

## Ayurvedic Management of Diabetic Carbuncle- A Case Report

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### ABSTRACT:

A carbuncle is a cluster of boils caused by bacterial infection with deep subcutaneous tissue involvement which can lead to complications like sepsis and even death. Conditions like diabetes mellitus may make the patient more vulnerable to this disease condition. As described in classical Ayurvedic texts, *Prameha Pidaka* is caused due to *medo dushti* and *tridosha kopa*. This is a case study of *vidradhika pidaka* on right calf region in a female patient, with a history of Type 2 diabetes mellitus for 14 years, who was effectively managed with Ayurvedic treatment- *Pramehahara* drugs internally and externally *patana* and *visravana* followed by *vranahara chikitsa*. The chronic disease got relief with 45 days of ayurvedic treatment.

**KEYWORDS:** Carbuncle, Diabetes mellitus, *Prameha pidaka*, *Vidradhika pidaka*

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### INTRODUCTION:

Around 537 million adults are living with diabetes in 2021 (1 in 10 people). Among this diabetic carbuncle are not uncommon even in this post-antibiotic era but its effective management is rare. Even though *prameha* and *prameha pidakas* are explained in classics, their proper utilisation was not much reported. Glucose is the source of energy for our body, but its increase level brings adverse effect at cellular level, so chronic diabetes exposes the patients to many other disease conditions. The skin become more susceptible to infections. One of the complications of

uncontrolled diabetes is Diabetic Carbuncle. Carbuncle is an infective gangrene of subcutaneous tissue due to Staphylococcal infection. [1] Common risk factors for carbuncles include chronic skin conditions, diabetes, kidney disease, liver disease and immuno-compromised conditions. The disease is characterised by lesion with central slough and surrounded by rosette of necrotic tissues. Overlying skin is red, dusky and oedematous. Sieve like or cribriform appearance is pathognomonic of carbuncle. It is in fact an infective gangrene of the skin and subcutaneous tissue. Mostly, it occurs as a

single and occurs on hairy area of the body, such as the back or nape of the neck. But a carbuncle also develops in other areas of body such as the buttocks, thighs, groin and armpits.

*Prameha* is a metabolic *kaphaja vyadhi*, in which improper functioning of *agni* leads to a tendency to increase blood sugar levels. If the disease is not treated properly, this will lead to *madhumeha* and further complications like *prameha pidakas*. In the normal state *kapha* does not vitiate *medas* even though they have identical properties. It is only the vitiated *kapha* which does so. The vitiated *kapha* along with the vitiated *medas* gets mixed with *mamsa dhatu* (muscle tissue) and causes *prameha pidakas*. When *prameha roga* manifest in the body, the 3 vitiated *doshas*, spreads in to tissues with excessive fat and this fatty tissue in the patients suffering from *prameha* produces ten types of *prameha pidakas*. Susrutha Acharya has explained 10 varieties of *pidakas*, which are also told by Acharya Vagbhata [3] – 1. *sharavika* 2. *sarshapika* 3. *kacchapika* 4. *jalini* 5. *vinata* 6. *putrini* 7. *masurika* 8. *alaji*. 9. *vidarika* 10. *vidradhika*<sup>2</sup>. An abscess of the *Vidradhi* type is called *Vidradhika*. Abscess is a localised collection of pus in the cavity lined by granulation tissue, covered by pyogenic membrane [4]

In *prameha pidaka chikitsa*, the ultimate efforts are carried out to control *prameha*. In the *apakva* stage, it can be treated by *apatarpana* (starvation), *alepa* (medicated drug paste application), *parisheka* (irrigation with medicated liquid), *abhyanga* (anointing), *vimlapana* (resolution by rubbing), *upanaha* (poultices application), *pachana* (inducing ripening), *visravana* (bloodletting), *sneha* (internal use of medicate oils or ghee) and followed by administration of *shamana*

*aushadha* (curative medicaments) internally as well as externally. *Pakva pidaka* should be subjected to *patana* and *sodhana-sravana* (incision and drainage) and later it was treated with *vrana shodhan ropana* medicines [5,6].

#### CASE HISTORY:

A 57-year-old female patient presented in the OPD of *Shalyatantra* on 29<sup>th</sup> November 2021 with severe pain, swelling and reddish lesion over the right calf region since one and half months. (Fig-1) She is a chronic diabetic patient for past 14 years and since then was under anti-diabetic therapy. For the past 4 years, she is also on medications for dyslipidemia and hypertension. She had a history of diabetic carbuncle over left calf region one and half years ago and got cured with 4 months of Ayurvedic treatment. Afterwards, she was diagnosed with diabetic retinopathy and is under Ayurvedic medicines for the same. On November 2021, she had 3 boils over right calf region with severe pain and swelling, which later coalesce to form a single lesion.

