



# INTERNATIONAL JOURNAL OF AYURVEDA AND PHARMACEUTICAL CHEMISTRY

(A peer reviewed journal dedicated to allied Sciences)

## PUBLISHED BY

**Greentree Group Publishers (GGP)**  
greentreegrouppublishers@gmail.com

Volume 10 Issue 2 | 2019

## CONTACT DETAILS

- [submittoijapc@gmail.com](mailto:submittoijapc@gmail.com)
- [www.ijapc.com](http://www.ijapc.com)
- e issn 2350-0204
- [editor@ijapc.com](mailto:editor@ijapc.com)

## INDEXED IN

Open Access Scholarly Resources, ZB MED Germany, ZB MED Search Portal for Life Sciences, ZDB, Electronic Journals Library, Directory of Research Journals Indexing, I2OR, IP Indexing Portal, Geneva Foundation for Medical Education and Research, hbz composite catalog and many more..



## Complicated Skin and Soft-Tissue Infections: An Ayurvedic Approach to its Management

Dhrubajyoti Talukdar<sup>1\*</sup> and Pankaj Kumar Barman<sup>2</sup>

<sup>1</sup>SRF, RARIGID, CCRAS; Guwahati, Assam, India

<sup>2</sup>Department of Shalyatantra, Govt. Ayurvedic College, Guwahati, Assam, India

### ABSTRACT

Complicated skin and soft-tissue infections are presently a commonly found clinical entity due to various reasons like antibiotic resistance, diabetes mellitus, HIV infections, cirrhosis of liver etc. Management of these conditions is a challenging task due to various factors which is even more complicated with emergence of antibiotic resistant cases. There is an important role that can be played by the use of concepts of wound healing present in the Ayurvedic texts mainly Sushruta Samhita which deals with rich therapeutic procedures and drugs used for the same. Along with different types and diagnostic features of wound, Sushruta Samhita discusses sixty types of treatment procedure for wounds which comprises of different treatment modalities including surgical and other methods. There is great scope of these techniques in management of complicated skin and soft-tissue infections in present era.

### KEYWORDS

*Complicated skin and soft-tissue infections, Alternative treatment, Wound healing, Vranasotha, Vrana.*



**Greentree Group Publishers**

Received 09/01/19 Accepted 03/02/19 Published 10/03/19



## INTRODUCTION

Skin and soft-tissue infections (SSTIs) are defined as infections of the epidermis, dermis, or subcutaneous tissue. They are among the most common human bacterial infections frequently observed in clinical practice. Rise in incidence has been observed recently due to several factors like increasing population age, surgical wounds in the elderly population, obesity, diabetes, peripheral vascular disease and immunocompromised status. The pathogenesis of SSTIs occurs by direct inoculation of pathogens through skin injuries or hospital procedures, but can also be associated with skin conditions such as eczema and dermatitis and also spread to the skin from deep or distant sites. Occasionally in different situations, no obvious source can be detected. SSTIs, particularly those caused by *Staphylococcus aureus*, can lead to conditions like bacterial endocarditis, deep seated abscesses, osteomyelitis and SIRS. Treatment approach involves correct diagnosis, identification of involved organism and addressing the focus. Although SSTIs can be successfully treated using empirical antimicrobial therapy, the increasing incidence of antibiotic resistance among some bacterial strains, particularly *S. aureus*, increases the need of newer

treatment regimen. Along with decreasing efficacy of antibiotics against the most resistant bacterial strains, the potential toxicity of many antibiotics and high cost are cause of concerns. But invention of new antibiotic classes without, or with minimal, potential for bacterial resistance, in addition to low-toxicity profile is a challenging and time consuming task. Surgical intervention, in such cases, always plays an important role and administration of appropriate surgical care is critically important. Again cultures from aspirates and lesions may not always reveal the causative organisms thus many diagnoses are based on the clinical presentation and morphology of the lesion, with the most appropriate empirical treatment being decided accordingly with modification according to the response of the infection. In cases with diabetes because of the associated peripheral neuropathy, impaired peripheral circulation, altered leukocyte function, a disturbed balance of cytokines and proteases, and chronic hyperglycaemia wound healing becomes difficult and can be limb- and life-threatening.<sup>1,2</sup>

Ayurveda, one of the oldest system of healthcare still surviving the test of time, has wonderful surgical concept and skills along with its versatile drugs with herbal, mineral and other biologic components along with unique approach of treatment.



Sushruta Samhita, the main surgical book of Ayurveda contains the fundamental principles of surgery and different medicines for different surgical purpose as well.

