

CLASSICAL REVIEW ON RAKTHAVAHASROTAS

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ABSTRACT

All the three doshas of the body perform their functional activities with the help of these srotas. Acharya Charaka defines Srotas as transporting channels of Dhatus undergoing transformation. The transformation is adopting the form of successive element by leaving the same of preceding one with the aid of specific Agni residing at the base or root of each srotas. Ayurveda believes that human body is structured with different Srotas which are basic and fundamental parts. These srotas are very closely associated with their respective Moolasthana. These Moolasthana are very important from treat mental and prognostic aspect as its involvement in the formation, examination and control over the Bhavapadartha flowing through the Srotas. The Raktadhatu which is also referred as one of the important functional element of body of which formation, transformation and conduction is carried out by Raktavaha srotas. The Yakrut is advocated as the Moolasthana of Raktavaha srotas. The importance of Raktavaha srotas, its Moolasthana and liver has been explained. The utility of the knowledge of Moolasthana of the srotas is not directly described.

Key Words: Srotas, Raktavaha srotas, Moolasthana, Yakrut, Rakta dhatu

INTRODUCTION

Entire knowledge base of Ayurveda is preserved in Ancient literature as sutras, which need to be elaborated. *Srotas* is one of such concepts. Human body is said to be the conglomeration of *Srotas* as per classics¹. All the three doshas of the body perform their functional activities with the help of these *Srotas*. Acharya Charaka defines Srotas as transporting channels of dhatus undergoing transformation. The transformation is adopting the form of successive element by leaving the same of preceding one with the aid of specific Agni residing at the base or root of each Srotas. Chakradutta the commentator of Charaka, describes Srotomula or *Moolasthana* as the area from which Srotas evolves or arises. This particular part of Srotas regulates and controls the functioning of the entire Srotas². As per the definition given by chakrapani, Moola is the prabhavasthana means the originating place or the governing site. Susrutha considered Moola as the hollow organ from which the srotas starts³. According to Acharya Charaka and Susrutha Yakrut is the moola sthana of rakthavaha srotas. Rakta Dhatu dependent on rakthavaha srotas for its formation, transformation and distribution. Ayurveda mentioned rakta has unique and exclusive function that is *jeevanam*⁴.

The rakta dhatu which is also referred as fourth dosha by Ayurveda, is one of the important functional element of the body of which formation, transformation and conduction is

carried out by raktavaha srotas⁵.

CONCEPT OF SROTAS

The description about srotas is present in ancient system of medicine. The anatomical, physiological as well as pathological concepts about srotas are broadly mentioned in *Ayurveda samhithas*.

Charakasamhitha:-

Charakas described many facts about srotas in meaning the structure through which the *Sravanamkriya* takes place

Sushruthasamhitha

Sushruthah described very well about the number kinds and functions of srotas in context of *sroto viddha laxanas* (symptoms of injury). as may have been inflicted on their *molas*. probably the mode of approach in this case is that of surgeons. he has mentioned eleven pairs of *srotas*. *Sushrutha* has also mentioned distinguishing features of *srotas* from *sira* and *dhamanies*.

AstangaSamgraha

Regarding *srotas*, *acharya vagbhatta* has similar opinion to *acharya charaka*, *vaghbatta* has told that there are indefinite number of *srotas* in body and whole body is made of with the network of minute *srotasas*⁶.

Human body is made up of *srotas* and *srotasare* same in number as structure entity in it.

Vagbhatta mentions external and internal, two types of *srotas*. He have described nine external and thirteen internal

srotas in his text.

AstangaHridayam⁷

Srotas are same described in *astanga samgraha* except that there are three extra *srotas* in female.

DERIVATION OF THE TERM SROTAS

The *vyutpatti* (origin) of term *srotas* are described in various literatures (other than *ayurvedic*) and *ayurvedic* literature is as follows-

AMARAKOSA

According to *amarakosa*, *srotas* has been defined as "*stotambhu saranam swatah*".

CHARAKA

According to *acharya charaka* the term *srotasis* defined as '*srawanat srotamsi*' i.e. the structure through which '*srawanam kriya*' takes place.

Several other *ayurvedic* veterans and commentators have given their own interpretations about the derivation of *srotas* as follows-

1) Chakrapani dutt:

According to *chakrapani dutta*, the term *srawana* refers to circulation of *poshak dhatu* and other nutrient *dhatu* takes place.

2) Kaviraj gangadhara:

"*srawanad rasadi srawapathatwat srotansya uchyanyante*"

3) Kaviraj ganathsen:

"*srawanam syandanam*"

All the above interpretations reveal that passage; channel or structure through which the "*syandanam*" circulation, of *poshak dhatu* takes place is *srotas*.

