

EFFICACY OF LEECH THERAPY IN THE MANAGEMENT OF SUBDURAL HEMATOMA-A CASE STUDY

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ABSTRACT

Acute subdural hematoma is the most common type of traumatic intra cranial hematoma accounting for 24% cases of severe head injuries and carries highest mortality. The traditional Siddha system of medicine has 32 types of external treatment methodologies of which *Attai vidal* (Leech therapy), is one among them. It is an invasive procedure which is used to detoxify the blood and also to used to treat the chronic diseases especially varicose ulcer, varicose eczema, abscess and also acute conditions like contusion, swelling, tumours and hematoma. The present work is a case report of a patient of 71 years, with presenting complaints of tremors, severe head ache, vomiting, giddiness, unsteady gait, insomnia, difficulty in handling goods and amnesia for the past 15 days with the history of trauma at the right frontoparietal region. She was diagnosed as a case of Subdural hematoma 25mm with a midline shift of 3mm and was treated at Velumailu Siddha medical college, Department of Aruvai maruthuvam using Leech therapy for a period of 40 days. The MRI Brain was repeated every 15 days which showed remarkable improvement showing regression in the size of Hematoma and the midline shift resolved completely. The results revealed that Medicinal leeches could offer promising contributions to cases of subdural hematoma which is cheap and effective.

KEYWORDS: Siddha surgery, Leech therapy, Subdural hematoma, Natural treatment, *Attai vidal*.

INTRODUCTION

The incidence of acute subdural hematomas accounts for 24% of severe head injury patients and the incidence of severe head injury is 21 per 100000 people.^[1,2] Acute subdural hematoma occurs 1 to 3 days from injury which may be due to damage to surface cortical vessel, bleeding from underlying parenchyma injury and tearing of bridging veins from cortex to dural venous sinuses. Acute SDH is arbitrarily divided into 3 stages. i.e. Acute SDH. The common sites for the acute subdural hematoma are the inferior frontal, the anterior temporal and the parietal regions.^[3] The leech *Hirudo medicinalis* are one among the 130 species of leeches. They belong to class of Annelids or the ringed ones which are legless, avertebrate animals. It 6-10 cm or 2-3 inches in length and has the inherent property of the contracting and expanding itself. The leech consist of two suckers, both on its front called head sucker and one on its back side called the tail sucker which holds fast to the host. Near its suckers it will have eyes of 5 pairs. The skin will have the cells like human beings and favours respiration. Small glands which are innumerable in nature will be present in the longitudinal which helps in its movements of contraction and expansion. Leeches possess nervous

system, excretory system and also reproductive system.^[4] While early diagnosis and timely surgical intervention for SDH is the present day management, the traditional system of medicines have advocated leech therapy for the treatment of hematoma^[5,6]

Hirudotherapy is one of the best and most successful instances of the use of invertebrates for therapeutic purposes. While the practice dates back to the ancient ages, where it was employed as an alternative to phlebotomy. More than 20 identified bioactive substances such as antistasin, eglins, guamerin, hirudin, saratin, bdellins, complement, and carboxypeptidase inhibitors have been identified by the researchers which has been found to possess analgesic, anti-inflammatory, platelet inhibitory, anticoagulant, and thrombin regulatory functions, as well as extracellular matrix degradative and antimicrobial effects. The technique is cheap, effective, easy to apply, and its modes of action have been elucidated for certain diseases.^[7]

CASE REPORT

A 71 year old female presented about two weeks following a Trauma in right fronto parietal region... MRI

brain showed a right fronto temporo parietal acute subdural hematoma (Ac SDH) measuring 25 mm, with mid line shift of 7.5 mm to the left side. She was presented with complaints of tremors, severe head ache, vomiting, giddiness, unsteady gait, insomnia, difficulty in handling goods and amnesia for the past 15 days. She was under Leech therapy for a period of 72 days and the prognosis was assessed by repeated MRI done at 1, 34, 72 days. The patient showed complete recovery of all clinical symptoms with significant improvement in the MRI scan following leech therapy.

MATERIALS AND METHODS

Preparation of Leeches

3-4 medicinal Leeches (*Hirudo medicinalis*) were maintained in a fresh water container and were allowed to swim in turmeric water for 15-20 minutes. A separate container was maintained for each patient and a label with Name of the patient, Age, Number of leeches, Last date of using the leech was maintained.

