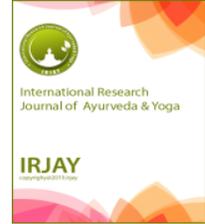


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A Meticulous Study Between *Sira*, *Dhamani* And *Srotas*

Dr. Saurabh Jain¹ Prof. Sunil Kumar² Dr. Rashi Sharma³

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1. Ph.D Scholar, Dept. of Sharir Rachana, NIA Jaipur.
2. Professor and HOD. Dept. of Sharir Rachana, NIA Jaipur.
3. PG Scholar Dept. of Sharir Rachana, NIA Jaipur.

Corresponding Author:- Dr. Saurabh Jain Ph.D Scholar, Dept. of Sharir Rachana, NIA Jaipur, dr.jainsaurabh65@gmail.com

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ABSTRACT: - *Acharya Charaka* has defined *Srotas* as '*Sravanat srotamsi*' meaning the structure through which the *sravanam* takes place because of transudation some of them are called '*Srotas*'. *Dhamani* as *Dhamnat Dhamanya* meaning because of pulsation, some of them are called '*Dhamani*', and *Sira* as '*Sarnat Sira*' i.e. because of the action of simply carrying a substance effortlessly from one place to another, some others are called '*Sira*'

In physiological view, *Srotas* is very broad term which starts from external orifices (*Navsrotansi*) to the very minute invisible ionic channel/gate etc. (*Dosha Dhatu* in *Parmanu Swaroop* as *Dosha-Dhatuvaha Srotas*). This *Srotas* is included the term *Sira* which is characterized with the flow of blood (*RasaRakta* with *Dosha Dhatu*) due to the life giving and *Ranjan* of *Rasa* so whole fluid comes under the term *Rakta* which expel out in *Raktamokshana Karma*. *Sira* includes the term *Dhamani* in which has blood but with pressure flow exerted by the contraction of heart. *Acharya Charaka* and *Vagbhatta* has this opinion as *Charaka* mentioned *Sira Dhamani Srotas* are synonyms and *Vagbhatta* mentioned *Sira Dhamani* are the *Srotas* only.

In anatomical view, *Srotas* is that structure excluding the *Sira* entity means present in pure form i.e. without blood cells (*Rakta Dhatu*). *Srotas* is intra as well as extracellular spaces (*Sravanat srotamsi*). *Sushruta* has the same opinion as he mentioned for *Srotas Sira-Dhamani vivarjitam*. *Sira* is the structure excluding *Dhamani* i.e. without much pressure (*Sarnat Sira*). So *Sushruta* broadly describe about *Sira* and *Siravyadhvidhi* in separate chapters. Rest part is the structure called *Dhamani* having a pressure exerted by heart contraction (*Dhamanat Dhamani*). It is pushing mechanism to *Sira* to supply nutrition for functioning actions (cry, sleep, wake etc.) of the body.

Keywords: Artery, Capillaries, Circulation, *Dhamani*, Nutrition, *Sira*, *Srotas*, Space Vein.



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INTRODUCTION

Acharya *Charaka* has defined *Srotas* as 'Sraavanat srotamsi' meaning because of transudation they are called 'Srotas'. *Dhamani* as *Dhamnat Dhamanya* meaning because of pulsation, they are called 'Dhamani', and *Sira* as 'Sarnat Sira' i.e. because of the action of simply carrying a substance effortlessly from one place to another, they are called 'Sira'.¹ *Sushruta* has described that *Srotas* is a continuous channel (blood vessels) which forms a closed tubular system, originating from a vacant space (*Moolat Khadhantaram*), spreads throughout the body, and carries materials *Rasa*, *Rakta* etc., known as *Srotas*; apart from *Sira* and *Dhamani*.² *Sira* is used to represent tubular structure, to carry material such as *Rasa* & *Rakta* and it is one of the synonyms of *Srotas*. *Dhamani* is a structure mentioned in Ayurvedic classics which carry *Rasa* all over the *Sharira*.³ *Sushruta* has clarified the details such as distinction among *Sira*, *Dhamani* and *Srotas*. In 9th chapter of *Sharira sthana* "Dhamani Vyakaranam Shariram" *Sushruta* speaks more clearly, he says that "some says that there is no difference among *Sira*, *Dhamani* and *Srotas*, as *Dhamani* and *Srotas* are only *Sira Vikara*. This is not correct. *Dhamani* and *Srotas* are the entities other than *Sira*." Reasons for differentiation of these three structures are:⁴