## SKIN AND SOFT-TISSUE INFECTIONS IN AYURVEDA

Management of skin and soft-tissue infections in Ayurvedic surgery depends upon correct diagnosis and individualized treatment plans specific for each individual and type of disease following Ayurvedic principles. Skin and soft-tissue infections are described in Ayurveda in terms of *vranasotha* (inflammatory swelling) and *vrana* (wound). *Vranasopha* is described as localized swelling in a body part involving the skin and the underlying soft tissue, which may be even or uneven, massive and knotty in consistency and that which is different from conditions like glandular swelling and deep seated abscess etc.<sup>3</sup> Again *vrana* is a condition where there is discoloration of body (due to disruption or

destruction of body tissue)<sup>4</sup> and condition which when cured produces scar formation as a result of post-ulceration<sup>5</sup>. Aetiopathogenesis of *vranasotha* is similar to that of inflammation. It is defined as local response of tissue to any kind of injury. Sushruta mentions that *Shopha* occurs in sequential pattern, in six different stages called *shatkriyakala* comprising of *chaya*: stage of accumulation, *prakopa*: stage of excitation, *prasara*: stage of spread, *sthanasamsray*: stage of localization, *vyakta* : stage of clinical manifestation, and *bheda* : stage of complications.<sup>6</sup>

*Vranasopha* is divided into 6 subtypes<sup>7</sup> (table 1.).

Three stages of *vranasopha* are described<sup>8</sup> (table 2.).

Different classification of *vrana* are summarized in table 3.

### Management:

Sixty types of treatment procedure for wounds (*Shasthiupakrama*) are described in Sushrut Samhita<sup>9</sup> (table 4.).

**Table 1** Subtypes of *Vranasopha*

Clinical features	<i>Vataja</i>	<i>Pittaja</i>	<i>Kaphaja</i>	<i>Shonitaja</i>	<i>Sannipataja</i>	<i>Agantuja</i>
Colour	<i>Krishna</i> (Blackish)/ <i>arun</i> (reddish)	<i>Peet</i> (Yellow)/ <i>sarakto</i> (hyperemic)	<i>Pandu</i> (Pale/white)	Dark black	Different colours	Red
Consistency	<i>Parusho</i> (rough/indurated), <i>mridu</i> (Soft)	<i>mridu</i> Soft,	<i>Kathin</i> (Indurated), <i>snigdha</i> (smooth),	As <i>Pittaja</i>		Like <i>Pittaja</i> and <i>raktaja</i>
Pain	<i>Toda</i> (pricking pain), <i>bhedan</i> (piercing pain), <i>chedan</i> (cutting pain)	<i>Osh, sosh, paridah, dhumayan</i> , (different types of burning pains)	<i>Kandu</i> (itching), <i>gurutva</i> (heaviness),	As <i>Pittaja</i>		Like <i>Pittaja</i> and <i>raktaja</i>



		<i>suptatva</i> (numbness)
Other characters	Quick spreading	Cold on touch, Slow spreading

**Table 2** Three stages of vranasopha.

Stage	Clinical features
<i>Amawastha</i> : Stage of unripe abscess (early inflammation)	warmth, normal skin colour, cold on touch, induration, dull pain, mild pain.
<i>Pachyamanawastha</i> : Stage of ripening abscess (inflammatory stage)	pricking, stinging, burning pain, no relief in any decubitus, discolouration, increased swelling, pyrexia, thirst, anorexia, burning sensation
<i>Pakvawastha</i> : Stage of ripening abscess (inflammatory stage)	subsidence of pain, pallor, localization of induration, appearance of wrinkles cracks in the skin, fluctuations, cystic consistency.

**Table 3** Classification of vrana.

Classification	Type	Subtype
Etiology	<i>Nija</i> due to the changes of the dosic equilibrium	Vataja, Pittaja, Kaphaja, Raktaja, Vata-pittaja, Vata-kaphaja, Pitta-kaphaja, Sannipatika, Vata-raktaja, Pitta-raktaja, Kapha-raktaja, Vata-pittaraktaja, Vatakapharaktaja, Pittakapharaktaja, Tridosaraktaja
	<i>Aagantuja</i> due to injury	
Clinical Stages	<i>Dushta, Shuddha, Ruhyamaana and Roodha</i>	
Prognosis	<i>Sukhasaadhya, Kruchrasaadhya, Yaapya and Asaadhya</i>	

