

A REVIEW ON DEVELOPMENT OF THE MOOLASTHANA OF SROTAS WITH REFERENCE TO EMBRYOLOGY

Sakshi

Assistant Professor, Dept. of *Rachna Sharir* SGAS & H, Tantia University, Sri Ganganagar, Rajasthan, India

Email: drsakshi54@gmail.com

ABSTRACT

From the beginning of the mankind the science of *Ayurveda* has been flourishing into our lifestyle. The flows in knowledge of *Ayurveda* have risen to a higher level. Reproduction is one of the life processes which maintain the continuation of life further. To attain a healthy progeny, the internal body system must be in good state and healthy condition. *Srotas Sharir* is the integral part of human system and any disturbance at this level leads to *Dosha-Dusya Sammurchna* and eventually to the pathology (whether embryological). Embryological development of organs or body tissues may lead to malformations. Those organs which are *Moolasthanas* for any *Srotas* will lead to various diseases of the respective *Srotas*. Thus this work has been put forward to get an evaluation of *Moolasthanas of Srotas* with its development from both sciences. A comparative evaluation of the developmental process regarding the *Moolasthanas of Srotas* is considered.

Keywords: *Srotas, Moolasthanas, Rakta, Mamsa, Dhatu, Vayu, Prana, Embryology*

INTRODUCTION

Srotas is defined as channels or structure through which *Sravana Karma* (exudation) of *Dhatu*s take place at a very slower movement. The word “*Parinamapadhapanama*” refers to the circulation of fluids from one site to the other.¹ *Acharya Sushruta* describes that *Srotas* are channels of the body having originated from vacant hollow spaces and later spread into entire body.² *Srotas* are 13 in number ac-

cording to *Acharya Charaka* and 11 pairs according to *Acharya Sushruta* and as per *Acharya Kashyapa*, referred *Srotas* as *Sukshuma* (*Nabhi, Romkopa*) and *Mahan* (head & lower body parts). *Acharya Charaka* mentioned many synonyms related to word *Srotas* as *Sira* (vein), *Dhamani* (artery), *Rasyani* (lymphatic channel), *Nadi* (duct), *Panthan* (passages) etc.

SROTOMOOLA:

Every *Srotas* is elucidated with the area of origin as any infection will lead to alteration in the normal physiology. The *Moolasthanas* are responsible for the well being and carrying vital functions of the *Srotas*.

DEVELOPMENT OF THE ROOT ORGANS OF THE SROTAS:

Acharya Sushruta has demonstrated the development of organ in the chapter IV entitled 'Garbha vyakarna' in *Sharir Sthana*. He has mentioned the origin of *Twacha*, *Yakrit-Pleeha*, *Antra*, *Guda*, *Vasti*, *Vrikka*, *Hridaya* and *Vrishana*.³ Each one of them is described as follows. When fertilization or combination of *Shukra-Shonita* takes place, fetus develops very rapidly through process of transformation. The seven layers of skin formed similar to the different layers of skim on surface boiled milk occurs.⁴ The modern embryology says that the integumentary system develops at 6th week of IUL from surface endoderm and underlying mesoderm.⁵ The development of *Yakrit-Pleeha* takes place via *Rakta Dhatu*.⁶ The liver develops from endodermal hepatic bud of foregut, mesenchyme of septum transversum and vitelline, umbilical veins with in septum transversum.⁷ Spleen is mesodermal in origin and develops from dorsal mesogastrium close to stomach. The splenic tissue condenses between two layers of mesogastrium.⁸

The *Antra*, *Basti* and *Guda* of fetus develop from *Rakta*, *Kapha* and digested by *Pitta* and *Vayu* enters into.⁹ The intestine develops from the endoderm, the distal part of duodenum, jejunum, ileum, colon upto right 2/3rd of transverse colon from midgut. Remaining 1/3rd of the transverse colon, descending colon, sigmoid colon develops from hindgut. Rectum develops from endoderm cloaca, a blind pouch of hindgut.¹⁰ Urinary bladder develops from urogenital sinus. The epithelium is derived from vesico-urethral canal (endoderm). Trigone epithelium is mesodermal.¹¹

The *Vrikka* formed as essence of *Rakta*, *Meda*.¹² The kidneys develop on either side of vertebral column. Develop from nephrogenic cord and by ureteric bud.¹³ *Vrishna* arises from the *Prasada* part of *Mamsa*, *Rakta*, *Kapha* & *Meda*.¹⁴ Genital system develops from intermediate mesoderm, part of cloaca & coelomic epithelium of mesoderm. Initial development is similar for both sexes and later on converts in definitive stage.¹⁵ *Hridaya* is made from essence of *Rakta* and *Kapha*. *Dhamanis* are attached to the heart for flow of *Prana*.¹⁶

It develops from the primitive heart tube (cardiogenic area of embryo). Mesenchymal cells in cardiogenic area condense to form 2 angioblastic cords which canalized to form heart tube.¹⁷ The table listed below gives a comparison to the development of these organs.

