ulcer over the right post auricular region. He was also complaining of pus discharge, swelling and severe pain for the past 7 days.

He had a history of road traffic accident 7 days back causing a cut lacerated wound (CLW) of 2×2 cm over the chin, another CLW of 3×1 cm over the right side of

forehead, vermilion cutaneous injury of 3×1 cm over the right upper lip and another lacerated wound of 4×2 cm over the right post auricular region.

All the wounds except the one in the right post auricular region were sutured in a government hospital and were healing. He was advised for split skin grafting for the wound in the postauricular region once the wound gets healthy. But he was worried about the deteriorating condition of the wound and visited our hospital for any alternatives. The patient was not having any chronic illness.

On examination he was found to be conscious and oriented. The Glasgow coma scale was 15/15. Per abdominal examination revealed no tenderness, palpable mass or guarding. Normal bowel sounds were heard. First and second heart sounds were heard and no murmurs were noted. Normal vesicular breath sounds heard and no added sounds were present.

On local examination, an oval shaped ulcer of 4×2 cm with a yellowish discoloration and a foul-smelling discharge was present over the right postauricular region. Margins were irregular and the floor of the ulcer was filled with slough and the auricular cartilage was exposed. It was tender and local warmth was present.

His hemoglobin level was 12 g/dl, total leucocyte count was 4800/mm<sup>3</sup>, RBC count was 4.43 million/mm<sup>3</sup>, bleeding and clotting times were within the normal range. HIV-1, HIV-2, HbsAg were found to be non-reactive. Random blood sugar level was 98 mg/dl. Pus culture and sensitivity study yielded gram negative bacteria.

#### **Treatment executed**

After proper investigation, leech therapy was planned as a first line treatment.



**Figure 1 (A and B): Medicinal leech therapy.**

Written consent was taken; 2 to 3 leeches were applied daily over the wound site (right ear) for 30 minutes (Figure 1 A and B).

## **RESULTS**

The ulcer was full of foul-smelling pus and slough on the first day of visit (Figure 2 A). There was severe pain and tenderness too. Medicinal leech therapy was started from the first day. At the end of 3<sup>rd</sup> day, mild granulation started to granulate and ulcer became pinkish with significantly reduced slough and tenderness (Figure 2 B). On the 7<sup>th</sup> day, the size of ulcer was significantly reduced and was full of granulation tissue (Figure 2 C). Medicinal leech therapy was continued and at the end of 10<sup>th</sup> day the size of ulcer was reduced by half (Figure 2 D). On 15<sup>th</sup> day the ulcer was almost completely healed with no any other procedure related complications (Figure 2 E). The ulcer was completely healed at the end of 18<sup>th</sup> day (Figure 2 F).



**Figure 2: (A) Day 1, (B) day 3, (C) day 7, (D) day 10, (E) day 15, (F) day 17.**

## **DISCUSSION**

Traumatic auricular injuries are often combination injuries of skin and underlying cartilages.

It is difficult for a postauricular ulcer to heal without skin grafting but the infection presents on the ulcer made it a contraindication.

Wound healing is a dynamic, sequential process involving exudative, proliferative and extracellular matrix remodeling phases regulated by signaling molecules produced by a wide range of cells.<sup>8</sup> medicinal leech therapy was chosen because of its effectiveness on the process of wound healing. The therapy appears to work through by venous decongestion, thrombolysis, blood and lymph flow enhancement and the suppression of inflammation.<sup>9</sup>

In Ayurveda, leech therapy is one of the bloodletting methods and is mentioned as one of the 60 treatment modalities explained for wound management.<sup>10</sup>

## CONCLUSION

Hence, medicinal leech therapy can be a promising alternative for the management of different auricular wounds or ulcers.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Ramakrishnan S, Bhandari M, Gopikrishna BJ, Sahanasheela KR. Effectiveness of medicinal leech therapy on infected postauricular ulcer: a case report. Int J Otorhinolaryngol Head Neck Surg 2020;6:578-80.