**Table 4** Sixty types of treatment procedure for wounds

Sl. no.	Type	Brief description
1	Apatarpana	Apatarpana is langhana – upavasa
2	Aalepa	Local application
3	Parisheka	Irrigation with medicated preparation
4	Abhyanga	Application of medication with massage
5	Swedana	Application of heat
6	Vimlapana	Reduction of swelling
7	Upanaha	Bandaging with medication
8	Pachana	Hastening of suppuration
9	Visravana	Bloodletting
10	Snehapana	Oral intake of medicated sneha
11	Vamana	Induced emesis
12	Virechana	Purgation therapy
13	Chedana	Excision
14	Bhedana	Incision
15	Darana	Induced spontaneous opening
16	Lekhana	Scraping
17	Eshana	Probing
18	Aaharan	Extraction
19	Vyadhana	Puncturing
20	Visravan	inducing discharge
21	Seevana	Delayed primary suturing
22	Sandhana	Grafting/ flap



23	Peedana	Medicated drainage
24	Shonitasthapanana	Prevention of excessive bleeding
25	Nirvapana	Local application for complications
26	Utkarika	Application of hot medication
27	Kashaya	Medicated decoction
28	Kalka	Paste of medication
29	Varti	For wounds with small opening
30	Ghrita	Local application Medicated ghee
31	Taila	Local application medicated oil
32	Rasakriya	Herbo-mineral preparation
33	Avachuranana	Powdered applications
34	Vranadhoopana	Wound fumigation
35	Utsadana	Local application and Nutrition for malnourishment
36	Avasadana	Local application for unhealthy granulation
37	Mrudukarma	Local application for unhealthy granulation with infection
38	Darunkarma	Local application for unhealthy granulation with fragile tissue
39	Ksharakarma	Local application of kshara
40	Agnikarma	Local application of heat
41	Bastikarma	Medicated enemas
42	Uttarbasti	enemas for urinary system
43	Patradana	Use of leaves of medicinal plants in bandaging
44	Krimighna	Removal of maggots
45	Bruhana	Nutrition for malnourishment/ hypoproteinaemia
46	Vishaghna	Removal of toxins
47	Shirovirechana	Nasal application
48	Nasya	Nasal application
49	Kavalgraha	Medicated gurgling technique
50	Dhoomapana	Medicated smoking
51	Madhu- Sarpi	Honey and ghee
52	Yantra	Instrumentation
53	Krishanakarma	Removal of abnormal colour
54	Pandukarma	Restoration of normal colour
55	Pratisarana	Rubbing of medicated powder for restoration of normal colour
56	Romasanjana	trichogenesis
57	Romashatana	Hair removal
58	Bandha	Bandaging
59	Ahara	Diet
60	Rakshavidhan	Preventive measures

## DISCUSSION

Ayurvedic surgery has a rich description of treatment principle of wound. Acharya Sushruta has mentioned multiple modalities of treatment for complicated skin and soft-tissue infections. Different treatment approach with different aim is the hallmark of Sushruta's principle. They can be used in different combination according to the

condition of the patient and the disease. Broadly Sushruta has advised sixty types of treatment methods for the complete treatment of different wounds. Deep insights and understanding are needed for their practical use in current scenario. The sixty methods of treatment include different approach. For the inflammatory stage, Sushruta grouped the treatment methods



into seven groups<sup>10</sup> namely: *Vimlapana*, *Avasechana*, *Upahana*, *Patana*, *Shodhana*, *Ropana*, *Vaikritapaha*.

1. *Vimlapana*: the word '*Vimlapan*' means '*sopha vilayan*'<sup>10</sup> i.e. reduction of swelling. It includes the treatment procedures of *Apatarpana*, *Alepa*, *Parisheka*, *Abhyanga*, *Sveda* and *Vimlapana*.

2. *Avasechan*: This is the procedure for removal of toxins from the body. It includes *Visravana*, *Snehana*, *Vamana* and *Virechana*.

3. *Upahan*: It is application of medicated paste and includes *Pacana* and *Upanaha*.

4. *Patana*: These are the surgical interventions *Chedana*, *Bhedana*, *Darana*, *Lekhana*, *Eshana*, *Aharana*, *Vyadhana*, *Visravana* and *Sivana*.

5. *Shodhana*: *Shodhana* means cleaning, debridement and antiseptic measures. Includes *Sandhana*, *Pidana*, *Shonithasthapana*, *Nirvapana*, *Utkarika*, *Kashaya*, *Varti*, *Kalka*, *Sarpi* and *Tail*.

6. *Ropana*: *Ropana* or healing measures include *Ropana*, *Rasakriya*, *Avachurnan* and *Dhoopana*.

7. *Vaikritapaha*: To restore normalcy of scar, different cosmetic measures are described.

