

PRATISARANEYYA KSHARA – A POTENT WEAPON AGAINST DUSHTA VRANARavishankar A. G.¹ Prashanth B. K.²¹Department of Shalya tantra, ²Department of Bhaishajya kalpana
Alva's Ayurveda Medical College Moodbidri, Karnataka, India**ABSTRACT**

Kshara therapy, a proud of Ayurveda, is a real wealth and weapon of Ayurvedic physician as well as surgeon. It is a real *dravya* as it posses *bahukalpa*, *bahuguna*, *sampannata* and *yogyata*. Due to these features we have thousands of references regarding utility of *Ksharas* in different form as well as potency. It has been used as *Dravya shodhaka*, *Dravya bubhukshakarakaka*, as *Payana dravya* to sharpen the instrument and significantly in so many internal (with *Paneeya Kshara*) as well as external diseases (with *Pratisaraneeya Kshara*). *Sushruta* praised the effect of *Kshara* so much that it can replace *Shastra Karma* since it does the functions of *Chedana*, *Bhedana*, *Lekhana*, *Darana* karmas simultaneously without the help of *Shastra*. It is a prime weapon of surgeons and considered as superior among *shastras* and *anushastras*. Among many indications of *Kshara*, management of *dushtavrana* is also one. So, a case study of 20 patients with *dushtavrana* is presented here who were treated with *Apamarga Teekshna Pratisaraneeya Kshara*, *Gomutra arka* and *Ropana yoga* 'Yastimadhu ghrita'.

Keywords: *Pratisaraneeya Kshara*, *Gomutra arka*, *Yastimadhu ghrita*, *Dustavrana*

INTRODUCTION

"*Tatra Ksharanat kshananadva Kshara*" or '*Ksharati yo malam sheegram tat Kshara iti uchyate*' *Kshara* or caustic substance (Alkaline) is defined as any substance whose can remove morbid tissues and can cleanse tissues and doshas.

Sushruta has dedicated complete chapter for detailed description of its preparation, different *Kshara dravyas*, classification, properties, indication and contraindication, method of application etc. There are mainly 2 types of *Ksharas*; they are *Paneeya Kshara* and *Pratisaraneeya Kshara*. *Paneeya Kshara* is mild in nature and usually used in internal disorders; whereas *Pratisaraneeya Kshara* is used for ex-

ternal application/diseases and has got more *Teekshna guna*.

Properties of Pratisaraneeya Kshara

Guna : *Teekshna*, *Ushna*, *Agneya*.

Doshagna : *Tridosha shamaka*

Karma : *Chedana*, *Bhedana*, *Lekhana*, *Pachana*, *Darana*, *Vilayana*, *Shodana*, *Ropana*, *Shoshana*, *Krimighna*, *medohara*

Chemical composition of Kshara

Prof A. R. Vasudev Murthy, describes the chemical composition of *Kshara* in his *Indian Tradition of Chemistry and Chemical Technology*, as follows:

The wood ashes contain Potassium and Sodium carbonates (K_2CO_3 and Na_2CO_3). Limestone and sea shells contain Calcium carbonate ($CaCO_3$). On heating strongly carbonate decomposes into Calcium oxide

(CaO), quick lime and Carbon dioxide (CO₂), which escapes into the air. Calcium oxide reacts with water vigorously and gives Calcium hydroxide (CaOH) which is lime water indeed. Calcium hydroxide reacts with Potassium/Sodium carbonate and gives rise to Calcium carbonate which comes down as precipitate. Potassium hydroxide (KOH) remains in solution which may be concentrated by boiling to different extents.