METHODOLOGY

The prepared leeches were let to bite the patient in appropriate places. It was left to suck blood until it falls down on its own. The bite site is washed with Triphala kudineer and dressing using gauze with Triphala powder or sesame powder.

Adequate counseling was given to the patient about leech therapy and the consent was obtained. Hematological investigations were done to investigate Hb, WBC, ESR, BT, CT, blood sugar (Fasting and Post prandial), HIV marker and HbAsg to exclude co morbid conditions. The Leech therapy was done once in a week morning and evening for about 20 minutes to 1 hour and was observed for a treatment period of 72 days. MRI Brain was performed to assess the prognosis of the patient following leech therapy.

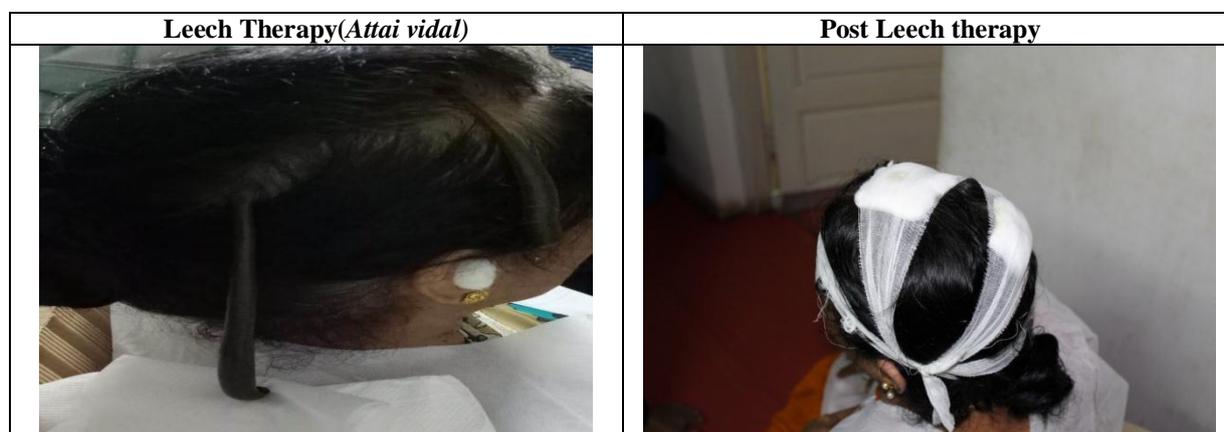


Fig. 1: Figure showing Leech therapy.

Purification of Leeches after Treatment

The used leeches are let in Turmeric powder until the sucked blood is evacuated from the Leech's stomach. And the leech is allowed to swim freely.

RESULTS

Table 1: Hematological parameters investigated on Day-1.

S.No	Parameter	Results
1.	Hb	13.8 mg/dl
2.	WBC	9,200 cells/cumm
3.	ESR	13mm/Hr
4.	Blood sugar(F)	90mg/dl
5.	Blood sugar(PP)	130mg/dl
6.	Bleeding Time	4 min
7.	Clotting Time	3 min
8.	HIV marker	Negative
9.	HbAsg	Negative