Patient debilitated with the disease, with poor nutrition. *Ojokshaya lakshnas* were evident on her facies. Lesion was about 10cm X 5cm in size with irregular border and shape. (Fig--3) Pus spot present at the centre of the lesion. Grade 4 tenderness, rise of local temperature and induration were noticed on palpation around the lesion. The lesion was Grade 2, according to Wagner classification of diabetic wound and Grade 2 stage B, according to the University of Texas system of classification of diabetic wounds<sup>[7,8]</sup>. The osteomyelitis was ruled out by radiological investigation.

#### TREATMENT PLAN

*Pramehahara* → *Patana & Shodhana* → *Vranaropana*

The treatment principles adopted was Oral *Pramehahara chikitsa*, *Patan karma in prameha pidika* then *vrana shodhan* and *vrana ropan* as mentioned in table 3-4.

Treatment began with internal medicines to control the diabetes, which has an important role in wound healing. Simultaneously, pus was removed.

After obtaining informed consent from the patient, the part was exposed, cleaned and draped. Unhealthy tissues over the abscess were removed (Fig-2) and then incision done (Fig -3) at the most fluctuating spot of the carbuncle with blade no: 24. The pus was drained out; pus pockets were opened using the sinus forceps and drained completely. The

pus sample was collected and sent for histopathological study (Table 1). The wound debridement was done, and the wound cavity was packed with *Jathyadi kera varti* (Table 4). From the next day onwards, *kshalana* with *Guduchi* and *Thriphala kashaya* was started followed by packing the wound with *Jathyadi kera varti*. This initiated healing from the base of the ulcer. After one week, *pradeshika udwarthana* followed by *pradeshika abhyanga* was done on right leg whereas wound dressing continued. Gradually the size of the wound got reduced and healthy epithelial tissue covers the floor of ulcer. The wound got completely healed by one and half months.

**Table 1: Histopathological Report:**

Specimen	Specimen taken on	Report on	Report
Pus	29/12/21	30/12/21	Inflammatory lesion with abscess formation. Few fungal hyphae noted.

**Table 2: Laboratory Investigations:**

Before Treatment (29/12/21)	After Treatment (03/02/22)
FBS- 356mg/dL	FBS- 107mg/dL
PPBS- 360mg/dL	PPBS- 171mg/dL
S. Creatine- 2.5mg/dL	S. Creatine- 2.5mg/dL
Urea- 59mg/dL	Urea- 56mg/dL
Uric acid- 2.9mg/dL	Uric acid- 2.6mg/dL

**Table 3: Treatment Chart:**

Date	Medicines prescribed	Dosage	Mode of use & Time
29/12/21	<i>Nisakathakadi kashaya</i>	15ml	60ml luke warm water two times in a day. Before food
	<i>Manjishtadi kashaya</i>	15ml	With 60ml luke warm water two times in a day. After food
	<i>Kaisoraguggulu</i>	1-0-1	With <i>kashaya</i>
	<i>Madhumardhan choorna</i>	1 tsp	Before food, Two times in a day
	<i>Tab. Gandhaka Rasayana</i>	2-0-2	After food, two times in a day.

	Tab. <i>Thriphala guggulu</i>	1-0-1	After food, two times in a day
03/02/22	<i>Mahathikthakam kashaya</i>	15ml	With 60 ml luke warm water, two times in a day . Before food
	<i>Kaisoraguggulu</i>	1-0-1	With <i>kashaya</i> , two times in a day.
	<i>Madhumardhan choorna</i>	1 tsp	Before food, two times in a day.
	Tab. <i>Gandhaka Rasayana</i>	1-0-1	After food, two times in a day
	<i>Siva gutika</i>	1	Along with warm water at bed time.

**Table 4: External medications:**

29/12/21	<i>Guduchi+Thriphala</i>	<i>Kshalana</i>
05/01/22 to 14/02/22	<i>Ellumnishadi choorna</i> <i>Sahacharadi taila</i> <i>Jathyadi taila</i>	<i>Udwarthana</i> <i>Abhyanga</i> External application on wound


**Fig-1: Diabetic carbuncle first consultation**

**Fig-2: Status after debridement on first day**



**Fig-3: Incision & drainage on 0<sup>th</sup> Day,**



**Fig-4: After 2 weeks (Healing stage)**



**Fig-5: After 45 days of treatment (Healed wound)**



**Fig-6: After 5 Months**

#### **RESULT:**

The patient underwent wound debridement followed by I&D, which made the wound fresh and healing was initiated. After 2 weeks of medication, the circumference of the wound reduced and healing accelerated. After 45 days of treatment, the healthy pigmented skin

covered the wound. After 5 months, the pigmentation of the skin also reduced. The wound got healed from grade 2 to grade 0. The course of infection has been checked. Diabetes was brought under control. The general health status of the patient got improved.

