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Ayurvedic Management of Extensive Infected Snakebite Wound Preventing Amputation – A Case Study

Sarita Gaikwad*

*AYUSH, Pune region, Pune, MS, India

ABSTRACT

Snakebite is very common problem encountered in India. Apart from mortality, the morbidity is also high. Treatment of complicated wounds resulting from cytotoxic snake poison poses multiple challenges. Snake bite wounds are complicated, that take longer time to heal, leaving some disability to the subjects. Here is the case study of snakebite infected wound that was failed to heal by modern therapy. There was one stage when amputation of the limb was seemed very eminent, when Surgery department referred the case to Ayurved department for further management. Ayurved department successfully managed the case in spite of developing complication of Osteomyelitis with sinus formation. This case study highlights the strength of Ayurvedic principles that could be applied for treating such type of wounds. Therefore a multidisciplinary approach is required to treat snakebite cases, the modern therapy is definitely superior in treating the emergency, but Ayurved is better alternative for treating complications of snakebite like extensive infected wound.

KEYWORDS

Snakebite, Infected- wound, Osteomyelitis, Ayurvedic, Management



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INTRODUCTION

Snake bite remains an important but neglected public health issue in Tropical & Subtropical countries. Agriculture workers & children are mostly affected by it. It is estimated that nearly two million persons are victims of snakebite in India, resulting in 35,000 to 50,000 deaths every year¹. Those who survive, there is considerable disability amongst them but such data is not available in many countries including India. Cases of severe envenomation are often characterized by subsequent wound infection and skin and soft-tissue necrosis^{1,2}. Treatment of complicated wounds resulting from cytotoxic snake envenomation poses multiple challenges; therefore a multidisciplinary approach is required. Current treatment strategies need to be examined in order to reduce morbidity. This case study gives insight about the strength of Ayurved that has saved the lower limb from amputation. Thus Ayurved can play a crucial role in the management of snakebite wounds.

CASE STUDY

Infected Extensive Snake Bite wound:-This 40 year old female was met with unidentified snake bite at two places on

Rt. foot while working in farm on 4.2.2015. She was referred from nearest Primary Health Centre to Sassoon hospital, Pune and was admitted in Medical ward of Sassoon General Hospitals, Pune.



Fig.1 Snakebite wound on admission in Ayurved ward

Notes on admission/ Patient History: Patient had history of Haematemesis two times, Bilateral ptosis, Breathlessness and Hematuria. She had mixed picture of snake bite- Vasculotoxic + Neuroparalysis, with local cellulitis up to knee joint & swelling of Rt. foot + bleeding+, with Dyspnoea as mild respiratory involvement & coagulopathy. She had developed disseminated intravascular coagulation (DIC). She was adequately treated by medicine department with ASV, Free Frozen Plasma & Cryoprecipitate. That saved her life. She was transferred to surgery department for further management. Debridement of wound was

done under spinal anaesthesia on 8thFeb 2015 and on 12th Feb and that was developed in to an extensive ulcerated wound of size 25 cm x 8-9 cm x 1-2 cm on anterior aspect of Rt. foot extending over leg & another smaller wound of size 10 cm x 3 cm x 1 cm on the medial side of middle of Rt. lower limb.

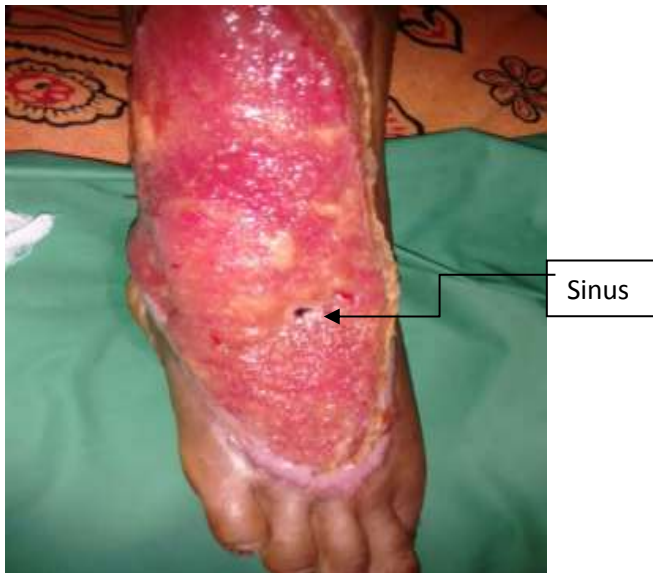


Fig. 2 Wound after 6 weeks

She was with the surgery department till 23.2.2015, but wound remained infected, not responding to treatment. Surgery department informed brother of the patient that above knee amputation might be required to save her life. Before amputation, in view of past experience of successful treatment of many such complicated wounds by Ayurved department, Surgery department transferred the case to Ayurved department for wound management and survival of limb.

