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

Amit Nakanekar*, Punam Khobarkar, Sanjana Dhotkar
Kayachikitsa, Government Ayurved College, Nagpur, India

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A B S T R A C T

Herpes zoster commonly known as shingles 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 thereby 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.

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 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, diarrhea [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 multivesicular 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 transfer protein, lipids mRNA and microRNA into acceptor cells. They also provide the means of bad communication in various
neurodegenerative diseases. They can be found in various body fluids like blood, CSF, Stool, Urine and even exhaled air [7].

In Ayurveda Visarp 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. Vitation of Pitta and rapid spread of the disease are the hallmark 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 pepyrrhic reflexes were within normal limits. Deep tendon reflexes & superficial reflexes were also normal.

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

Dashvih Examinanation showed Vaat pittaj Prakruti, Madhyam Sarta, Alpa Satva, Madhyam Satmya Avara Vyayam Shakti, Vridhha Vaya, Vkritu 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 1 Shatavari 2gm (Asparagus racemosus) + Gokshur 2 gm (Tribulus terrestris) + Lodhra (Symplocos 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 fisilax 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. Antiplaetelet 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 herpesis 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 ganglion, when it reactivates it multiplies and spreads into ganglion which infect many neurons. Virus reaches to skin through
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 where they bring in 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-virus has been neutralised; which resulted in reduction of ZBPI Score clinically. It is believed that leeches exert analgesic and anti-inflammatory 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 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].

Table 1
Showing Ayurveda treatment Plan.

| Date          | Treatment plan                  | Aushadhi Sevan Kal         |
|---------------|--------------------------------|---------------------------|
| 15/9/2018     | 1 Leech therapy                | Local Application twice a day |
|               | 2 Fissilax ointment             | 5 gm per day 4 times       |
|               | (Til oil (Sesamum indicum)15 ml, Jeshthamadhuv (Chicoryrhiza gatlra) 3gm, Babul Sal(Acacia arabica)3gm, Lajavati Parna (Mimus pudica)2gm, Lodhra Sal(Sympholoe racemosu)2gm, Pipal Sal(Ficus religiosa)2gm, Wat sal (Ficus bengalensis) 2gm, Udumbara Sal(Ficus glomerulata)2gm, Halidi (Curcuma longa)2gm,Madh (mel)1 ml, Khus (Andropogan muricatus)0.1 | Rasayane and Vyanodane with water |
| 24/9/2018     | CT-ALL                         |                           |
| 5/10/2018     | 3gm thrice in a day            |                           |
|               | 4. Narikel Mashi               |                           |
|               | CT-ALL                         |                           |

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 dependant 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 fi rst 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 fi rst lead in that direction. Many times patient takes both treatments (Ayurveda and modern medicine) together and understanding total ef fi cacy 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.](image-url)
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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