DEFINITION OF SROTAS

Acharya charak has described the exact nature of the functions performed by *srotas*. He has defined *srotas* as *srawanat srotamsi* meaning the structure through which the *srawanam* takes place.

Further *charak* has defined *srotas* as transporting passage of *dhatu*s undergoing transformation.⁸

The term *srotas* means channel, it is derived from the *sanskrit* root "*sru srawane*" meaning to exudates, to ooze, to filter and to permeate.

PANCHA BHAUTIC COMPOSITION OF SROTAS

Acharya charak says that *vayu* creates the gross and subtle channels with

Dominance of *akash mahabhooota*.⁹

Charaka describes the development of *srotas* as a result of *bhedan karma* done by *vyan vayu*. *sushrut* has same opinion. He says that *vata* with the help of *ushma*(heat) makes *srotas* by *dharankarma*(splitting)¹⁰

In the formation of *srotas* the constitution is *panchabhotical* though there is dominance of *akasa mahabhooota*.

MORPHOLOGY AND STRUCTURE OF SROTAS

Charak says that each *srotas* has color similar to that *dhatu* which is transported through it. *srotas* may be

Vritta	cylindrical or tubular
Sthula -anu,dirgha	Minute-large
pratan	reticulated

Acharya vagbhattacharya also shares the same opinion¹¹

According to *sushrut*, *khani*(pores) are found in the walls of *dhamanies*. very much like the minute passages present in a stern of lotus through which they supply *rasa* to all parts of the body.

Vagbhattacharya has the same idea but he uses the term *dwar* instead of *khani*. *Sushruta* has further cited that *prata* (reticulation) of

srotases are found in *mamsadharakala*.

He has further described that *srotases* are channels ,which have their origin in *Khadantaram* i.e. an organ cavity, the *hridaya* for example and spread through out the body transporting *rasadi dhatus*(*poshak dhatus*). *Sushrut* excludes *sira* and *dhamani* from *srotas*¹²

TYPES OF SROTAS

SR. NO	According to Charaka samhitha	<p><i>Srota</i> shas the types as many as corporeal entities. without srotast here is no existence of any corporeal entity.</p> <p>A human body is the aggravation of <i>srotas</i> because of their preserves and diffusiveness of the agents,which aggregate and pacify all dosas. This is the reason that which <i>srotas</i> belong to which they carry, nourish and where they are situated, all this is different from the <i>srotas</i> themselves'</p>
1	According to Sushruta samhitha	<p><i>Srotas</i> respectively conveying <i>prana ,anna, udaka ,rasa, rakta, mamsa, meda, purisha, shukra</i> and <i>artava</i> naturally fall within the scope of <i>shalya tantra</i></p>
2	According to Astanga Samgraha	<p><i>Srotas</i> are innumerable .<i>acharya</i> further mentioned that <i>purusha</i> has nine <i>srotas</i>: two in eyes, and ear, one in mouth.in rectum, and in urethra. <i>Stree</i> has three more: two in breasts, and one in vagina. other <i>srotas</i> is the place of life, which is thirteen in number ie. <i>prana, udaka, anna, dhatus, and malas</i> carrying passage</p>
3	According to Aastanga Hridaya	<p><i>Astngaa hritaya</i> give the similar description as that of <i>astanga sangraha</i></p>

TERM MOOLA IN CLASSIC

IN MANU SAMHITHA:

In manu samhitha,term moolais used for different meanings Like *shipha, brandhna, angari, kanda, vrindha ,j ata, pada, bhakshya* and *bhojya*. *Moolais* also used as *vita* or *dhana* (money) and *karana* (reason or cause)¹³

IN CHARAKA SAMHITHA:-

Charaka has used this term for reference of *karanaor adha* (reason /causeor base)¹⁴

IN SIJSHPUTHA SAMHITHA AND ASTANGA HRIDAYA:-

MOOLA word is used as a probeor tracer,director, governing center.

"*Dosa dhatus mala moolam hi shareeram*"

ACCORDING TO CHAKRAPANI:-

"*Moolamithi prabhavasthanam*"

Susruta samhitaa and Astaanga Hridaya

Moola word has been used as tracer,director or prob.

