

Understanding of Rasa Dhatu in modern Parlance

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Abstract :

Ayurveda the science of life explains many unique concepts, like dosha, dhatu, mala and srotas etc; one cannot compare exactly such concepts to any of the modern entity. Here is an attempt to compare asa dhatu with western system of medicine.

key words : Rasa, Dhatu, Plasma, Lymph.

Introduction :

- दोष घातु मला मूलं हि शरीरम्। (सु. सू. १५/३)
- धारणात् घातावः।

Dosha, Dhatu and mala are the base for the normal and abnormal functions in the shareera. Dhatus are the one which supports the shareera, among the saptadhatu, Rasa dhatu is the adya which helps for the formation and nourishment of other dhatus and does the preenana of the shareera. So it is essential to learn about the Rasa dhatu with modern parlance.

Aim and objectives :

- To understand and explain the rasa dhatu in modern parlance.

Materials and Methods :

This article has the review and discussion on rasa dhatu from different Ayurvedic texts regarding derivation, defination of Rasa, Types formation, sites, qualities, functions upadhatu of Rasa dhatu, understanding the Rasa dhatu in different context, Rasa in modern view, discussion, conclussion and bibliography.

Derivation of Rasa :

The term Rasa is Gati vachaka. As it moves every moment inside the body, hence called as Rasa.

Defination of Rasa :

The one which is in fluid form is called Rasa dhatu².

Types of rasa dhatu :

Rasa is of two types according Chakrapani² -

- 1) Poshaka dhatu / asthaya dhatu / ahara dhatu / anna rasa
- 2) Poshya dhatu / Sthaya dhatu / rasa dhatu - which get converted to Rakta dhatu.

Rasa is of three types according to Dalhana³ -

- Mala amsha - Kapha
- Sthoola amsha - Rasa dhatu
- Sookshma amsha - Rakta

Utapatti of rasa :-

Panchabhootatmaka, shadrasayukta, dvividha and ashtavidha veeryayukta, aneka gunayuka chaturvidha annapana which will become samyak pachana by the help of teja i.e. agni and forms into paramasookshma sarabhaga is called Rasa³.

Just as shaali is cooked with the help of jala and agni and made into odana in the same way the ahaara in amaashaya becomes paaka by the help of amaashya adha sthita jatharaagni and forms into Rasa dhatu².

Locations of rasa dhatu :-

The sthana of Rasa dhatu is Hrudaya. This Rasa circulates from Hrudaya by Vyana Vata through 10 ascending, 10 descending and 4 transverse dhamani/sira to feed each and every component of the shareera. This provides nutrition for growth, for promotion of physique and compensation of the wear and tear in aged^{4,5}.

Qualities of rasa dhatu :-

Rasa dhatu in liquid state, white, cold, sweet, unctuous and in kinetic form⁶.

The ahara rasa moves through even minute capillaries in 3 specific directions⁷.

- ✓ Just like the sound energy is transmitted transversely.
- ✓ Heat energy tending to ascend upwards.
- ✓ Hydrostatic energy tends to take a descending course.

Functions of Rasa :-

- रसस्तुष्टिं प्रीणनं रक्तपुष्टीं च करोति । (सु. सू. १५/६)
- रसाद्रक्तं प्रजायते (च. चि. १५/६ आणि अ. ह. शा. ३/६२)
- कृत्स्न शरीरमहरहस्तर्पयति वर्धयति धारयति यापयति चादृष्टहेतुकेन कर्मणा ॥ (सु. सू. १४/३)

Rasa does toshana (mental saturation) and preenana (physical nutrition).

Rasa forms Rakta dhatu.

As it circulates all over the body, it does the tarpana, vardhana and yapana karma in the shareera.

Upadhatus of Rasa dhatu :-

Through the concept of upadhatu is not told in bruhatrayee, according to the commentaries Stanya and Raja / Artava are the upadhatus of Rasa dhatu^{2,3}.

