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Case Report

Management of *herpes zoster* in Ayurveda through medicinal leeches and other composite Ayurveda Treatment

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ABSTRACT

Herpes zoster commonly known as shingle's caused by varicella zoster virus (VZV). Recent studies have shown that exosomes play important role in pathogenesis as well as spread of herpes. Leeches when applied over affected part of herpes sucks the blood and there by interferes with extracellular communication through these exosomes and their by showing pain reduction, reduction in burning and arrest progression of disease. This technique is cost effective and easy to apply. In Ayurveda herpes can be correlated with *Pittaj visarpa*. Principle of treatment is *Raktmokshan* (~Bloodletting) and *Pradeha* (~Local application of medicines). Bloodletting with *Jalauka* (~Medicinal Leeches) is specifically indicated in management of *Pitta* dominant disorder. A 65-year-old female known case of Type 2 Diabetes (DM) and presented in Casualty of Government Ayurved College, Nagpur (GACN). We treated her Herpes zoster on the basic principles of management of *Pittaj Visarpa*. Management of Type 2 DM was continued as per modern medicine consultant. Rapid decrease in pain severity was observed after the 1st setting of leech therapy according to Zoster Specific Brief Pain Inventory (ZBPI) Questionnaire. After each seating pain reduction was observed. Repeated application of *Jalauka* along with internal medications gave complete relief. *Ayurveda* pain management in herpes zoster by leech therapy gives innovative easy, better and cost effective treatment. Adaptive trials are necessary to explore further practical applicability of Ayurveda and modern treatment together. Future research on effect of leech application on exosomes is necessary. © 2020 The Authors. Published by Elsevier B.V. on behalf of Institute of Transdisciplinary Health Sciences and Technology and World Ayurveda Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Herpes zoster commonly known as shingles caused by varicella zoster virus (VZV). Due to aging or immunosuppression decrease in immunity for VZV causes reactivation of VZV in dorsal root ganglia.

There is unilateral vesicular eruption within dermatome associated with severe pain [1]. Modern medicine doctors routinely manage it with antiviral therapy like acyclovir, corticosteroids and local application of lidocaine jelly. Though safety of acyclovir is established by many clinical trials but it has adverse drug effects like sleepiness or confusion, hallucinations, change in a behaviour, nausea, vomiting, diarrhoea [2]. In herpes zoster early clinical diagnosis and management within 72 h after appearance of rash is important to avoid complications [3]. The main aim of treatment is pain management, induce healing, reduction in viral spread and

avoidance of complications. Leech therapy plays important role in pain management. Various studies show that medicinal leeches achieve analgesic, anti-inflammatory, platelet inhibitory, anticoagulant, thrombin regulatory function as well as extracellular matrix degradation and antimicrobial effect [4] through hemophagy [5]. This technique is cost effective and easy to apply. It is being used for wide range of diseases in Ayurveda including pain and burning management and skin diseases [6].

Exosomes are extracellular vesicles released from cells upon fusion of an intermediate endocytic compartment, the multi-vesicular body (MVB), with the plasma membrane. They are means of intercellular communication and of transmission of macromolecules between cells. Exosomes have been attributed roles in the spread of proteins, lipids, mRNA, miRNA and DNA and as contributing factors in the development of several diseases including herpes. Exosomes are involved in immune responses; they activate T cells in activation of immune responses. Exosomes transfers protein, lipids mRNA and microRNA into acceptor cells. They also provide the means of bad communication in various

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neurodegenerative diseases. They can be found in various body fluids like blood, CSF, Stool, Urine and even exhaled air [7].

In *Ayurveda Visarpa* is *vata pitta* predominant; and wide range of acute skin diseases may be included under herpes is one of them. Principle treatment is *Raktamokshan* [8, verse 42] and *Pradeha* [8, verse 98-99]. In *Pittaj Visarpa Raktamokshan* by application of *Jalauka* [8, verse 69] (~medicinal leech therapy) and *Pradeha*. Viti-ation of *Pitta* and rapid spread of the disease are the hall marks of the disease.

1.1. Patient information

A 65-year-old female known case of Type II diabetes and Ischemic heart disease (IHD) since 20 years presented in casualty of (GACN) with blisters in left axilla and left subscapular region with severe burning pain. She was advised by physician acyclovir 400 mg 5 times in a day and NSAID (Tab. zerodol). But due to severe increase in pain after 1st dose, patient stopped modern treatment for herpes; and visited in Government Ayurveda college, Nagpur.