1. **Vyanjanayatvat-** *Sira* is of various colours like crimson red, white, blue and red. *Dhamani* do not

have such type of differentiation whereas *Srotas* are of same colour to *Dhatu* in which they are present

2. **Moola sanniyamat-** *Moola* of *Sira* *Dhamani* and *Srotas* are 40, 24 and 22 respectively. Though *Moola* of *Sira* and *Dhamani* are same as *Nabhi* but *Moola Sira Sankhya* are different. Different *Srotas* has its different *Moola*.
3. **Karmavishesyat-** *Sira* by their *Akunchan* and *Prasaran Karma*, supply nutrition to the body *Aram* (Garden) is irrigated by *Jalharini* of *Kulya* (small channels) *Dhamani* carry sensation of sound, vision, taste, smell etc., while *Srotas* carry air, water, food, *Rasa* etc.
4. **Agama-** Treatises of *Ayurveda* have mentioned *Sira*, *Dhamani* and *Srotas* separately at many places. Hence *Dhamani* and *Srotas* are different. These structures look similar due to:-
 1. **Parasparasannikarsha-** *Sira*, *Dhamani* and *Srotas* are lies very close in the body.
 2. **Sadrushya agama-** Statement that *ashya niketa marga Sira Dhamani Srotas Rasayani* etc. are all belongs to the *Akash Mahabhuta* group since there is space inside them.
 3. **Sadrushya Karma-** Due to the transport of the *Rasa* with *Dosha Dhatu* there is no distinct difference between *Sira*, *Dhamani* and *Srotas*. In *Ayurveda*, these three terms are used for each other inter changeable.
 4. **Sukshamat-** Due to its minute nature, the differentiation is difficult. This means that the lack of knowledge of *Vaidyas* and common men in general about those minute structures makes them a like.

DISCUSSION

Following references to discuss *Sira*, *Dhamani* and *Srotas* are similar or dissimilar:

1. In the context of *Srotas Sushruta* described *Rasavaha Dhamani* as *Moola* of *Pranavaha Srotas & Rasavaha Srotas*, *Annavaha Dhamani* as *Moola* of *Annavaha Srotas*, *Raktavaha Dhamani* as a *Moola* of *Raktavaha Srotas & Mamsavaha Srotas*. In addition he also mentioned *Siragranthi* in *Viddha Lakshana* of *Mamsavaha Srotas*.⁵
2. According to *Charaka* *Siragrathi* is type of *Sotodushti*.⁶
3. *Sira* and *Dhamani* are the synonyms of *Srotas*.⁷
4. In context of *Srotas Vivechan*, *Chakrapani* mention *Vatadi Dhamani* ten each and said alike *Sushruta Sira*, *Dhamani* and *Srotas* are much similar.⁸
5. In context of *Swayathu*, *Chakrapani* explained that by word *Sira* generally *Srotas* should be taken.⁹
6. *Chakrapani* mentioned by word *Srotas*, allied *Sira* should be taken.¹⁰
7. *Chakrapani* again mentioned that by *Srotomarma* *Siramarma* should be taken as there is no *Marmatva* in *Srotas*.¹¹
8. *Acharya Vagbhatt* mentioned that *Sira* and *Dhamani* are the specific *Srotas* only.¹²
9. *Hridaya* is responsible for *Dhamnya Karma* is mentioned under *Sira Marma* that means *Hridaya* itself is *sira* structurally and having *Dhamnya* (*Contraction*) characteristic functionally.¹³
10. In context of *viruddha Ahar* caused disease *Dhamani Praticaya* *Acharya Chakrapani* explained *Dhamani Praticaya* as *Siragranthi*¹⁴

