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A CONCEPTUAL STUDY OF RAKTVAHA SROTAS WITH SPECIAL REFERENCE OF IT'S MOOL STHANA

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ABSTRACT

Srotas are the body's circulatory channels or dynamic interior transport system, which are responsible for *dosha, dhatu, Oja, agni,* and other *vahanas*. "*Srotas*" are channels or routes through which nutrition passes, interacts, and is transmitted. Each *Srotas* is connected to a *Moola*, which is an anatomical structure. *Moolstana* is required for *Srotas* to function properly. As it is involved in the development, assessment, and regulation of the *Bhavapadartha* flowing through the *Srotasa*, these *Mool Sthana* are very essential from a therapy and prognosis standpoint. *Acharya sushrut* considers *Rakta* to be *Jeevan* and the fourth dosha. *Raktvaha* srotas is a functional element of the organism that forms, transports, and conducts blood. Various acharyas regard *Yakrut, Pleeha*, and *Raktvahai dhamnis* to be *Mool Sthana* of *Raktvaha srotas*. *Yakrut* has a link to the liver. Most blood-related concepts, such as haemopoesis, red blood cell storage, and breakdown, are anchored in the liver.

KEYWORDS: *Srotas, Raktavaha Srotas, Yakrut, Pleeha*, Liver.

INTRODUCTION

Ayurveda includes a detailed explanation of the human body, including *Dosha, Dhatu, Malas, Srotas, Kostha, Kostangas,* and so on. "*Srotas*" is short for "*Sravanat Srotansi,*" which might imply exudation, seeping, filtering, flowing, moving, and so on.[1] *Srotas* are the body's internal transport system, which serves as a platform for the actions of other key bio factors such as the three *doshas*, seven *dhatus*, and so on. *Charaka* identified 13 gross channels, while *Acharya Susruta* mentioned 11 pairs of *Srotas*. One of them is *Raktavaha Srotas*. It transports the *Rakta Dhatu* to all parts of the body, nourishing all tissues. Every *Srota* has its own *MoolaSthana*, or root. *Moola Sthana* of *Srotas* was described by *Chakrapani* as *PrabhavaSthana*, which signifies the anatomical seat of respective *Srotas*, the major seat of pathological alterations, diagnostic value, or therapy emphasis. *Yakrut* (liver), *Pleeha*, and *Raktavaha Srotas Moola* are *Yakrut* (liver), *Pleeha*, and *Raktavaha Srotas Moola* (spleen).[2] *Rakta* is said to be responsible for the formation of *Pleeha* and *Yakrut*, according to *Acharya Susruta.*[3] *Srotas* is the body's internal transportation system. Because there are so many *Srotas* in *Sharir or Purush*[4], *Srotas* are an essential concept in *Ayurveda*. *Srotas* are the routes of circulation that carry the *Dhatu* (tissue elements or constituents) that are undergoing metamorphosis to their destination, according to *Charaka*. *Srotas*, according to *Acharya Sushruta*, are hollow channels, with the exception of huge *Siras* and *Dhamanis*, that originate in the root area, spread throughout the body, and circulate and expel certain entities.[5] *Acharya Charaka* identified thirteen major *srotas*, while *Acharya Sushruta* identified eleven pairs of srotas. *Rakta* dhatu is the body's primary fire. *Raktavah srotas* are blood vessels that have a role in the creation, circulation, and elimination of blood and lymph. *Raktvaha srotas* regard *Yakrut*, *Pleeha*, and *Raktavahi dhamnis* to be *Moolsthan. Srotas.*[6]

MoolSthana is determined by the *Dhatu's Utpatti Sthana*, *Sangrah Sthana*, and *Vahan Sthana.*[7] *Yakrut* and *Pleeha* are derived from *Shonit* (*Rakta*) during embryonic development, and *Rakta* is produced in *Yakrut and Pleeha* for a specific time period after birth.[8] Various hematopoetic products (such as Fe, Vitamin –B12, Foliate, and others) are transferred from the liver and spleen to the hematopoetic organs for hematopoeisis. As a result, the liver is in charge of blood creation and function. *Raktavaha Srotas* are vessels that enter or exit the liver or spleen and transport blood and lymph, or where *Rakta* or lymph is transformed or functioned.