Patient was on modern medications for treatment of other concomitant illness (S. Table 1) at different duration.

2. Findings

2.1. General examination

Patient was afebrile, pulse 80/min, blood pressure 110/80 mm Hg. Her appearance was pale. Blisters in left axilla and left subscapular region.

2.2. Systemic examination

In systemic examination, respiratory, cardiovascular system examination were within normal limits. Patient was conscious but she was restless, severe pain and burning at the site of axillary nerve was also present, her pupillary reflexes were within normal limits. Deep tendon reflexes & superficial reflexes were also normal.

Ashtavidha Parikshan her *Nadi* (~pulse) was *Vatpittaj*, *Jivha* (tongue) was *Sama* (~coated), *Aakriti* was *Madhyam* (~medium built), bowel habit were regular and normal. *Druk* (~vision) was normal.

Dashvidh Examination showed *Vaat pittaj Prakriti*, *Madhyam Sarta*, *Alpa Satva*, *Madhyam Satmya Avara Vyayam Shakti*, *Vridhha Vaya*, *Vikruti Vaatpitta Pradhan*, *Abhyavaharan* and *Jaran Shaki* was *Madhyam*.

2.3. Investigations

Her diabetes was well controlled Glycosylated haemoglobin (HbA1C) was 7.33 Blood Sugar random was 132 mg/dL. Details of investigations at time intervals are given in S. Table 2.

2.4. Clinical findings

Patient had a complaint of blisters in left axilla and left subscapular region with severe burning pain ZBPI Score was very high that eventually reduced after treatment (Fig.1).

2.5. Diagnostic assessments

Patient was diagnosed on the basis of clinical findings. Photographs are given in Fig. 2 a & b. Assessment was done on the basis of Zoster Specific Brief Pain Inventory (ZBPI) questionnaire [9]. It is a Pain Scale based on Brief Pain inventory. It is herpes zoster specific.

Hence a more reliable for diagnostic and therapeutic assessment of herpes in clinical trials. This also measures intensity, Duration, area covered, mental condition relations of patients with other people, ability to perform daily activities.

2.6. Therapeutic intervention

Treatment plan was done considering *Vatpitta Dosha*, *Rakt Dhatu*, *Tvacha Sthan*. Removal of *Dushta Rakta* along with Shaman through internal medicines was considered. Involvement of *Ambu* (~Kled) is also considered as important factor during planning the treatment [10]. Ayurveda Treatment was planned considering *Vyadhi Sankar* of *Prameha* and *Visarpa*. S. Table 3 summarizes various properties of internal medicines mentioned in *Ayurveda* [11]. Easy availability of these medicines at our hospital and *Ayurveda* description of the medicines both were given importance to choose particular medicines. Treatment of existing type 2 diabetes was continued as per allopathic doctors.

First setting of leech therapy was done at the site of blister immediately after examination of patient and ensuring negative for HIV and Hepatitis B on the same day. Total three leech application seatings were required to achieve complete recovery. Three leeches of medium size were used in each seating. Standard Operating Protocol was followed as mentioned by Kumar et al. [12] Same leeches were used for all three seating's undertaken.

Powders of *I Shatavari* 2gm (*Asparagus racemosus*) + *Gokshur* 2 gm (*Tribulus terrestris*) + *Lodhra* (*Symplocococcus racemosus*) 1gm was given internally considering their *Pittaghna*, *Rasayan* [13] and *Kledghna* properties respectively as well as availability at our hospital. *Fisillax* ointment, that is easily available in our hospital pharmacy was given for local application for 8 days. This ointment is mainly indicated in burning and wound healing. On day-9 *Narikel Mashi* was added along with other medications. Details of content of *fissilax* are given in Table 1.

During the course of treatment antiviral, analgesics and other treatment for herpes were stopped. Treatment for Ischemic heart disease and hypertension was continued. Antiplatelet medicines were withheld on the day of application of leech (Supplementary Table 1).