Preparation of Teekshna Pratisaraneeya Kshara

Panchangas of well grown *Apa-marga* (whole plant) was collected and dried under sun shade. The whole plant was burnt into ashes. The ash was collected (1part) and mixed with six parts of water and stirred well, allowed to settle overnight. Then it was filtered through double folded cloth for 21 times, residue was thrown out. Amber colored (cows urine colour) filtrate was obtained. This was boiled on *Mandagni* in an iron vessel. When the content was reduced to half, about 1/3 of *Kshara jala* was taken out of the vessel. 1/10th of the ash quantity, *Shukti* was taken and heated red hot and then mixed with *Kshara jala* to dissolve it completely. Thus dissolved *Shukti* is added to boiling *Kshara jala* (This is called *Avapa*) and continued to boil. Meanwhile 1/100th of ash quantity *Chitrakamoola* and *Vacha kalka* was added to the boiling *Kshara jala* (This is called *Prativapa*) and boiling was continued. When the content attained semisolid consistency it was removed from the fire and stored in a container. This is *Teekshna Pratisaraneeya Kshara*. It is dull white in colour and its pH was 13.5.

Dushta Vrana

Dushta Vrana is defined as *Vrana* in which vitiation of all *doshas* causes non-healing

and chronicity of ulcer presenting with features like; *Ati samvrutha*, *Ati vivrutha* (Extremely narrow or wide mouthed), *Ati katinam*, *Ati mridu*, *Utsannam*, *avasannam* (Elevated or Depressed), *Krishna rakta pitha sukladinam varnanam anyatamavarna* (Black or red or white or other coloured), *Atiseeta* or *Athyushna*, *Bhirava puthi puya mamsa sira snayu prabhrithibhi* (Full of slough or pus or veins or flesh or ligaments or putrid pus), *Daha* (burning sensation), *Raga* (redness), *Paka* (suppuration), *Kandu* (itching), *Dirghakalanubandhi* (chronicity) etc. These features exactly coincide with the features of chronic non healing infected ulcer which has pain, tenderness, discharge, slough formation, necrosis of tissue etc. In these conditions first *Vrana Shodhana* (ulcer debridement) followed by *Vrana Ropana* (healing) is required.

Sushruta has mentioned the features of *dushta vrana* where *Pratisaraneeya Kshara* is to be applied such as *Utsanna mamsa*, *katina*, *Kandu yukta* and *Chirothitha*. By considering these factors clinical study was conducted by using 3 drugs for the total management of *dushta vrana*.

1. *Teekshna Pratisaraneeya Kshara*
2. *Gomutra arka (Prani janya Kshara)*
3. *Yastimadhu ghrita (Ropana yoga)*

Clinical study: In this study, 20 cases of *Dushtavrana* were selected diagnosed on the basis of signs and symptoms as per *Ayurveda* as well as modern medical science.

Diagnostic criteria: The diagnostic criteria was based on the signs and symptoms such as pain, burning sensation, itching, size, shape, discharge, odour etc.

Inclusion criteria

- Patients with *Dushta Vrana* aged between 20 – 60 yrs.

- *Utsanna mamsa, Katina, Kanduyuktha, Sravayuktha vrana.*
- All the *Vrana* where *Shodhana* is needed, which are located in *twak*, and *mamsa dhatu*.
- *Deerghakaalanubandhi* (*DushtaVrana* with a minimum duration of 21 days)

Exclusion criteria

- *Dusta vrana* in Pregnant women
- *Sadhya* and *Seevana yogya vranas*.
- *Asthigata vranas*
- *Vranas* which are having more than 7 cm length/diameter
- Non healing ulcers of malignancy, Syphilis etc.
- If the patient is having uncontrolled systemic diseases.

Laboratory Investigation (For the exclusion criteria)

Blood routine, RBS, HIV, Culture & Sensitivity of the secretion, Histo-pathological examination, other necessary investigations like X- ray etc

Treatment procedure

The ulcer and surrounding area was cleaned with *ushna jala*. The surface of the *Vrana* was scraped (*lekhana*) with rough surface of scoop. The *Teekshna Apamarga Kshara* was applied with a *Shalaka* over the *Vrana*, waited for 100 *maathrakaala* (about 1 minute). Then *Kshara* was wiped with cotton and *Vrana* was washed with *nimbu swarasa* (to neutralize the effect of *Kshara*) and *ushna jala* respectively. Observation was made for the *Krishna Varnata* of *Vrana*. Wherever the *Krishna Varnata* of *Vrana* did not appear properly, the procedure was repeated once again.

