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# Application of Sudha Vargeeya Dravya in Raktapitta Chikitsa

# Suma Jambli,<sup>1</sup> Chavan SG,<sup>2</sup> Prashanth AS.<sup>3</sup>

<sup>1</sup>Post Graduate Scholar, <sup>2</sup>Professor & Guide, <sup>3</sup>Professor & HOD, Department of Kayachikitsa, Ayurveda Mahavidyalaya Hubli, Karnataka.

# ABSTRACT

The Shareera depends on Anna and other four factors namely Vata, Pitta, Kapha and Rakta, Rakta is considered as Mula of the Shareera, the external injury or internal injury or due to coagulation disorders there may be bleeding which may lead to morbidity or mortality. In Ayurveda these bleeding disorder is considered as Raktapitta, one of the Mahavega, Mahagada by the Charakacharya. Thus treatment of these bleeding disorder can be done through Sudha Vargeeya Dravya which are rich in Calcium components, in the form of calcium carbonate, calcium sulphate, calcium fluoride etc. Calcium as fourth clotting factor and as cofactor helps in coagulation of the blood. Thus Sudha Vargeeya Dravya by their Parthiva and Shairyata properties does the coagulation of blood and pacifies the Pitta and Rakta Dusthi. Many plant origin, animal origin and mineral origin have been mentioned in various texts of Ayurveda which can act as Calcium supplements and helps in *Raktapitta Chikitsa*.

Key words: Raktapitta, Bleeding Disorder, Sudha Dravya, Calcium.

#### **INTRODUCTION**

*Rakta Dhatu*'s main role is *Jeevanam*,<sup>[1]</sup> because it is vehicle of*Prana*. *Rakta* is one of the *Sapta Dhatu*, that which nourish and support the body, in modern also Blood is connective tissue in fluid form that delivers necessary substances such as nutrients and oxygen to the cells and transports metabolic waste products away from those same cells. In *Ayurveda* the metabolism of *Rakta* occurs through *Rasa*, here *Rasa* gets converted into *Rakta Dhatu* through *Rakta Dhatwagni*, which is resided in *Yakurt* and *Pleeha* (*Moolastana* of *Raktavahastrotas*).

#### Address for correspondence:

Dr. Suma Jambli

Post Graduate Scholar, Department of Kayachikitsa, Ayurveda Mahavidyalaya, Hubli, Karnataka **E-mail:** suma.jambli@gmail.com

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Among the *Dashapranayatana* - *Rakta* is one among them because it is considered as *Prana* which resides in the *Raktadhatu* and does *Jeevana Karma*. *Sushruta* have considered it as the fourth *Dosha* due to its great importance. As *Dosha* are responsible for creation of living body, fourth entity named as *Rakta Dhatu* also take part in origin, sustaining and is responsible for the death<sup>[2]</sup>, but it is not acceptable as it does not possess the properties of *Prakruti Arambhakatva* (it is not responsible for *Prakruti) Swatantra Dushti Kartrutva* (independently it cannot vitiate the body). In *Sushruta Shareerasthana* it is explained as while circulating it nourishes the respective *Dhatus* and help in maintaining proper strength i.e. *Dhatunapuranam*.

*Charakacharya* explains *Raktapitta* immediately after *Jwara*, as it arises due to *Santapa* caused as a result of *Jwara*. *Sushrutaacharya* explained after *Pandu Roga* due to common causative factors. *Raktapitta* is an acute (*Ashukari*) *Raktapradoshajavyadhi* which is correlated with bleeding disorder, thus it is an important concept which needs immediate treatment.

#### Samana Guna Dharma of Rakta and Pitta

The Pitta is having Teeksna, Drava, Puti, Neela, Peeta, Ushna, Katurasa but when becomes vitiated Amla Rasa. Rakta has qualities like Anuushna Sheeta,

Madhura, Sniadha, Guru, Visra and when it becomes vitiated it attains Pitta quality i.e. Anuushnasheeta and Madhura qualities of Rakta becomes Atiushna and Katu respectively. As a result of Ashraya and Ashrayee relationship of Pittadosha and Raktadhatu, Pitta vitiates and combines with Rakta (lohitasamsarqa) and contaminates Rakta (pradoshanat). If Rakta Dhatu which has been described as above, flows out of the body through any opening or outlet, it can certainly give rise to serious conditions.