2.7. Follow up and outcomes

Leech therapy was done on the 1st day of onset of rash at the site of blister. Patient got relief in severity of burning pain and other symptoms; rash and blisters were also subsided within 1 h after application of leeches; this was assessed by ZBPI questionnaire. Fig. 1 shows effect of therapy on ZBPI Symptom Score. Changes in consequent follow ups are shown in images. Fig. 2 c during first seating of *Jalauka* application. Fig. 2 d After removal of *Jalauka* of first seating. Fig. 2 e during second seating; Fig. 2 f during third seating. Fig. 2 g after completion of treatment.

Currently patient does not have any pain, burning related to herpes till the date of submission of this version of manuscript even after a year of treatment.

3. Discussion

Herpes zoster commonly known as shingles has a rapid spread along with severe burning at the site of lesion. Varicella virus (VZV) present in large amount in vesicles. That infectious virus from vesicles enters into endings of sensory nerves in the skin then travels from sensory nerve to dorsal root ganglia and cranial sensory ganglia. The genomic DNA of may VZV remains dormant in nerve ganglion, when it reactivates it multiplies and spreads into ganglion which infect many neurons. Virus reaches to skin through

Table 1
Showing Ayurveda treatment Plan.

Date	Treatment plan	Aushadhi Sevan Kal
15/9/2018	1 Leech therapy 2 Fissilax ointment (Til oil (<i>Sesamum indicum</i>)15 ml, Jeshthamadhu (<i>Glycyrrhiza glabra</i>) 3gm, Babul Sal(<i>Acacia arabica</i>)3gm, Lajjavati Parna (<i>Mimosa pudica</i>)2gm, Lodhra Sal(<i>Symplocos racemosa</i>)2gm, Pipal Sal(<i>Ficus religiosa</i>)2gm, Wat sal (<i>Ficus bengalensis</i>) 2gm, Udumbara Sal(<i>Ficus glomerulata</i>)2gm, Haldi (<i>Curcuma longa</i>)2gm, Madh (mel)1 ml, Khas (<i>Andropogon muricatus</i>)0.1 3) Internal Medications <i>Shatavari Churna</i> <i>Gokshur Churna</i> <i>Lodhra Churna</i>	Local Application twice a day 5 gm per day 4 times <i>Rasayane</i> and <i>Vyanodane</i> with water
24/9/2018	CT-ALL 4. <i>Narikel Mashi</i>	3gm thrice in a day
5/10/2018	CT-ALL	

axons of many neurons that results into appearance of rash on skin. Involvement of nervous system is one of the key phenomena in the pathogenesis of herpes zoster and recent studies shows that herpes zoster virus acts through exosomes for viral pathogenesis [14]. Involvement of these extracellular vesicles is considered as one of the key factor in spread of herpes zoster [15]. Recent studies also shows that medicinal leeches are important as far as various neurological communications inside the body [16].

Leeches sucks blood and lymphatic material and exhibit's their action through various exosomes there by bringing the reduction in viral load, anti-inflammatory action and reduction in symptoms. Same has been observed in current case and deactivation of herpes virus has been neutralised; which resulted in reduction of ZBPI Score clinically. It is believed that leeches exert analgesic and anti-inflammatory effects so as to avoid detection by the host while feeding. Antistatin derived from medicinal leech have inhibitory action on kinin–kallikrein mechanism [17]. Kinin–kallikrein pathway has major role in inflammatory response. Hemophagy (~feed on blood) action of leeches responsible to decrease viral load of herpes zoster [18].

We treated herpes of patient with Ayurveda understanding considering clinically as herpes zoster which can be correlate with *Pittaj visarpa*. In *Pittaj Visarpa* Principle treatment is *Raktamokshan* and *Pradeha*. In *Pittaj Visarpa Raktamokshan* by *Jalauka* (leech therapy) and *Pradeha*. *Pitta Doshghna Pradeha* is importantly indicated. In this particular case, *Pradeha* means local application over skin, *Fissilax ointment* also contains various herbs that are useful for *Pradeha*. (Local Application) (Table 1) Most of them having *Pittaghna*, *Vranropak*, *Dahaghna* properties. *Gokshur*, *Shatavari*, *Lodhra* have *Pittaghna* property due to sheet *Virya* used orally.

It is important to note that other treatments for concomitant illness were not disturbed. Concomitant illness like diabetes may have its impact on burning of patient this is being a limitation of the study; but a pragmatic or adaptive trial in this direction of using both the treatment modalities together can give much practical approach for treatment planning [19]. Schwickert et al has published a case report of management of herpetic neuralgia with use of leeches along with other composite therapies. But this case report does not talk about other *Ayurveda* panchkarma therapies [20].