Post operative: *Vrana* was anointed with *Yastimadhu Ghrita* and bandage was done.

Observation period: *Vrana* was observed every day for 21 days and dressing was done daily by washing the ulcer with *Gomutra arka* and applying the *Yastimadhu Ghrita*.

Assessment criteria: The assessment of the result was made on signs and symptoms of the ulcer presented before and after *Pratisaraneeya Kshara Patana* and the completion (21days) of the treatment. Grading were given for every clinical features

Sl no	Subjective	Objective
1	Pain	Size
2	Burning sensation	Odour
3	Itching	Discharge
4	--	Granulation tissue

Pain:

- 0 (Nil) - No pain.
 1 (Mild) - Tolerable occasional localized pain
 2 (Moderate) - Localized pain during movement is not tolerable
 3 (Severe) - Localized pain even during rest, disturbing the sleep

Burning Sensation:

- 0 (Nil) - No Burning sensation
 1 (Mild) - Occasional localized Burning sensation
 2 (Moderate)- Intermittent localized burning sensation
 3 (Severe) - Continuous burning sensation which disturbs the sleep

Itching:

- 0 (Nil) - No Itching
 1 (Mild) - Occasional localized Itching
 2 (Moderate) - Intermittent localized itching
 3 (severe) - Continuous localized itching

Size: (Length & Width)

- Grade – 0 - Complete wound Healing
 Grade – 1 - 1 cm to 3 cm
 Grade – 2 - 3 cm to 5 cm
 Grade – 3 - 5 cm to 7cm

Odour:

- Grade –0 - No smell
- Grade –1 - Presence of bad smell

Discharge:

- Grade –0 - No discharge / dry dressing
- Grade –1 - Scanty occasional discharge & little wet dressing.
- Grade –2 - Often discharge requires daily dressing

Grade –3 - Profuse, discharge which needs frequent change of dressing.

Granulation Tissue:

- Grade –0 - Healthy granulation tissue
- Grade –1 – Presence of unhealthy granulation tissue less than 25%
- Grade –2 – Presence of unhealthy granulation tissue between 25-50%
- Grade –3 - Presence of unhealthy granulation tissue more than 50%

RESULT

Table 1: Effect of treatment on day 1

Signs and symptoms	Mean		MD	% relief	SD	SE	“t”	“p”	Remark
	BT	AT							
Pain	2.34	0.82	1.54	68.88	0.57	0.122	14.64	<0.001	HS
Burning sensation	2.58	0.92	1.62	66.84	0.55	0.132	14.94	<0.001	HS
Itching	2.34	0.48	1.78	78.66	0.48	0.18	16.82	<0.001	HS
Discharge	3.2	0.84	2.12	73.62	0.42	0.086	21.26	<0.001	HS
Odour	1.2	0.34	0.8	72.54	0.48	0.098	7.54	<0.001	HS
Unhealthy granulation tissue	2.58	0.45	2.36	81.56	0.52	0.110	19.76	<0.001	HS

Table 2: Effect of treatment on day 21

Signs and symptoms	MEAN		MD	% relief	SD	SE	“t”	“p”	Remark
	BT	AT							
Pain	2.34	0.24	2.22	90.54	0.58	0.132	16.826	<0.001	HS
Burning sensation	2.58	0.18	2.64	90.22	0.56	0.124	18.884	<0.001	HS
Itching	2.34	0.22	2.75	90.45	0.69	0.184	16.524	<0.001	HS
Discharge	3.2	0.36	2.92	89.69	0.62	0.156	19.740	<0.001	HS
Odour	1.2	0.18	0.92	80.86	0.48	0.098	9.646	<0.001	HS
Unhealthy granulation tissue	2.58	0.64	2.84	85.52	0.55	0.122	20.426	<0.001	HS
Length	2.34	0.98	1.54	60.20	0.52	0.118	13.468	<0.001	HS
Width	2.58	0.96	1.52	59.94	0.51	0.116	13.048	<0.001	HS