Mala of Rasa dhatu :-

Mala of Rasa dhatu is Kapha².

Rasa in different context :-

i) Rasa with rakta

- रसो हिऽसृक् । रसौ वैः सः ॥
- असृगेव रसः । असृगेव रसासृक् ॥

i.e. Rasa itself is Rakta and Rakta itself is Rasa. Commentator of this book Yoganandanatha comments as, Rasa becomes Rakta since it is formed of Rasa. When situated in the body, it is known as Rakta and when it is excreted from the body known as Sweda, if it is discharged from the tongue due to ushma is lala and the asruk only becomes Rasasruk i.e. Rasarakta (plasma)⁹.

ii) Rasa with kapha :-

While telling Rasa vrudhhi it is told that,

- रसोऽपि श्लेष्मवत् । (अ.ह.सू.११/८)

Rasa vrudhhi is similar to that of Kapha.

- उरः कण्ठ शिरक्लोम पर्वाण्यामाशयो रसः । (अ. ह. सू.)

The sthana of Kapha is Rasa i.e., ashraya for Kapha Dosha.

iii) Rasa with ama :-

- ऊष्णोऽल्प बलत्वेन धातुमाद्यमपाचितम् ।
दुष्टमामाशयगतं रसमामं प्रचक्षते ॥ (अ.ह.सू.)

So Aamaashayagata dushta Rasa is called as Ama.

iv) Rasa with twak :-

- साराण्यष्टौ पुरुषाणां..... त्वगक्तमांस..... (च. वि: ८/१२)
- तत्रतश्च रोगाणां मार्गः बाह्य मध्याभ्यन्तरात् तत्र बाह्यो रक्तादि धातुः त्वक्वच। (अ. सं. सू. २२/९)

In some contexts instead of Rasa, twak is used as synonym.

v) Rasa with oja :-

- रसश्चौजः संख्यातः। (च. नि. ४/७)

Rasa is known as Oja.

Rasa with modern parlance^{9,10} :-

As Ayurveda is a unique science which explains many unique concepts, it is very difficult to compare the entities of Ayurveda to modern. But few authors compare this Rasa dhatu to Plasma, lymph and other body fluids.

Plasma :-

Plasma represents the liquid portion of the circulating blood. Its main constituent is water and its source is food. In normal conditions, it occupies over half the whole blood volume.

Composition of plasma :-

The Plasma is straw coloured and is composed of about 91% water and 9% solids. Solids include a vast variety of substances which can be classified as -

1. Nutritional constituents includes;

- a) those which are primarily absorbed from the intestinal tract - such as glucose, amino acids, lipids, minerals and vitamins.
- b) those which are formed as intermediate products or as hormones in certain cells and are being transported to be used by other cells - lactic acid, pyruvic acid, citric acid, creatinine, acetoacetic acid etc.

2. Functional constituents include albumin, globulin, fibrinogen other anti-coagulant factors, sodium, potassium, calcium, magnesium, chloride and bi-carbonate.

3. Normal excretory substances which is to be excreted by kidneys, liver and lungs. It includes CO₂, urea, creatinine, uric acid, phenols, modified steroid hormones, bilirubin, urobilinogen etc.

Functions of plasma :-

It is the medium which transports the food products and receives waste products of cell metabolism. Cells draw their own protoplasmic water from plasma water which is also called as blood water. It may be said that the plasma is the source from which all other kinds of extracellular fluids are secreted. At the level of the capillaries, the interstitial fluid filters and

replenishes the fluid already present in the interstitial or tissue spaces.

Thus interstitial fluid and lymph are derived out of plasma, which is also the source from which the extra-cellular fluids are secreted. The lymph is formed by the filtration of the tissue fluids into lymphatic capillaries and it is ultimately returned to heart, where it becomes the part of the blood plasma. The lymph circulates all over the body and supplies the nutrition to the cells and also does the protective mechanism of the body.