When *Rakta* and *Pitta* gets combines, *Pitta* vitiates *Rakta* and both attains similar odor and colour. Owing to this relationship, the *Vyadhi* is addressed as *Raktapitta*.<sup>[3]</sup>

In Ayurveda the bleeding disorders are mentioned in the context of Raktapitta, Raktapradara, Raktaatisara, Kshatajakasa etc. Raktapitta is a very complex disease entity due to its bleeding tendency. Raktasrava (Raktapitta) appears as Lakshana in Kasa, Kshaya and Yakshma etc. and also apperars as Upadrava in Jwara and as a separate disease entity as Raktapitta.

But coagulative defects or enzymatic deficiencies or autoimmune type bleeding disorders are not described separately, rather they are mentioned in context of *Vidhishonita Adhyaya* or *Raktapradoshaja Vyadhi*. According to *Gananathsen*; without any *Abhighata* or *Bahyakarana* internal causative factor leading to *Raktasrava* is known as *Raktapitta*. As it is *Mahagada, Mahavega, Ashukari* it should be treated immediately.<sup>[4]</sup>

#### Adhistana

Yakrut is the place where *Ranjaka* Pitta colours *Rasa Dhatu* and *Rakta* is formed.<sup>[5]</sup> It can be interpreted that liquid portion in blood as plasma and the formed elements as *Rakta*. Spleen is major organ to store platelets which is important for clotting blood and *Raktavaha Dhamani 'Dhamanat Dhamani'* the blood vessels which are pulsating one, helps to transport the blood. Due to excessive *Ushnata* of *Pitta* there may be breaking of these vessels, leading to bleeding disorders. Another entity of *Raktavahasrotas* is *Raktadhara Kala* which can be interpreted with the

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epithelial membrane of the blood vessel and capillaries. The role *Kala* in the physiology and pathological is haemostasis and nourishment.

In physiology the *Rasa, Rakta* and *Raktavahasrotas* plays an important function. Their role is to proper formation, maintaining the hoemostasis, proper metabolism including formation, maturation, transport, their destruction and also proper elimination or transformation of by products of these *Dhatus*.

#### Raktapitta Nidana

Nidana of Raktapitta are quiet similar to that of general Nidana which can provoke Pitta Dosha and numerous Viruddhaaaharasevana are mentioned. As far as Viruddhaaahara are concerened they are quiet specifically mentioned in only two chapter other than Raktapitta i.e. in Vidhishonitha and Kushta.

#### Samprapti

The interpretation of the *Samprapti* can be done as *'Pittat Peeta Sitam Raktam Styayatya Oushnya Chirena Cha'*<sup>[6]</sup>

- Pitta Prakopa does Dushana of Raktadhatu through its Ushnateeksnaguna.
- Due to Pitta Prokapa Rakta gets Vidhagdha and attains Dravatwa, which can be compared with inability or loss of clotting factors.
- Liquified Rakta and Pitta mixed one another and attains Tulyaroopavarna and Pramanatahvriddhi
- Due to Pramanatavruddhi of Rakta there is delayed coagulation due to thinning of blood which leads to Raktapitta / bleeding disorders.



#### Raktapitta Gati

According to Gati of Rakta it is of three types

- Urdhavaga Snigdha and Ushna Guna involvement with Kapha and Pitta vitiation e.g.; haematomesis, epistaxis, retinal haemorrhage etc.
- Adhoga the attributes are Rooksha and Ushna which causes vitiation of Vata and Pitta. e.g.; rectal bleeding, haematuria, menorrhagia, metrorrhagia.
- Apart from this, Asankhyeya (Antiki) Gati has been described in the Charak Samhita, Chikitsasthana 4; in which Doshas also get expelled through the Loma Koopa (the openings of the sweat glands/ skin pores). This condition should be considered as life threatening. This condition can be compared with subcutaneous haemorrhage (like Purpura, Petechial) described in Modern medicine.

### **Modern View**

Bleeding disorders<sup>[7]</sup> or haemorrhagic diatheses are a group of disorders characterised by defective haemostasis with abnormal bleeding. The causes of haemorrhagic diatheses may or may not be related to platelet abnormalities.

Other causes are;

- Due to vascular abnormalities
- Due to disorders of coagulation factors
- Combination of all these.