Table 3: overall effect of the treatment

Effect of Therapy	No. of patients	% relief
Markedly Improved, 75- 100 % Relief	18	90%
Moderately Improved, 50-74.99 % Relief	2	10%
Mild Improvement, 25-49.99 % Relief	0	0%
No Change, <24.99 % Relief	0	0%

DISCUSSION

Effect on pain:

Pain was reduced up to 68.88% on 1stday (on the same day of treatment) which was statistically highly significant (t=14.64) Pain mainly due to infection, destruction of tissue or tissue tension due to collection of pus or exudates and tough slough. Infection had reduced and pus and other collections were drained and sloughs were reduced because of *Chedana, Bhedana, Lekhana, Darana*, properties of *Pratisaraneeya Kshara*. On 21stday pain was reduced up to 90.54%, which was statically highly significant (t=16.826) may be because of *Gomutra arka* prevents the further infection and growth of slough and *Vata Pitta shamaka* property of *Yashtimadhu Ghritha*.

Effect on burning sensation:

The burning sensation was reduced up to 66.84% (t = 14.94) on 1stday, is statistically highly significant. In non-healing ulcer due to poor circulation there will be hypoxia to the nerve endings results in burning sensation. The removal of slough by *Lekhana, Shodhana, pachana Vilayana*, and *Teekshna* properties of *Kshara*, which improves the circulation to the ulcer area. On 21stday burning sensation was reduced up to 90.22% which was statically highly significant (t = 18.884), here *Gomutra arka* helped to improve the circulation and *Yashtimadhu Ghritha* having *VataPitta shamaka & Daha shamana* property may be the reason.

Effect on itching:

The itching in the ulcer area on 1stday was reduced up to 78.66% (t=16.82) which was statistically highly significant. Itching is because of infective organisms' dead tissues and presence of pus in the ulcer. It was reduced due to *Krimighna, Lekhana, Shoshana* and *Shodhana* property of *Kshara*. On 21stday itching in the ulcer area was reduced up to 90.45% (t=16.524) which was statistically highly significant, is because of *Krimighna* property of *Gomutra arka* and it maintains the wound sterilization

Effect on discharge:

On 1stday, the discharge was reduced 73.62% which was statistically (t=21.26) highly significant on 21stday the discharge was reduced 89.69% which was statistically (t=19.740) highly significant. This may be due to improvement in circulation by *Shodhana, Bhedana Lekhana*, and *Shoshana* properties of both the *Ksharas Kshara*.

Effect on odour:

On 1stday, the smell was reduced up to 72.54% which was statistically (t=7.54) highly significant. On 21stday the smell was reduced up to 80.86% which was statistically (t=9.646) highly significant, this may be due to *Shodhana, Lekhana Krimighna* and *Pachana* property of both *Kshara* and the *arka* inhibits growth of bacteria and keeps the wound sterile.

Effect on unhealthy granulation tissues:

On 1stday, the unhealthy granulation

tissues were reduced up to 81.56% which was statically significant (t-19.76). On 21stday, the unhealthy granulation tissues were reduced 85.52% which was statically significant (t-20.426). This was due to *Chedana*, *Lekhana*, *Kledahara*, *Vishadaguna*, and *Tridoshaghna* properties of *Kshara*, which played important role in scraping out the debris and slough from the *Vrana* and it further prevented the reoccurrence of unhealthy granulation tissue and promoted healing with the help of *Yastimadhu ghruta*.

Effect on length and width:

On 21stday, the length of the *Vrana* was reduced up to 50.20% which was statistically highly significant (t- 13.468), and width was reduced up to 59.94% which was statistically highly significant (t-13.048). This may be due to *Vrana Shodhana* property of *Kshara*, which provides ideal environment for the healing. Further the *vrana* was healed due to *Ropana* property of *Yastimadhu Ghruta*.