She was managed actively by Ayurvedic therapy; however Pt developed Osteomyelitis with fistula formation during treatment. That is called as *Nadi -vran* in Ayurved. In modern science, despite the use of surgical debridement and long-term antibiotic therapy, the recurrence rate of Chronic Osteomyelitis in adults is about 30% at 12 months. Recurrence rates in cases involving *P. aeruginosa* are even higher, nearing 50 percent³. But this challenging case having developed complication of Osteomyelitis was managed successfully by Ayurvedic line of treatment. It took about 7 months to complete healing of the wound. Patient was discharged on 25.9.2015, went walking home with both the legs.



Fig. 3 Wound on 3months



Fig.4 Wound on 7 months



DISCUSSION

Sushrut had mentioned in detail about 80 species of snakes, in 5 groups. He was the first person to differentiate the sex-wise symptoms of snake bite. Symptoms of bite of pregnant snake, just delivered snake, lethality of snake poison as per age of the snake were also mentioned. Modern science is still unaware of this aspect of snake-bite. Sushrut further mentioned that there were 8 species indicating the mixed nature of poisonous snakes. This patient had also experienced symptoms of mixed form of *Darveekar* (Neurotoxic) and *Mandali* (Vasculotoxic) snake poisoning. Charaka mentioned that there were 8 forms of *Vegas* observed after snake bite⁴ and breathlessness, Chhardi/ Vomiting experienced by the patients fitted in to fourth Veg.

It is said apart from poisonous snake venom, the buccal flora of snake is also contaminated. When snake ingests a pray, it defecates in the oral cavity of snake and the various bacteria are transferred to the victim when snake bites; this complicates the recovery of patient due to appearance of various symptoms. Therefore snake bite wounds take longer time to heal. It was not that the wound healing took long time due to

diabetes; it is clarified here that patient was not diabetic.

Granthkaras have mentioned description of Panchvalkal namely Vata (*Ficus bengalensis*), Udumbar (*Ficus racemosa*), Ashwatth (*Ficus religiosa*), Pluksh (*Ficus virance*), Pippalbhed /Hibinuxvs (*Thepasia populnea*). The bark of these *valkalas* & skin of human being has much similarity as per '*Samane samane vridhdesham*' principle of Ayurved. Further, these trees are *Kshirivriksha*, *Kashayrasatmak* hence it promotes healing; have *Deerghjeevi* (long life) therefore healing is permanent/ non recurrent. Their properties are *Grahi*, *Sheetal*, *Vran*, *Shoth*, *Visarpnashak* and is *Vishaghna*. Out of these Panchvalkal, first 3 are easily available. The author had successfully used quath made from the bark of Vat (*Ficus indicus/bengalensis*), Udumbar (*Ficus racemosa*), Ashwatth (*Ficus religiosa*) for treating non healing/ trophic ulcers in Leprosy patients⁵. Quath made of 3 *Valkalas* mentioned +Daruharidra (*Berberis aristata*) was used initially first 7 days for washing the wound. It was followed by quath made of 3 *Valkalas* for the rest of the period.

For Vran karma *Vran shodhan* oil was used which contained Haridra (*Curcuma longa*), Manjistha (*Rubia cordifolia*), Nimba (*Azadirachta indica*), Madhuyasti



(*Glycyrrhiza glabra*, Darvi (*Berberis aristata*), Trivarta (*Merremia turpethum*), seed of Tila (*Sesamum orientale*) & Saindhav (*Rock salt*). This treatment helped to reduce the inflammation.

On appearance of healthy granulation tissue, the wound was dressed with *Jatyadi oil* because it had specific action on healing *Dushta vran*. As per Sharngdhar it has action on healing of wounds caused by weapons, poisonous bites & non healing wounds⁶.

Role of Matrabasti:- Pt. had inflicted with snake bite that created *Vataprakop*. Basti is half chikitsa & for *Vat shaman*, tail is the best remedy. Therefore we gave *Matrabasti*. Further Asthi/ bone is the sthan of Vata. It was likely that the infection went up to the bone as snake poison itself is *Vyavyi-vikasi*. Narayan tail is *Vatashamak*, *Shothenashak* and when administered through *Matrabasti* helped to reduce Vata & nourished body especially *Mauns-dhatu* for its healing.

Gandhak-Rasayan is broad spectrum Ayurvedic antibiotic, anti viral, anti microbial, anti inflammatory & is blood purifier. *Sookshma triphala* is specially used post operatively routinely for abdominal surgeries to prevent infection. Along with *Gandhak rasayan* it acts as best antibacterial dravya. *Gandhak rasayan* causes

hepatotoxicity, therefore it cannot be used for longer period; hence, we used it for only for 15 days. *Sitopaladi+ Avipatikar* was used for *Deepan*, *Pachan* and *Mruduvirechan*. *Tiktaghrit* has special role in healing of infected wound; further it helps to balance Pitta. *Triphala guggul* is *Jantughna/ anti bacterial*, anti inflammatory, *Vat shamak*, *Shothghna* having *Shool-har* (analgesic) properties. *Gokshuradi guggulu* acted as *Nephroprotective* and prevented the likely effect of snake poison on kidneys. It reduced the *kleda* that reduced the slough. It is *Vran shodhak/ ropak*, *Shool-Daha nashak* and *Aam-pachak*. Patient was given *Kshirpak* made up of *Ashwagandha*, *Shatawari*, *Haridra* and *Sunthi* that nourished the *Maunsdhatu* and promoted wound healing.