**DISCUSSION:**

The treatment aimed at control over diabetes mellitus, improvement of general health of patient and drainage of pus [6]. High blood sugar levels can weaken a person's immune system defences. Chronic diabetic patients may have peripheral nerve damage and reduced blood flow to their extremities, which increases the chance for infection and delayed healing. The high sugar levels in blood and tissues allow bacteria to grow and allow infections to develop rapidly [9]. Thus, *pramehahara* and *ojaskara* treatment should be the first line of treatment. *Acharya Susruta* has classified and described *pidaka* treatment. For *apakva pidaka*, *sophahara* line of treatment is advocated whereas, for *pakva pidaka* as that of *vrana* [5]. *Prameha pidaka* is considered under *bhedya rogas* [10]. In the present case, the *pidaka* attained *pakva* stage, so *bhedhana* and *visravana* done to obtain *vrana sodhana* and *ropana*.

The commonest surgical approaches are saucerization, or incision and drainage (I&D) for the treatment of carbuncle [11]. Here, incision and drainage were done to remove the *puya* (pus). *Acharya Susruta* stated that *ruk*, *paka* and *puya* does not occur; without *vata*, *pitta* and *kapha* [12]. Thus, in the present condition, even though 3 *dosas* were involved, *pitta* was dominant. The medicines selected are *pitta pradhana tridosha hara* and *raktashodhaka* in nature, which mainly aims for *vrana shodhana* and *ropana*.

The formulations-*Madhumardhan choorna*, *Nisakathakadi kashaya* were given for *prameha*. *Symplocos cochinchinensis*, the main ingredient of *Nisakathakadi kashaya* targets the antidiabetic activity mainly via alpha glucosidase inhibition, improves insulin sensitivity, with moderate antiglycation and antioxidant activity [13]. *Manjishtadi kashaya* is

indicated for *vatarakta*, *pitta rakta pradhana kushta roga* and is also *medodoshahara*. [14]

*Kaisoraguggulu* is specially indicated for *prameha pidaka* [15] and it balances *pitta* and *kapha*, particularly when it affects musculoskeletal system. Its main ingredients – *Guduchi*, *Thriphala* and *Trikatu* when combined with *Guggulu*, creates a combination of detoxifying and rejuvenating effect, aimed primarily at removing deep seated *pitta* from the tissues. *Guggulu*, gum resin also showed significant antibacterial activity against gram-positive bacteria and moderate activity against gram-negative bacteria [16].

*Gandhaka rasayana* and *Thriphala guggulu* aimed at *vrana ropana*. *Gandhaka rasayana* acts by the activation of fibroblast and by modulation of the proteins involved in tissue remodeling [17]. *Thriphala guggulu* reduces *kleda*, *paaka*, *putigandha* and *shotha* along with remarkable reduction of pain in wound. It acts as antimicrobial activity in wound healing by inhibiting hyaluronidase and collagenase activity [18].

*Shiva gutika*, which is indicated in *prameha*, is having *srotosodhana* and *rasayanika* effect. Phytochemical constituents of *Shiva Gutika* prove to be the richest source of antioxidant activities, which could manage oxidative stress in the body. Decreasing oxidative stress could truly aid in the amelioration of body tissues and organs, which in turn benefits with the betterment of metabolic activities [19].

*Guduchi* and *Thriphala kshalana* helped in *tridosha hara*, *jwaraghna* and *vrana ropana* properties, which will check the inflammatory state of the carbuncle. *Jathyadi kera taila* was used for dressing the wound which has *vrana sodhana* and *ropana* property. The studies reported faster wound healing process in rats treated with *Jathyadi taila* due to increased proliferation of fibroblasts, protein synthesis,

enhanced collagen formation, re-epithelization and wound contracting ability [20]. Later on, *Ellumnishadi choorna* for *udwartana* and *Sahacharadi taila* for *abhyanga* were advised to improve the blood circulation, thereby promoting good healing.

*Prameha pidaka* comes at the 6<sup>th</sup> *kriyakala* of *prameha*, that is *bhedha avastha*. *Prameha pidakas* can transform to be *asadhya* in nature, without a proper intervention at the right time. Controlling *medo dushti*, proper *puya nirharana* and *vrana ropana* are the keys to be followed in the treatment of *prameha pidaka*. If not properly addressed, it will lead to spread of infection, septicemia, for which amputation may be needed or it may even lead to death.

#### CONCLUSION:

The patient was provided with *premahahara chikista* and *bedhana - visravana* then followed by *shodhana* and *ropana*. The treatment was successful, and the patient recovered from *prameha pidaka* within one and half months of treatment.

#### Informed Consent:

The informed consent was obtained from the patient prior to the procedure.

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