LITERATURE REVIEW

According to Ayurveda classics the *rakhta dhatu* is made by transformation of *rasa*. In the liver and spleen by the help of *ranjka pitta*. this transformation can be described as these *slokash* from various classic.

1. तेजो रसानां सर्वेषां मनुजानां यदुच्यते|
पित्तोष्मणः स रागेण रसो रक्तत्वमृच्छति|| (च.चि. 15/28)
In human the rasa acquire redness to transform into *rakta* with the help of essence of food we take and the heat of *pitta.*

2. स खल्वाप्यो रसो यकृत्प्लीहानौ प्राप्य रागमुपैति | (सु. सू. 14/4)

The rasa gets redness into *Yakrut and Pleeha.*

3. यत्तु यकृत्प्लीहनोः पित्तं तस्मिन् रञ्जकोऽग्निरिति सञ्ज्ञा, स रसस्य रागकृदुक्तः (सु. सू. 21/10)
The pitta remains in *Yakrut and Pleeha* known as *ranjaka agni* and this *pitta* colours the *rasa*.

4. स खलु त्रीणि त्रीणि कलासहस्राणि पञ्चदश च कला एकैकस्मिन् धातावतिष्ठते; एवं मासेन रसः शुक्री भवति स्त्रीणां चार्तवं (सु. सू. 14/14)
This *rasa stayas* in a dhatu till the 3015 *kalla*. So in this way rasa transforms into *shkura* in male and into *artva* in females, in a month.

5. भवति चात्र-अष्टादशसहस्राणि सङ्ख्या ह्यस्मिन् समुच्चये |
कलानां नवतिः प्रोक्ता स्वतन्त्रपरतन्त्रयोः (सु. सू. 14/15)
According to this and another texts *rasa* takes 18090 *kalla* to convert into *shkura*.

6. शोणितस्य स्थानं यकृत्प्लीहानौ, तच्च प्रागभिहितं; तत्रस्थमेव शेषाणां शोणितस्थानानामनुग्रहं करोति || सु. सू. 21/16
As the mentioned earlier, *Shonit Sthana's are Yakrut and Pleeha*. The *rakta* living in its these places obligates other *shonit Sthanas*.

7. षड्भिः केचिदहोरात्रैरिच्छन्ति परिवर्तनम्|
सन्तत्या भोज्यधातूनां परिवृत्तिस्तु चक्रवत्|| (च.चि. 15/21)
Effect of Aphrodite's is fastly strengthening. some *acharyas* says that after consuming these aphrodites the transformation of all the *dhatus* takes six day and night (अहोरात्र). The gradual transformation of *dhatus* runs incessantly in a cyclic order.

8. प्लीहानं च यकृच्चैव तदधिष्ठाय वर्तते|
स्रोतांसि रक्तवाहीनि तन्मूलानि हि देहिनाम् ||(च.चि. 4/10)

The *pitta* (*Ranjak pitta*) stays located in *Yakrut and Pleeha*. And the *Moola* of *Raktvahai strotas* are also *Yakrut and Pleeha.*

MORDEN REVIEW

According to Morden science view about the formation of blood (Haemopoiesis) occurs as below.

In developing embryos, blood formation occurs in aggregates of blood cells in the yolk sac, called blood islands.

As development progresses, blood formation occurs in the spleen, liver, and lymph nodes. When bone marrow develops, it eventually assumes the task of forming most of the blood cells for the entire organism.[9]

The first wave of primitive hematopoietic and endothelial cell development occurs via signals to the extraembryonic, endodermal yolk sac within the first two weeks of gestation, which results primarily in the formation of EryP, megakaryocytes, macrophages, and the endothelium.

EryP help in the formation of structures called blood islands in which the centrally placed cells give rise to erythroid and myeloid cells while peripherally placed cells form endothelial cells that form these channels. These blood islands fuse to form vascular channels that span throughout the yolk sac. Through these vascular channels, oscillatory plasma flows containing EryP cells and various other primitive cell types, which is stiMoolated by the developing heart.