#### **Coagulation Disorders**

The type of bleeding in coagulation disorders is different from that seen in vascular and platelet abnormalities. Largeecchymoses, haematomas and bleeding into muscles, joints, body cavities, git and urinary tract. Coagulation disorders are both acquired and hereditary.

#### Hereditary coagulation disorder

Are due to qualitative or quantitative defect in a single coagulation factor.

 Two most common inherited coagulation disorders are x linked disorder i.e. haemophilia A (due to defiency of factor 7) and haemophilia B or Christmas disease (deficiency of factor 9).

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Von willebrand 's disease.

#### Acquired coagulation disorder

- Deficiencies of multiple coagulation factor
- Vitamin k deficiency
- Coagulation disorder in liver diseases

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 Fibrinolytic defect and Disseminated intravascular coagulation

#### Haemophilia A

Clinical findings;

- Bleeding for hours or days after the injury.
- It can involve any organ but commonly haemoarthoses, muscle haematomas and haematuria.

Lab findings;

- Whole blood coagulation is prolonged
- Prothrombin time is usually normal
- APTT is typically prolonged

#### Haemophilia B

- Inherited deficiency of factor 9.
- It is rarer than haemophilia A.

#### Von willebrand 's disease

- Defeciency of von willebrand 's factor
- 1 in 1000 people individuals of either sex
- VWF complex comprises of large fraction of factor 8 –vw factor
- Main function of vwf is to facilitate the adhesion of platelets to subendothelial collagen.

#### **Vitamin K deficiency**

Plays important role in haemostasis since it serves as a cofactor in the formation of 6 prothrombin complex proteins.

#### Coagulation disorder in liver disease

Synthesis and metabolism of coagulating factors gets disturbed.

#### Haemostatis<sup>[8]</sup>

Coagulation of blood – when blood is shed out or collected in a container it loses its fluidity and becomes jelly like mass after few seconds.

Stages of haemostasis

- 1. Vaso constriction
- 2. Platelet plug formation
- 3. Coagulation of blood

Among all these factors calcium as a fourth factor plays important role coagulation. In Ayurveda *Sudhavarga Dravyas* are mentioned which are rich in calcium ions, and used in *Raktapitta Chikitsa*.

Calcium is essential for protein conformation of most coagulation factor,

**Source:** Bone and absorption from food in gastrointestinal tract,

Pathway: Both extrinsic and intrinsic,

Action: Works with many clotting factors for activation of the other clotting factors. These are called calcium-dependent steps. Factor ninth and thirteenth gets activated by calcium ions.

#### Role of calcium in blood coagulation

- Platelet adhesion
- Protein conformation
- Protease complex assembly
- Enzyme activation
- Normal hemostasis requires free ionized ca for initial platelet plug formation

#### Low level of coagulation factor 4<sup>th</sup> calcium

- A congenital deficiency of factor 4
- Low level of calcium in blood due dietary deficiency
- Malabsorption from gut

- Kidney malfunction
- Bone disorder

#### **Blood Calcium**

Present in Plasma about 9-11mg

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It is present as 41% non-ionized and bond to protein, not diffusible through capillary membrane and is not filtered by glomeruli and 9% is combined with anionic substances like citrate and phosphate, is diffusible through capillary membrane and glomeruli 50% is both ionized and diffusible through capillary membrane.

#### Sudha Vargiya Dravya

Sudha means - nectar, honey, comfort, water, milk, good drink, beverage of gods etc. In Charaka and Sushruta Samhita Sudha (lime) has been included in Parthiva Dravya. Both Rasaratnakara and Rasarnava mentioned Shukla Varga.<sup>[9]</sup> Rasamritam mentioned Sudhavigyaneem based on its chemical composition. Sudhavargiya Dravya has chief compound Calcium in the form of calcium carbonate, calcium fluoride, calcium sulphate.