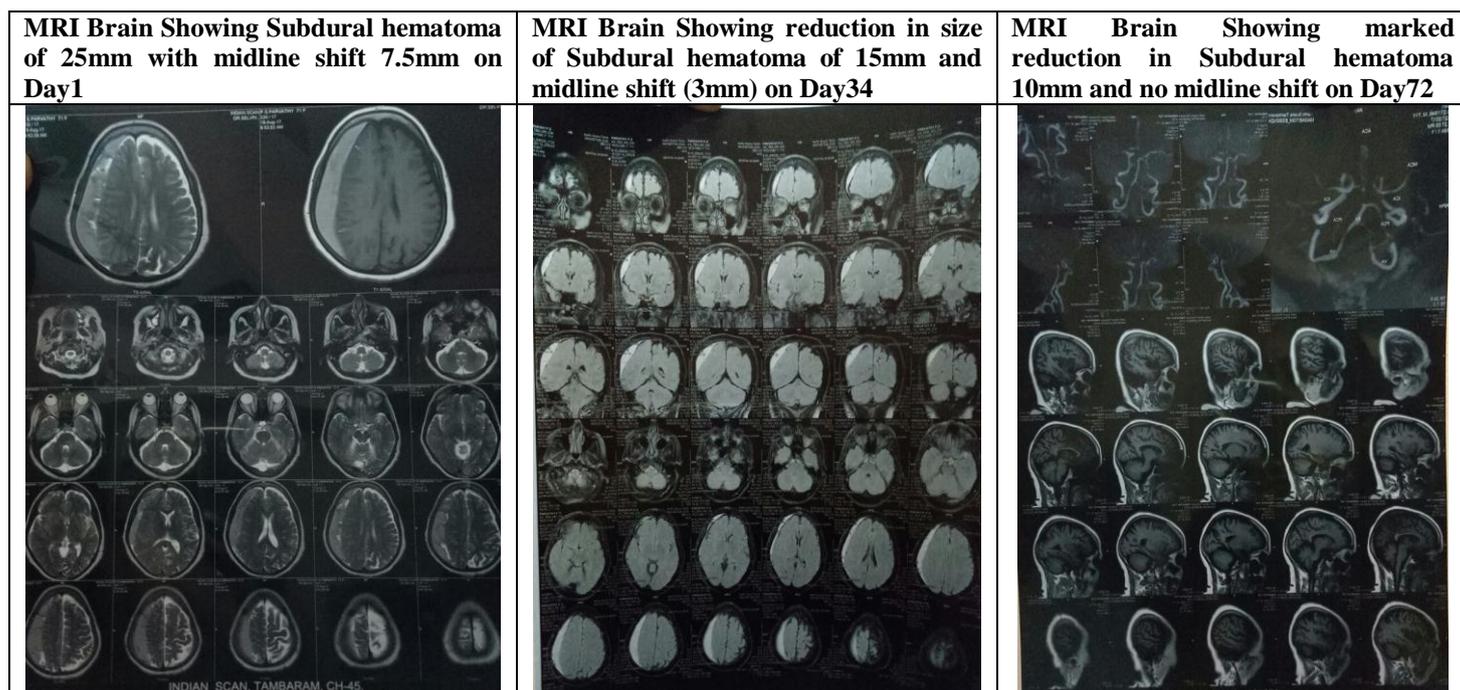


Fig. 2: Initial MRI Brain Showing Subdural hematoma on Day1 and its prognosis following Leech therapy in Day 34 and Day 72.

DISCUSSION

Subdural hematoma is presently a surgical intervention and the mechanisms of rapid resolution which has been proposed by the modern literature is dilution of hematoma by cerebrospinal fluid (CSF) due to tearing of the arachnoid membrane followed by wash out, Compression of the hematoma by acute brain swelling followed by redistribution and Cerebral atrophy may facilitate accommodation and intracranial redistribution of Acute Subdural hematoma.^[8] However the traditional leech therapy has been scientifically evaluated to be effective in the resolution of ASDH due to the presence of its salivary bioactive principles such as Hirudin and gelin which are the inhibitors of thrombin and has a strong effect on platelet activation and ADP release.^[9-11] In the present study, Day -1 MRI Brain showed subdural subacute hematoma of maximum thickness 25mm noted in right fronto temporo parietal region. Right lateral ventricle showed compression by mass effect. Further it showed a midline shift measuring 7.5mm to the left side. The patient underwent Leech therapy once in a week morning and evening for about 20 minutes to 1 hour and the MRI Brain was repeated at Day-34 which showed reduction in size of SDH (15mm) with a midline shift of 3mm. Leech therapy was followed and Day-72 MRI Brain showed significant reduction in size of hematoma (10mm) and no mid line shift was noted.

The therapeutic efficacy of leech therapy owes to the presence of bioactive chemicals present in it. Hirudin is a 7.1-kDa protein and irreversibly binds to thrombin, which causes consumption of active thrombin and results in antithrombin activity. Since Leech heparin has higher anticoagulant activity and fewer adverse effects, there is a strong consensus about it being a therapeutic

alternative to heparin.^[12] Gelin is an eglin analog and it is also a potent thrombin inhibitor and shows inhibitory effects on chymotrypsin, cathepsin G, and neutrophil elastase. In addition, anticoagulants obtained from leeches are used for peripheral arterial occlusion and infectious myocarditis. Various molecules (saratin, calin, decorsin, and apyrase) in leech secretions react against different parts of coagulation cascade chain and favours anticoagulation effect.^[13,14]

CONCLUSION

Leech therapy is a valuable traditional technique with strong biochemical actions. Although modes of action and bioactive substances still await further exploration, their utility in certain medical conditions is obvious. Through this case study an effort has been taken to scientifically validate the therapeutic efficacy of Leech therapy (Attai vidal) a Siddha external therapy to create a scientific evidence for this traditional method.

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