RAKTHA DHATU

SYNONYMS

Ruktha,Rudira,Shonitha, Lohitha, Jeevaraktha, Asrik used by *Acharya Sushruta*

PRAMANA

अष्टद अंजलयः शण्णाणतस्यै (च.शा ७ / १५)

8 Anjali pramana

PANCHA BHAUTIKA SAWROOPA OF RAKTHA

रक्तं तेजो जलात्मकम् ।(सु.शा १५ / ८ भानुमणतः)

पाच भोगतकं तु अपरे जीवरक्तम् अहुः आचाययः ।

णवस्रता द्रवता राग स्पन्दनम् लघुता तथा ।

भूम्यादीनां गुणा ह्वेते दृश्यन्ते चात्र शोणणते ॥ (सु.सु. १४ / ८-६)

SITE

रक्तं तेजो जलात्मकम् ।(सु.शा १५ / ८ भानुमणतः)

पाच भोगतकं तु अपरे जीवरक्तम् अहुः आचाययः ।

णवस्रता द्रवता राग स्पन्दनम् लघुता तथा ।

भूम्यादीनां गुणा ह्वेते दृश्यन्ते चात्र शोणणते ॥ (सु.सु. १४ / ८-६)

Liver (yakrit), spleen (pliha) are roots of raktavaha srotas.

According to Sushruta, blood vessels supplying rakta to every smallest structure of the body is also a root of raktavaha srotas.

Raktadharakalais present inside liver,spleen and blood vessels. It is concerned with formation and storage of rakta

Liver and spleen are considered as raktashaya (organ where blood is stored) or the controlling organs of this system. These

organs are also store-house for raktadhatu.

LAKSHANA OF SHUDDHA RAKTA

तपनीयेन्द्रगोपां पदालक्तकणिभम् गुंजाफलसवणं च णवशुद्धं णवणधशोणणतम् ॥ (च. सु २४ / २२)

FUNCTION OF RAKTHA DATHU

रक्तं वण्यप्रसादं मांसपुण्यस्तं जीवयणत च ॥ (सु.सु. १५ / ५)

धातूनां पूरणं वणं स्पृयज्ञानमसंशयम् ॥

स्वाः णसरा: संचर रक्तं कुयायच्चन्मानं गुणानणप् ॥ (सु.शा ७ / १४)

According to susruta rakta full fill the nutritional needs of other dathu which does the purana of puahti need for other dathu by following through its own siras

Nourishment of dhatu: Rasa & rakta dhatu circulates in the body & supply nutrients to tissues.

FEATURES OF VITIATED RAKTA

Susru taadded snigdha ,seetala, bahula, chirrasravi, mamsapeesi brama, girikodhaka Prtaikanksham

रक्तं रक्तांगांक्षता णसरापूण्यत्वं च ॥ (सु. सु. १४ / १६)

According to vagbhata Raktha aggravated diseases like visarpa, kushta,vyanga, asrigdara,akshi muka meadra guda dhaha , gulma, vidhradi, pleeha,kamala, agni nasha,vata rakta,

Susruta added raktanga netra ,rakta twak neatra mutra, and sira poornatwam

रक्त क्षय लक्षण

रक्ते अम्लणशणशरप्रीणतः णसराशैण ॥ रक्षता ॥ (अ.हु सु. ११ / १७)

According to ashtanga hrudaya –desire for sweet,collapse of vein,twak rookshata,cracking of skin, moorcha, inactiveness.

According to ashtanga sangraha –dryness of skin , desire for sour things, coid comforts and collapseof veins

According to charaka –roughness, dryness, and craks in the skin and loss its lusture

According to susruta –roughness in the skin,craving for sour coid and lossness of blood vessels

RAKTHAVAHA SROTAS

रक्तवहे द्वे, तयोमूलय यक् ॥ त् प्लीहानो रक्तवाणहन्मश्च धमन्मः ॥ (सु.शा ६ / १२)

According to charaka rakta vaha srotas originate from yakrut and pleeha

According to susruta they are two in number and their moolas are yakrut and pleeha Raktavahini damani

According to vagbhata yakrut and pleeha

रक्तवह सोतोदुण्ट कारण्

रक्तवाणहनी दूष्यसम्न भजता चातपनल ॥ ॥ (च.ण.व. ५ / १४)

Rakta vaha srotas get vitiated due to the intake of food and drinks which are irritant The following factors brings vitiation in Sionita vaha srotas are as follows

Intake of substances which induces burning sensation inside the body.

Excessive consumption of unctous, hot, watery substances

Excessive exposure to sun and heat Injury

TREATMENT PRINCIPLES OF RAKTAVAHA SROTAS VYADHI

In CharakSutraSthana(24/18),therapies like Virechana, Langhan and Raktasravan which are done in the treatment of Rakta pitta are also useful for curing diseases due to the vitiation of the blood.15

Caraka mentioned that the treatment of Raktavahasrot as in Sutrasth chapter 24Vidhisonita-addhya, the treatment that give in Rakta pitta occurs like therapies of Virechana, Upavash and Raktamokshana.