S N	Name	Commo n Name	Origin	Chemical Constitue nts	Form
1	Sudha	Lime	Miner al	CaO	Oxide
2	Khatika	Chalk	Miner al	CaCO3	Carbona te
3	Godanti	Gypsum	Miner al	CaSO4. 2H20	Sulphate
4	Shankha	Conch shell	Marin e	CaCO3	Carbona te
5	Shambuka	Australi an snail	Marin e	CaCO3	Carbona te
6	Muktashukti	Pearl oyster shell	Marin e	CaCO3	Carbona te

#### Table 1: Showing Sudha Varga Dravyas

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7	Kaparda	Cowrie shell	Marin e	CaCO3	Carbona te
8	Kurmaprista	Turtle shell	Marin e	Calcite	Phospha te
9	Samudraphen a	Cuttle shell	Marin e	CaCO3	Carbona te
1 0	Pravala	coral	Marin e	CaCO3	Carbona te
1 1	Mukta	pearl	Marin e	CaCO3	Carbona te
1 2	Mrigashringa	Deer antler	Anima I	Ca(PO4)2	Phospha te
1 3	Kukkuntadat wak	Hens egg shell	Anima I	CaCO3	Carbona te
1 4	Ajasthi	Goat's bone	Anima I	Ca(PO4)2	Phospha te

CaCo3 is the alkaline based it requires extra stomach acid for better absorption. So best taken after meals. One difference between the various Ca compounds in the percentage of elemental compound present. In CaCO3 form, Ca accounts for 40% of the compound, while Ca citrate form provide 24% elemental calcium. Calcium in cereals and green leafy vegetables are less utilized due to the presence of oxalates and phytates present in them respectively. Calcium compounds are alkaline in nature. The natural calcium preparations like Bhasmas are more effective than synthetic calcium due to the reason that, they contain easily absorbable and assimilable form of oxide and they contain other trace elements such as magnesium, copper, zinc etc. Irrespective of the gastrointestinal condition they do exhibit their efficacyunlike synthetic molecules which cannot be absorbed in unhealthy gut conditions such as indigestion, chronic gut motility disorders and hormonal imbalances. The additional advantage of Bhasmas of Sudhavarga Dravyas is that they exhibit other therapeutic actions such as correcting indigestion and properties like antacid, ulcer healing and anti-colic properties which cannot be expected with synthetic molecules.

#### Shodhana of Sudha Dravya

One of the purification method of *Sudhavarga Dravya* is by *Amla Vargadravya*. As all these are calcium compound and may contain physical impurities and has alkaline nature. The *Amla Dravyas* are acidic in nature and hence removes the excess alkaline nature of Ca compounds. Thus to make smoother and palatable form the *Shodhana* is necessary.

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Animal source	Mineral source	Plant source
Kapardika	Godanti	Vamsalochana
Shankha	Badarashma	Vasa
Shukti	Khatika	Nagakesara
Mrigashringa	Dugdhapashana	Arjuna
Kukkutandatwak	Churnaka	Plaksha
Samudraphena	Kousheyashma	Aja dughda
Ajasthi		Bilwa etc.
Pravala		
Moutika		
Hastidanta		

#### Samanya Chikitsa in Raktapitta

According to Avastha treatment is done by Shodhana, Shamana and Sthambana. Here Shodhana is done when there is Pitta and Raktadooshana, Stambana is done when there is Jeevaraktasrava and Shaman is preferred if Ksheenabalamamsa condition. We can apply Chikitsa as follows.

#### 1. Tikta Rasa Prayoga

- Bhoutika: Vayu and Akasha
- Guna: Ruksha, Sheeta, Laghu.
- Kleda, Meda, Vasa, Majja, Shakrta, Mutra Shoshana.
- Kusta, Murcha, Jwara, Utklesha, Daha, Pitta and Kaphahara.
- 2. Stambana Dravya Prayoga
- 3. Sharad Rutu Paripalana

#### Why Sudhavargiya Dravya in Raktapitta?

These *Sudhavargiya Dravya* has additional advantage in *Bhasma* form and therapeutic actions such as,

- Correcting indigestion
- Properties like antacid
- Ulcer healing
- Anti-colic properties which cannot be expected with synthetic molecules.
- The absorbability of calcium compound in *Bhasma* form is better.

These Sudhadravya are Parthiva in nature and has qualities like Guru, Kathina, Vishada, Manda, Sandra, Sthula, Sthira, Gandha Guna Bahulya. And has functions like Upachaya (nourishment), Sanghata (provides hardness and compactness), Sthairyat (provides stability) and Gouravata. All these qualities play important role in coagulation of blood. Thus by applying Guna Siddhanta by Parthiva Guna Bbahulya and Sthairyata property of Sudha Dravya the Saratva, Dravatwa, Ushnatva Guna of Raktapitta can be pacified.