For systemic management, *vaman*, *virecan*, *grita*, *utsadana*, *bastikarma*, *bruhana*, *shirovirechana*, *nasya*, *dhoomapana* and

*ahara* are prescribed. For *shodhan* (cleaning and debridement) and *ropan* (healing) of wound: *kasay*, *varti*, *kalka*, *sarpi*, *taila*, *rasakriya* and *avachrunan* are prescribed. For surgical intervention *visravana*, *chedana*, *bhedana*, *lekhana*, *eshana*, *aaharan*, *vyadhana* and *seevana* are prescribed. Bleeding is always a serious concern for SSTI. For haemostasis, *kasaya shita* kriya, *pachan* and *dahan* are prescribed. Diet (*ahar*) and methods of prevention (*rakshoghna*) are also described. Different medicinal preparations are mentioned for each treatment procedures. Different types of skin and soft tissue infections are described in Ayurveda according to different clinical features. Thus using different procedures with prescribed drugs according to the diagnostic criteria should help us to tackle different types of SSTIs in different ways thus helping to treat the complicated cases.

## CONCLUSION

The hallmark of Ayurveda is the holistic patient specific approach to a disease condition. Surgery in Ayurveda is also no exception of this rule. Different route of drug application and different procedures are mentioned for the treatment of skin and soft tissue infections. By identifying the conditions in early stages definitely eases



the task but even in complicated cases these approaches can be beneficial. Before starting empirical antibiotics or while waiting for the culture and sensitivity reports to start the specific antibiotic these procedures will be beneficial. But for successful application of these concepts there is need of deeper understanding of the Ayurvedic patho-physiology of the disease process and insights into the mode of action of the therapeutical interventions. There are different preparations with different herbo-mineral and other biological origins for different substances. They act synergistically with different physical and chemical properties. Different approaches of therapeutic modalities attack the conditions from different angles. Hence there is need of in depth research to establish the efficacy of Sushruta's principles in present day clinical set up. There is also need of translation of Sushruta's concept into contemporary science to make it acceptable for all and thus strengthen our treatment strategies against conditions like complicated skin and soft-tissue infections and meet the newer challenges.





## REFERENCES

1. Leong HN, Kurup A, Tan MY, Kwa ALH, Liau KH, Wilcox MH. Management of complicated skin and soft tissue infections with a special focus on the role of newer antibiotics. *Infect Drug Resist.* 2018;11:1959-1974. Published 2018 Oct 25. doi:10.2147/IDR.S172366
2. Eisenstein, B. I. (2008), Treatment challenges in the management of complicated skin and soft-tissue infections. *Clinical Microbiology and Infection*, 14: 17-25. doi:[10.1111/j.1469-0691.2008.01922.x](https://doi.org/10.1111/j.1469-0691.2008.01922.x)
3. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha (ed). *Susrutsamhita of Susruta*. With Nibandhasangraha commentary of Sri dalhanacharya; Sutra sthan, 17<sup>th</sup>chapter verse 3. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 81.
4. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha (ed). *Susrutsamhita of Susruta*. With Nibandhasangraha commentary of Sri dalhanacharya; Chikitsa sthan, 1<sup>st</sup> chapter verse 6. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 396.
5. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha (ed). *Susrutsamhita of Susruta*. With Nibandhasangraha commentary of Sri dalhanacharya; Sutra sthan, 21<sup>st</sup> chapter, verse 40. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 107.
6. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha (ed). *Susrutsamhita of Susruta*. With Nibandhasangraha commentary of Sri dalhanacharya; Sutra sthan, 21<sup>st</sup> chapter, verse 36. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 106.
7. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha (ed). *Susrutsamhita of Susruta*. With Nibandhasangraha commentary of Sri dalhanacharya; Chikitsa sthan, 1<sup>st</sup> chapter verse 7. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 396-397.
8. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha (ed). *Susrutsamhita of Susruta*. With Nibandhasangraha commentary of Sri dalhanacharya; Sutra sthan, 17<sup>th</sup>chapter verse 5. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 82.
9. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha (ed). *Susrutsamhita of Susruta*. With Nibandhasangraha commentary of Sri dalhanacharya; Chikitsa sthan, 1<sup>st</sup> chapter verse 8. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 397.
10. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya Kavyatirtha



(ed). Susrutsamhita of Susruta. With Nibandhasangraha commentary of Sri dalhanacharya; Sutra sthan, 17<sup>th</sup>chapter verse 5, Dalhan commentary. Varanasi. Choukhambha Sanskrit Sansthan. 2015. p. 84.