RAKTOTPATTI

रक्ताणदनां तु सवयशरीरज रचने तेन रन्जनः रागवण्य युक्तः

र चराणामणप णवशेषेण हृदयं रथानमुक्तम् ॥ (च.ण.च २४ / ३६)

यत् तु यकृत् प्लीहनोः णपत्तं तस्मिन् र इणत सज्ञा स रसस्य रागकृत् उक्तः ॥

(सु. सु. २१ / १०)

स खलु आप्यो रसांौ यकृत् प्लीहानांौ प्राप्य रागमुपैत ॥ (सु. सु. १४ / ४)

विवधना शोवितं जातं शुद्धं भिवत् देविनाम् । देशकाल ओकसात्म्यानां विवधयः संप्रकावशतः ॥ (च.सू. २४ / ३)

Formation of poshaka rakta dhatu takes place in the raktavaha srotas. Nutritive part homologues to rakta dhatu are converted to raktadhatu in the rakta vahasrotas.

RANJAKAPITTA

रंजयवत् इवत् रंजकः ॥ (शब्दकल्पद्रुम) Derived from the root word

रञ्ज् That which imparts colour is known as ranjaka.

STHANA

यत् यकृत्लीनोः वित्तं तस्मिन् रंजकोऽविरवत...द्य ॥ (सु.सु. २१ / १०)

आमाशयाश्रयं वित्तं रंजकं...द्य (अ.ह.सू. १२ / १३)

KARMA

रसरंजनं कमय दृश्यं यकृवत् यत् वित्तं तद्वसं शोवितं नयेत् ॥ (शा.द्विख. ५ / ३१) रंजकं नाम यत् वित्तं तत् रसं शोवितं नयेत् ॥

The major function of Ranjaka pitta is to impart red colour to the rasa to form Rakta. According to Kedarakulya nyaya of Dhatu parinama, the nutrients specific to Rakta dhatu are transported to the yakrit and pleeha, synthesized by the Rakta dhathvagni to form the Rakta dhatu.

DISCUSSION

Raktadhatu is extremely important for the sustenance of life. It is therefore needed to protect this Dhatu by every possible measure. All the Ayurvedic treatises realize the importance of Raktadhatu . Susruta considered the Raktadhatu as fourth

Dosha. He tried to emphasize control of Raktadhatu on the other body entities. Susruta also mentioned that Raktadhatu is responsible for nourishment of all remaining Dhatus & their status of waning or increment also depend on it. As body humours, Tridosha are responsible for creation of living body & maintain the homeostasis of the body in same fashion. Raktadhatu also takes part in origin, sustaining & maintaining homeostasis of the body therefore Rakta dhatu is considered as fourth Dosha. But in fact it is not followed the criteria of Dosha hence it is difficult to include in category of Dosha.

Many reason are enumerated for rejecting to consider as Dosha to Raktadhatu. Not only Susruta but also Charak never denied importance of Raktadhatu in treatment. Volume of Raktadhatu is 8 Anjali. Waning or increment in volume of Raktadhatu leads to pathology of Raktadhatu. Due to indulgence of oily, pungent food, due to hot climate, malnutrition, improper diet causes the pathological variances in Raktadhatu.

CONCLUSION

1. The above discussion shows that embryological origin of liver is blood tissue as per Ayurveda as well as modern science.
2. 'Rakta' is one of the important dhatu synthesized in yakrut from rasadhatu. This concept in Ayurveda exactly coincides with modern functions of liver such as synthesis and storage of blood components.
3. In embryonic life, liver is the site for haemopoiesis. Iron is essential factor for erythropoiesis which is stored abruptly in liver. Ayurveda mentioned raktadhatu utpatti in yakruta (liver) exactly correlates with modern function of liver.
4. Raktotpatti demands normalcy of pachakagni, rasagni, raktagni, and ranjaka pitta.
5. The Raktotpatti in relation to hematopoiesis, the hematopoietic organs can be paralleled to Yakrit and which are hematopoietic in fetal life, retaining their capacity to do so in emergency condition, various HGFs can be paralleled to the concept of Dhatwagni
6. The Ranjaka pitta can be compared with the iron and Intrinsic factor of Castle
7. The Ranjaka pitta function could be summarized as transformative principle necessary for haemoglobin

formation, erythropoiesis and factors influencing iron metabolism.

CONCLUSION AND RESULT

It has been concluded that The way Ayurveda has explained and described the concept of srotasa and its mulasthana(yakrut) is purely in a functional manner. The hematopoietic organs can be paralleled to Yakrit which are hematopoietic in fetal life, retaining their capacity to do so in emergency condition, various HGFs can be paralleled to the concept of Dhatwagni, the Ranjaka pitta can be compared with the iron and Intrinsic factor of Castle.

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