11. *Indu* commented that *Sira* is hollow not much wide tubulous entity and the *Dhamani* are specific *Sira* only.¹⁵

12. The largest portion of your blood volume at rest, about 64% is in systemic veins and venules. Systemic arteries and arterioles hold about 13% of the blood volume, systemic capillaries hold about 7%, pulmonary blood vessels hold about 9%, and the heart holds about 7%. Because systemic veins and venules contain a large percentage of the blood volume, they function as blood reservoirs.¹⁶

Thus, *Acharya Vagbhatt* who is the compiler of *Charaka* and *Sushruta Samhita* may conclude that the *Dhamani* is the specific *Sira* and *Sira* is the specific *Srotas* which can be understand by the table. Above statements also supported, as the human placenta is haemochorionic means that blood is not exchange between mother and foetus. Before the formation of placenta there is histotrophic nutrition in which embryo gets its nutrition through diffusion from uterine glands. This diffusion state is the *Srotas* in *Ayurveda* as *Sravanat Srotansi*. This diffusion can provide nutrition to small area or cell group only. With the beginning formation of placenta the histotrophic nutrition is replaced by the hemo trophic nutrition. As embryo further grows, the nutrition demand increase so to balance tube circulation (vasculature) develops in embryo in order to increase the flow. This vasculature is the state of *Sira* in *Ayurveda* as *Sarnat Sira*. Again to balance the nutritional demand of the growing embryo pressure flow is needed which is perform by the heart. As heart beats or contract blood flows with pressure in the heart connected tubes (artery). This arterial system is the state of *Dhamani* in *Ayurveda* as *Dhamanat Dhamani*.

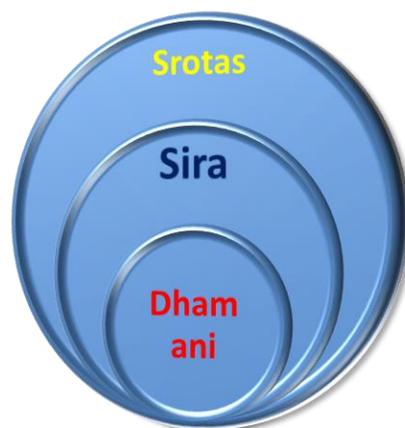
Table: Showing Development of Nutritional Circulation and Vasculature Human Embryo in both Ayurveda and Modern science perspective

DIRECTION OF DEVELOPMENT ↓	DEVELOPMENT OF NUTRITIONAL CIRCLULATION IN EMBRYO	REASON OF DEVELOPMENT	DEVELOPMENT OF NUTRITIONAL CIRCLULATION IN GARBHA ACCORDING TO AYURVEDA	
	trophectoderm phagocytosing first oviductal	Nutrition by diffusion- (small embryo get its nutrition)	<i>Srotas</i> (<i>Sravanat Srotansi</i> -diffusion)	Histotrophic nutrition
	Uterine gland secretions-	coelom circulation (local circulation of fluid.)		
	Vasculogenesis –	circulation develops to balance the nutritional demand of growing foetus	<i>Sira</i> (<i>Sarnat Sira</i>)	Hemotrophic Nutrition
	By heart contraction	pressure pumping needed to improve the circulation	<i>Dhamani</i> (<i>Dhamanat Dhamani</i>)	

CONCLUSION

In physiological view, *Srotas* is very broad term which starts from external orifices (*Navsrotansi*) to the very minute invisible ionic channel/gate etc. (*Dosha Dhatu* in *parmanu swaroop* as *Dosha-Dhatuvaha Srotas*). This *Srotas* is included the term *Sira* which is characterized with the flow of blood (*Rasa Rakta* with *Dosha Dhatu*) due to the life giving and ranjan of rasa so whole fluid comes under the term *Rakta* which expel out in *Raktamokshana Karma*. *Sira* includes the term *Dhamani* in which has blood but with pressure flow exerted by the contraction of heart. *Acharya Charaka* and *Vagbhatta* has this opinion as *Charaka* mentioned *Sira dhamni* *Srotas* are synonyms and *Vagbhatta* mentioned *Sira Dhamani* are the *Srotas* only. In anatomical