CONCLUSION

Pratisaraneeya Ksharas are best substitute for surgical debridement of an ulcer. It does the multiple actions simultaneously such as *chedana*, *bhedana*, *lekhana*, *darana* etc. It is a simple OPD level procedure, relatively painless, can do without anesthesia and hospitalization. Very much cost effective and saves the time compared to Surgical Debridement. *Kshara* will remove only unhealthy granulation tissue, so the ulcer size will not increase after the procedure. Wherever the Surgical debridement is contraindicated or where the patient refuses the debridement in such cases *Kshara* can be done safely.

BIBLIOGRAPHY

- Agnivesha, Charaka Samhitha redacted by Charaka and Drudabala, with Ayurveda Deepika Commentary by Chakrapanidatta, edited by Vaidya Y. T. Acharya, 4th edition, 2001, published by Chaukhambha samskruta Samsthana, Varanasi, Uttar Pradesh.
- Agnivesha, Charaka Samhitha redacted by Charaka and Drudabala, with Ayurveda Deepika Commentary by Chakrapanidatta English translated edition, 1997, by Ram Karan Sharma and Vaidya Bhagavan Das, Chaukhambha Samskuta Samsthana, Varanasi, Uttar Pradesh.
- Bhavamishra, Bhava prakasha, with Vidyodini Hindi Teeka by Bhishak Ratnashree. Brahma Shankara Shastri and Sri. Roopalal Vaishya; 8th ed, 1997, Chaukhambha.
- Bhudeb Mookerjee. M. A; *Rasajalanidhi* Vol 3 with English translation published by Chaukamba Publishers Varanasi 2004.
- Baily & Love's Short Practice of Surgery, revised: Charles V. Mann, R. C. G. Russel, 21sted, 1991, ELBS with Chapman and Hall.
- Das S; A Concise Text book of Surgery, 3rd ed, 2001, Published by Dr. S. Das, 13 Old Mayors' Court, Calcutta.
- Das S; A Manual on Clinical Surgery, 4th ed, 1996, Published by Dr. S. Das, 13 Old Mayors' Court, Calcutta.
- Deva Raja Radhakantha, Shabda kalpa druma, Vol. 4, Nag publishers, Delhi.
- Madhavakara, MadhavaNidana with Madhukos Vyakhya by Vijayarakshita and Srikantadatta and Vidyodini Teeka by Sri. Sudarshana Sastri, 29th ed, 1999, published by Chaukhambha Samskuta Samsthana, Varanasi, Uttar Pradesh.
- Panchagavya Published by Shree Ramachandrapuramath, Girinagara Bangalore 2013

- Sushruta, Sushruta Samhitha with Nibandhasara samgraha commentary of Dalhana Acharya and Nyaya Chandrikakhya Panjika Vyakhya of Sree Gayadasacarya, edited by Vaidya Y. T. Acharya and Narayan Ram Acharya, 6th ed, 1997, published by Chaukhambha Samskuta Samsthana, Varanasi, Uttar Pradesh
- Sushruta, Sushruta Samhitha with English transilation of text and Dalhana commentary, edited and translated by P.V.Sharma, 1sted, 1999, published by Chaukhambha Samskuta Samsthana, Varanasi, Uttar Pradesh.
- Sharangadhara, Sharangadhara Samhitha, Jeevan Prada Vyakhya by Dr. Shailaja Sreevasthava, 2nded, Published by Chaukhambha Samskuta Samsthana, Varanasi, Uttar Pradesh.

- Sharma P. V; Dravya Guna –Vignana, Vol. 2, 17th ed, 1996, Chaukhambha Vishva Bharathi Academy, Varanasi, Uttar Pradesh.
- Vagbhata, Ashtanga Hrudaya with commentaries of Sarvangasundari of Arunadatta and Ayurveda Rasayana of Hemadri, edited by Pandit Bhishak Acharya, Hari Shastri Paradkar Akola, 7th ed, 1982, Published by Chaukhambha Samskuta Samsthana, Varanasi, Uttar Pradesh

CORRESPONDING AUTHOR

Dr. Ravishankar A. G.
Professor of Shalya Tantra
Alva's Ayurvedic Medical College,
Moodbidri, Karnataka, India
E-mail: agravishankar@yahoo.com

Source of support: Nil
Conflict of interest: None Declared