Once in circulation, the EryP cells are enucleated by the fetal liver and macrophages clear the nuclei. EryP cells continue to form only for a short period once vascular channels develop in the yolk sac, while the remaining progenitor cells continue to mature from proerythroblast to orthochromatic erythroblast to reticulocytes and remain in the bloodstream until at least birth. Shortly after the development of primitive hematopoietic cells (EryP), a group of cells called highly proliferative, multipotent progenitor colony forming cells (HPP-CFC) arise in the yolk sac. These cells initiate the first wave of definitive haematopoiesis.

These cells are often called erythroid/myeloid progenitors, will migrate and begin to colonize the liver, which is the next definitive site of haematopoiesis during gestation.

The second wave of definitive haematopoiesis replaces primitive haematopoiesis and the first wave of definitive haematopoiesis.

Hematopoietic stem cells (HSC) emerge from a specialized hemogenic endothelium within a limited region of the developing aorta's ventral wall called the para-aortic splanchnopleuric. The aorta-gonad-mesonephros (AGM) region develops from the para-aortic splanchnopleuric and produces HSC. These cells colonize the fetal liver by the 7th week of gestation, where they cycle at a continuous pace and begin to differentiate.

At this point, the liver becomes a significant source of hematopoietic stem cell production. The fetal liver provides the microenvironment needed for expansion and differentiation of definitive HSCs, from which definitive erythroid cells will differentiate from a hierarchy of progenitors. HSC in the fetal liver and spleen produces enucleated erythrocytes (EryD) that rapidly outnumber EryP cells in circulation.

Toward the third trimester of development, as skeletal components begin ossification and bone marrow is developing inside bony cavities, the marrow of specific bones will become the essential hematopoietic organ.

Both the liver and spleen at this point cease erythropoiesis as the bone marrow predominates in hematopoietic cell production. In postnatal life, definitive erythropoiesis originates from the marrow (BM) that occurs under normal physiologic conditions.[10]

In adults, liver and spleen may produce the blood cells if the bone marrow is destroyed or fibrosed. Collectively bone marrow is almost equal to liver in size and weight. It is also as active as liver.[11]

DISCUSSION

Rasadi Dhatus' Srotas are a pathway. *Srotas* is the internal transport system, which consists of a network of channels via which *Ras- Raktadi dhatu* is transported to all regions of the body. *Srotas* are descriptions of exchange, transit, and excretion at the macro and micro levels. Plasma and lymph travel through *Raktavah Srotas*, the body's circulatory canals. *Yakrut* and *Pleeha* are the *Raktavaha Srotas Moolas*. From the fifth week of pregnancy

onwards, the liver is the primary organ for blood synthesis in the foetal hematopoiesis. Transformation happens from the *Moola*. Fe, Vitamin –B12, Foliate, and other hematopoetic products are transferred from the liver and spleen to the hematopoetic organs for hematopoeisis. As a result, the liver regulates the creation and function of blood. *Raktavaha Srotas* are vessels that enter or exit the liver or spleen and transport blood and lymph, or where *Rakta* or lymph is transformed or functioned. The liver and spleen are involved in the creation of blood, the destruction of RBCs, and the detoxification of blood from the gut before it is distributed throughout the body. Decomposition of red blood cells produces bile pigments in the liver. Bile aids digestion and the creation of *Poshak rasa*. The liver's *Ranjak Pitta* aids in the *Rasa dhatu's Ranjan karm. Rasa* is transformed into *Rakta* in the liver with the help of *Dhatwagni*. Because it controls the creation, transit, and destruction of blood, the liver can be deemed *Raktavaha SrotoMool*.

CONCLUSION

At a glance we reached at this final conclusion that as the *acharyas* have described in their samhitas the *Mool Sthana* of any srotas is the place from which the *srotas* originates. As we have seen in this particular study of *Mool Sthana* of *Raktvaha srotas* that the *Mool Sthana* of *Raktvaha srotas* and the place where blood forms into the intrauterine life according to modern view are the same and it’s the liver.

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