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REFERENCES

1. Acharya J.T, Ayurveda Dipika of Chakrapani, Sutrasthana, chapter 30th verse 12th Charaka Samhita,Chaukambha orientalis, varanaasi, 7th edition, 2013, pg.185.
2. Srikanthamurti KR, Sushruta Samhita of Sushruta, , Sharira sthana, chaptr 9th , verse 13th , Volume-I, 3rd edition, Chaukhambha Orientalia Publishers, Varanasi, 2007; pg.151.
3. Acharya J T, Nyaya Chandrika Panjikaa, Sushruta Samhita of Sushruta, „SutraSthana 14th chapter Chaukambha orientalis varanasi, 2009, pg.49.
4. Shastri ambikadutta, Sushruta Samhita of Sushruta, Sharira sthana, , Chapter 9th verse 3rd , Volume-I, 3rd edition, Chaukhambha Orientalia Publishers, Varanasi, 2007;pg.93.
5. Shastri ambikadutta, Sushruta Samhita of Sushruta, Sharira sthana, Chapter 9th verse 12th , Volume-I, 3rd edition, Chaukhambha Orientalia Publishers, Varanasi, 2007;pg.96
6. Sharma RK and Dash B., Charaka Samhita of Charaka, Vimana sthana, Chapter 5th, verse 24th, English translation based on Chakrapani datta's Ayurveda dipika, Volume- II, 6th edition, Chowkhambha Sanskrita Series, Varanasi, 2007;180.
7. Sharma RK and Dash B., Charaka Samhita of Charaka, Vimana sthana, Chapter 5th, verse 9th, English translation based on Chakrapani datta's Ayurveda dipika, Volume- II, 6th edition, Chowkhambha Sanskrita Series, Varanasi, 2007; 177
8. Dwivedi laxmidhara et. al., Charaka Samhita of Charaka with Chakrapani commentary, , Vimanasthana chapter 5th, verse 3rd, Vol. II, Ed. 3rd, chowkhamba krishnadas academy, Varanasi, 2016: Pg.826.
9. Dwivedi laxmidhara et. al., Charaka Samhita of Charaka with Chakrapani commentary, Chikitsasthana , Chapter 12th, verse 8th, Vol. III, Ed. 3rd, chowkhambakrishnadas academy, Varanasi, 2016: Pg.406.
10. Dwivedi laxmidhara et. al., Charaka Samhita of Charaka with Chakrapani commentary,, , Siddhisthana, Chapter 1st , Verse 49th, Vol. IV, Ed. 3rd, chowkhambakrishnadas academy, Varanasi, 2016: Pg.131.
11. Dwivedi laxmidhara et. al., Charaka Samhita of Charaka with Chakrapani commentary, Siddhisthana, Chapter 9th, Verse 4th, Vol. IV, Ed. 3rd, chowkhamba krishnadas academy, Varanasi, 2016: Pg.248.
12. Vagbhatta, Ashtanga Sangraha edited by ravidutta Tripathi Sharirasthana chapter 6th verse 30th, chaukhamba sanskrit pratisthana, Delhi 2005 pg no.101.
13. Shastri ambikadutta, Sushruta Samhita, Sharira sthana, Chapter 6th verse 7th , Volume-I, 3rd edition, Chaukhambha Orientalia Publishers, Varanasi, 2007;pg.68.
14. Dwivedi laxmidhara et. al., Charaka Samhita of Charaka with Chakrapani commentary, Sutrasthana chapter 26th, verse 84, Ed. 3rd, Vol. I, chowkhamba krishnadas academy, Varanasi, 2016: Pg.505.
15. Tripathi ravidutta, Ashtanga Sangraha of Vagbhatta with commentary shashilekha teeka by indu, Sharirasthana chapter 5th verse 86th chaukhamba sanskrit pratisthana, Delhi 2005 pg no.88
16. Tortora Gerard J.et al., Principals of anatomy and physiology, Ed. 15, John wiley and sons, 2017; Pg. No. 744