Interstitial fluid :-

The interstitial fluid, which is also known as tissue fluids, is derived from plasma by exudation. It fills up the space between the capillaries and tissue cells, or in other words surrounds and bathes the cells of the body. The tissue fluid is the medium through which the nutrition is made available to almost all the cells.

Lymph :-

The term Lymph is derived from "Lympha" meaning clear spring water. It is constantly formed by the draining of tissue spaces of the body. Lymph resembles plasma but is present in lymph vessels.

Formation of lymph :-

All the tissues of the body are provided with extremely minute known as the lymphatic capillaries. The minute capillaries possess extremely thin walls from which delicate connective tissue fibrils form a network with the surrounding tissues. Lymph is formed as a result of diffusion, filtration and osmosis.

As the capillary walls are semi-permeable molecules which are small to migrate out of capillaries by diffusion, osmosis also attracts the particles from the capillaries. Thus there is a continuous movement at the venule end. The fluid that passes is the lymph in the sense; it is a filtrate of blood to tissue spaces.

Functions of lymph :-

- ❖ The Circulation of lymph is an essential mechanism for the supply of nutrition to cells.
- ❖ It also plays an important part in the protective mechanism of the body.
- ❖ It aids in combating foreign agents. The nodes present in abundance, in the lymphatic system extract noxious agents carried by the lymph by filtration and thus prevent their passage in the blood stream.

Discussion :-

Considering the derivation and qualities, one can understand that the Rasa dhatu is having chala guna. But it is not so. As the Rasa and Kapha are ashaya and ashrayi and even the vrudhhalakshana of Rasa is similar to Kapha so it must be sthira not of chala. But it moves all over the body only with the help of Vyaana Vayu.

In nirukti it is told that, the one which is in fluid form is Rasa dhatu. But even the Rakta

dhatu is in fluid state. So the dhatu which is looking similar to that of jala and is sita varna in the body only can be consider as Rasa dhatu.

Rasa is not equal Rakta :-

As per Yoganandanatha commentator of Ayurveda Sutra by Dr. A. Shama Shastri comments as Rasa itself if Rakta and Rakta itself s Rasa. But Rasa is different from Rakta.

Because;

- Rasa is soumya whereas Rakta agneya
- Rasa is ashraya for Kapha whereas Rakta for Pitta
- Rasa is Sita varna whereas Rakta is Rakta varna
- Rasa forms Rakta and does Rakta pushti

Rasa dhatu Vs Plasma :-

- Both are carrier of nutrition
- Plasma transports the malas from the tissues as it flows through and permeates entire body.
- The main constituents of plasma are water and its source is food which is similar to Rasa.
- So plasma can be compared with Rasa dhatu.

Rasa dhatu Vs tissue fluids :-

- Rasa dhatu, as stated by Sushruta, permeates the entire body, bathes the elements of sthaya dhatus, nourishes, irrigates and sustains them by oozing which can be co-related to tissue fluids.
- As the tissue fluids derived from plasma by exudation may be attributed to Rasa.

Justification of including Stanya as upadhatu of Rasa dhatu :-

- It is secreted by the female only when she is lactating and is not a constant feature in her.
- It neither supports nor nourishes the female but nourishes and supports the child. Thereby it represents a potential dhatu to the infant.
- It does not undergo any further metabolic transformation, once it has been formed in the woman - gati vivarjitam.
- As it is formed from Rasa dhatu, dhatubhischa upajayante so called as upadhatu.
- The proteins of milk are derived from plasma amino acids through some chemical transformation brought about by the activity of the glandular tissue

Conclusion :-

- ✓ The dhatu which is looking similar to that of jala and is sita varna in the body can be consider as Rasa dhatu.
- ✓ Rasa can be compared to either plasma or lymph or even tissue fluids contextually.
- ✓ Rasa is primary tissue, is derived from food and supplies nourishment to all other dhatu.
- ✓ Rasa is responsible for vardhana, dharana and yapana of the shareera.

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