Though positive effect of first dose of acyclovir cannot be ruled out, it is important to note decrease in severe burning and pain just after first *Jalauka* seating. This effect has impressed patient to continue, only with Ayurveda treatment by discontinuing modern treatment, as far as herpes is concerned.

Leeches can be received from local ponds in nature. But antiviral medicines needs to be purchased. In spite of treatment with antivirals post herpetic neuralgia (PHN) is very common [21].

Treatment of PHN requires medicines like pregabalin for long longer duration those are costly. In this case report we did not observe such symptoms of PHN. Yet it is also true that there no definite treatment protocol for PHN and variety of medicine ranges from calcium channel modulators, opioids to tricyclic antidepressants [22]. Various studies have shown that medicinal leeches an extra cellular dependent crosstalk between microglia and neurons [23].

There are various clinical trials conducted on use of leeches on various skin disorders like eczema [24]. A case report by Heckman et al. shows that leeches are useful for nerve compression [25] but its use in acute herpetic pain is demonstrated first time. Depending upon predominance of *Dosh Prakriti* a physician selects the type of bloodletting [26].

Progression or regression of diabetes or herpes have their effects on exosomes and extra cellular communications. Study Changes in exosomes before during after leech application may yield some different information. This case report gives us a research question for further studies. This case report may stand as a first lead in that direction. Many times patient takes both treatments (*Ayurveda* and modern medicine) together and understanding total efficacy when both treatments are given simultaneously. In this case a diabetic patient who suffered from herpes has taken Ayurveda treatment for herpes while continuing treatment diabetes as per modern medicine. Adaptive trials in such direction may give more practical

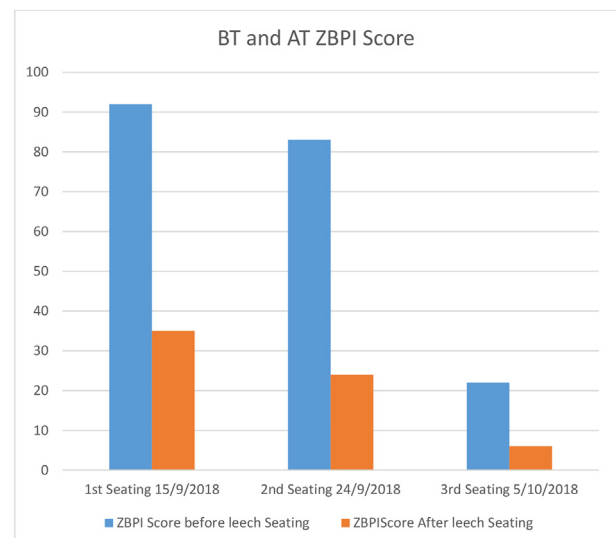


Fig. 1. Pictures before treatment.



Fig. 2. Management of herpes zoster in Ayurveda through medicinal leeches. a & b- before treatment; c-During first seating of Leech; d- just After first seating of leech; e-During second seating of Leech; f- During third seating of Leech; g- After treatment.

answers for improving clinical decision making to a clinician in cases when both treatments are administered simultaneously and also to understand cellular communication through exosomes with Ayurveda interventions.

3.1. Patients perspective

Initially patient was very much upset with pain and burning; she was also restless due adverse effect of antiviral therapy. After first seating of *Jaluka* (~Medicinal leeches) she was much more relaxed and confident about Ayurveda treatment as there was reduction in symptoms. Her own perspective in her own words in local language (~Marathi). Same is also uploaded as a supplementary material.

3.2. Informed consent

Patient sign the informed consent in structured format (scientific writing in ealth and Medicine –format) same format is explained to patient and she has willingly given consent. Signed Consent form uploaded to journal.

4. Conclusion

Ayurveda approach in terms of pain management in herpes zoster by leech therapy gives innovative easy, better and cost effective treatment. Adaptive or pragmatic trials in the direction of management of diseases with concomitant illness are necessary to explore further practical applicability of treatments. It also gives us innovative approach for future research on effect of leech application on exosomes.

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Conflicts of interest

None disclosed.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jaim.2020.05.008>.

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