Eladi tail has properties of *Vata-shamak*, *Kapha shamak* and is useful in poisoning⁷. We instilled 1ml of *Eladi oil* in the sinus thrice weekly that enabled closure of sinus within 16 weeks. Thus *Eladi oil* was found to be a wonderful remedy in curing *Osteomyelitis*. We carried out *Dhoopan/ Fumigation* of wound by *Vacha*, *Nimb-patra* (*Melia Azadiracta wild*), *Ral* (*Yellow Resin*) along with *Ghrit* every day before start of *Vran-karma*.

Aahar:-Patient was given *Laghu, Supachyaaahar*. Non veg. food & Divaswap was totally avoided. In addition to the *Laghu, Supachyaaahar*, baked Chana/ Bengal gram 15 gm daily along with two overnight soaked dried dates in water. She was given one boiled egg daily. It fulfilled her additional protein demand that was very much needed for wound healing.

Combined action of all these drugs along with local treatment and essential *Aahar-Vihar* facilitated wound healing which prevented the amputation of limb and disability due to Osteomyelitis; that saved the patient from becoming permanently disabled. A detail treatment plan has been tabled in Table No. 1.

Follow up:- It is worth mentioning that till date there is no Keloid or hypertrophic scar developed after healing of such a large infected wound which is commonly seen in modern therapy; further, the scar was also reduced in size as visible in follow up

photograph (Fig. No.5). It is noteworthy that there was no recurrence of sinus for till date.



Fig. 5 Follow up after 1 year

This case study highlights certain advantages of Ayurvedic treatment of infected wounds:-

1. Use of Antibiotics is no longer required.
2. No need to carry out swab culture for bacterial sensitivity, saving the cost of investigations & time.
3. No need to use Iodine or Silver compounds for wound dressing which is commonly used in modern surgical practice.

Type of treatment	From to	Intervention
Local	23. 2. 2015 to 1.3.2015	Decoction made up of 1 part each of barks of Vat (<i>Ficus indicus</i>), Udumbar (<i>Ficus racemosa</i>), Ashwatth (<i>Ficus religiosa</i>) and Daruharidra (<i>Berberis aristata</i>) quath to wash wound.
	2.3.2015 to 24.9.2015	Decoction made up of 1 part each of barks of Vat (<i>Ficus indicus</i>), Udumbar (<i>Ficus racemosa</i>), Ashwatth (<i>Ficus religiosa</i>) to wash wound.
	23. 2. 2015 to 1.3.2015	Applied Vranshodhan oil over wound (Sandu)
	2.3.2015 to 24.9 2015	Applied Jatyadi oil over wound (Baidyanath Ayurved Bhavan, Nagpur)
	5.4..2015 to 14.8.2015	Instilled Eladi oil 1 ml in the Sinus by 2 ml glass syringe nozzle end (without needle) thrice weekly. (AVP)
Systemic treatment	23.2.2015 to 9.3.2015	Tab Gandhak Rasayan 500 mg BD (Sandu)
	23.2.2015 to 24.9.2015	Gokshuradi guggul 500 mg BD (Ayurved Rasa shala, Pune)
	23.2.2015 to 24.9.2015	Tab Sukshma Triphala 500 mg BD (Rasa shala, Pune)

	23.2.2015 to 24.9.2015	Triphala guggul 250 mg BD (Sandu)
	23.2.2015 to 24.9.2015	Amrutadi guggul 500 mg BD (Rasa shala, Pune)
	23.2.2015 to 24.9.2015	Sitopaladi choorna ½ TSF+ Avipatkar choorna½ TSF (Rasa shala, Pune)
	23.2.2015 to 24.9.2015	Tiktaghrit 1TSF on empty stomach everyday (Arya Vaidya sala)
	3.3.2015 to 24.9.2015	Siddha kshirpak made of Ashwagandha 1 gm + Shatavari 1gm +Haridra 500 mg + Sunthi 500 mg daily
Matrabasti	9.3.2015 to 22.8.2015	Narayan oil 40 ml (Sandu) after meal
Dhoopan	23.2.2015 to 24.9.2015	Vacha, Nimb-patra (Melia Azadiracta wild), Ral (Yellow Resin) along with Ghrit everyday before start of Vran-karma

4. No risk of Keloid or hypertrophic scar.

5. Cost effective

This case study highlighted the strength of Ayurvedic treatment principles which enabled survival of the limb. These treatment principles could be applied to heal most of such types of infected wounds.



Fig.6 Second Wound on admission to Ayurved ward



Fig. 7. Same Wound after 15 days



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