#### Plant origin drugs in Raktapitta

- Shuddhalaksha Churna with honey with Gritha.
- Durvapatra and Vata Patra Kalka along with Madhu, here Durva is having calcium of 0.77% and Vatapatra both has haemostatic property used in Pitta and Kapha vitiated condition (Durvadikwath, Durvaditaila, Nyagrodhadi

*Churna, Nyagrodadhi Ghrta Proyoga* can be done).

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- Vasa Patrakalka with Madhu has Tikta and Kashayarasa, Sheeta Virya enchance the liver protective enzymes (superoxidase and catalase) and also used in antihaemorrhagic drug.
- Madhuka, Sharkara, Lodra, Sariva with Ajaksheerasadhita.
- Manjista, Sariva, Lodra, Padmaka, Utpala with Ajaksheera Sadhita.
- Ikshukanda Prayoga Swarasa kept overnight, in next morning Utpala and Madhu is added - Ikshu contains calcium oxalate, Vatapittanashaka.
- Kashaya prepared with Jambu, Amra, Arjuna.
- Udumbaraphala Rasa Prayoga.
- In severe Raktapitta Madhu with Kamala Bhasma.
- Matulunga Yoga Matulunga Mula and Pushpa Kalka is made and mixed with Tandulodaka. Matulunga contains calcium oxalate, haemostatic in nature.

#### Nasagata Raktapitta

- Avapida Nasya
- Nilotpala, Gairika, Shankha, Chandana, Sita and Jala.
- Nasya with Amrashtirasa, Samanga, Dhataki, Mocha Rasa and Lodra.

#### Mutra Marga Raktapitta

- Siddha Gritha prepared with Gokshura, Shatavari, Shalaparni, Prsnaparni, Mudgaparni, Mashaparni.
- Shatavari Ksheera Shatavari + Gokshura Kwath + Kalka prepared with Ksheera.

#### Vit Marga Raktapitta

- Mocha Rasa Siddha Dugdha Mocha Rasa in one among Shonita Stapana Dravya.
- Godugdha, Mocha Rasa Kalka, Sugandhabala, Nilotpala, Shuntisadhita Dugdha.

Some of the formulations are *Chandrakalaras*<sup>[10]</sup> acts on *Raktavahini*, when *Rakta* vitiated by *Pitta*. Extremely useful in all types of *Raktapitta*, being pacifier of *Ushna*, *Teekshna Guna* acts as *Dahashamak*. Recommended for persons with *Pitta Prakruti*, especially in *Greeshma* and *Sharad Rhutu* for maintenance of health. *Anupana - Vasa Swarasa*, *Durva Swarasa*, *Kushmanda*, *Amalaki*.

Bola Bhaddharas<sup>[11]</sup> an effective Rakta Sthambhak Khalvi Rasayana with main ingredient 'Raktabola' (calcium rich) useful in Adhoga Raktapitta, especially Yonigata Raktapitta, helps in controlling excessive bleeding in Atyartava and Raktapradara, it tones up the uterine muscles. Acts as Vranaropaka in healing the cervical erosion and ulcers in vagina Anupana -Vasa Swarasa.

Kamadugdharasa<sup>[12]</sup> (Mukta Yukta), Pradaranta Rasa, Pradarantaka Rasa, Muktapanchamrta Rasa, Laghumalinivasant Rasa, Shankhodara Rasa, Shanka Bhasma, Sutashekhara Rasa.

#### CONCLUSION

The mineral origins like Shankha Bhasma, Pravala Bhasma, Khatika, Mukta Shukti Bhasma, Kukkutanda Twak Bhasma etc. and some of the plants and animal origin which contains calcium as the component should be applied in different forms of Raktapitta condition. Others plants having calcium are; Asvatha, Upodika, Palakya, Talavruskha, Kembuka, Hastikarni, Rajgira, Surana. *Erandakarkati* etc. Calcium compounds used in Ayurveda which are grouped under Sudhavarga not only restricted to bleeding disorders but also applied in Amlapitta, Grahani, Parinamashula, Swasa, Kasa, Hrudroga etc. Thus without using synthetic form of calcium, using in Bhasma form surely will gain therapeutic importance in clinical practise. Thus Sudha Vargeeya Dravya plays an important role in bleeding and coagulation disorders.

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