Table 1: Illustrating the comparison in development of *Srotas*

| S.NO | NAME OF THE ORGAN | RELATED SROTAS | AYURVEDIC VIEW | MODERN EMBRYOLOGICAL VIEW |
|------|--------------------------------|----------------------------------|--|--|
| 1 | <i>Twacha</i> (skin) | <i>Mamsavaha Srotas</i> | Combination of <i>Shukra-Shonita</i> under influence of transformation | Develops from surface ectoderm & underlying mesoderm |
| 2 | <i>Yakrit</i> (liver) | <i>Raktavaha srotas</i> | From <i>Rakta</i> | Endodermal hepatic bud of foregut |
| 3 | <i>Pleeha</i> (spleen) | <i>Raktavaha srotas</i> | From <i>Rakta</i> | Mesodermal origin from dorsal mesogastrium |
| 4 | <i>Antra</i> (intestine) | <i>Purishvaha Srotas</i> | From essence of <i>Rakta, Kapha</i> under act of <i>Pitta & Vayu</i> | Endodermal in origin. Dual origin from midgut and hindgut. |
| 5 | <i>Basti</i> (urinary bladder) | <i>Mutravaha Srotas</i> | From essence of <i>Rakta, Kapha</i> under act of <i>Pitta & Vayu</i> | Urogenital sinus (some part from endoderm & mesoderm) |
| 6 | <i>Guda</i> (rectum) | <i>Purishvaha Srotas</i> | From essence of <i>Rakta, Kapha</i> under act of <i>Pitta & Vayu</i> | From Endoderm cloaca, blind pouch of hindgut |
| 7 | <i>Vrikka</i> (kidneys) | <i>Medovaha Srotas</i> | From <i>Rakta</i> and <i>Meda</i> | Definitive kidneys develop by metanephros |
| 8 | <i>Vrishana</i> (genitals) | <i>Shukravaha Srotas</i> | From essence of <i>Rakta, mamsa, Kapha & Meda</i> | By intermediate mesoderm, part of cloaca |
| 9 | <i>Hridaya</i> (heart) | <i>Pranavaha, Rasvaha Srotas</i> | From essence of <i>Rakta & Kapha</i> | Mesenchymal cells in cardiogenic area |

CONCLUSION

From the above text, we observed that development of *Moolasthanana* of the mentioned *Srotas* in *Ayurveda* is far different from the modern embryology. But in case of some organs a diminutive similarity can be studied. Basically, in *Ayurvedic* text the development of organs has *Rakta Dhatu* in common. This shows the importance of blood which is the carrier of *Prana* to the entire body. Embryology gives reference to liver as important haemopoietic centre which begins at 6 week of IUL, later on done by spleen and bone marrow.¹⁸

In case of liver development, the reference of vitelline and umbilical veins present within septum transversum gives relation to the involvement of *Rakta* (blood). Similarly the *Hridaya* (heart) develops from *Rakta & Kapha*. In development of heart we examined that heart tube is separated from myoepicardial mantle by cellular gelatinous connective tissue which is termed as “Cardiac jelly”.¹⁹ This can be close to the *Kapha* mentioned by *Acharya Sushruta*. Thus, at last here the development of *Moolasthanana* of *Srotas* from

Ayurvedic view and contemporary science is concluded.

REFERENCES

1. R.K.Sharma and Bhagwan Das; Edited Charaka Samhita Vimaana Sthana 5/3; Part 2; Reprint 2012 Varanasi: Chaukhambha Sanskrit Series Office; P-678
2. Dr. B.G.Ghanekar Edited Sushruta Samhita Shaarir sthana 9/25, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-245
3. Dr. B.G.Ghanekar Edited Sushruta Samhita Shaarir sthana 4/24-30, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-116-117
4. Dr. B.G.Ghanekar Edited Sushruta Samhita Shaarir sthana 4/3, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-104-107
5. Vishram Singh; Edited Textbook of Clinical Embryology 1st Edition; Reprinted 2013; Elsevier; P-76
6. Dr. B.G.Ghanekar Edited Sushruta Samhita Shaarir sthana 4 /24, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-116
7. Vishram Singh; Edited Textbook of Clinical Embryology 1st Edition; Reprinted 2013; Elsevier; P-158-160
8. Inderbir Singh and GP Pal; Edited Human Embryology; 9th Edition; Reprint 2013; MacMillan Publishers; P-180-181
9. Dr. B.G.Ghanekar Edited Sushruta Samhita Shaarir sthana 4/25, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-117
10. Inderbir Singh and GP Pal; Edited Human Embryology; 9th Edition; Reprint 2013; MacMillan Publishers; P-160-166
11. Inderbir Singh and GP Pal; Edited Human Embryology; 9th Edition; Reprint 2013; MacMillan Publishers; P-257
12. Dr. B.G. Ghanekar Edited Sushruta Samhita Shaarir sthana 4/30, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-117
13. Inderbir Singh and GP Pal; Edited Human Embryology; 9th Edition; Reprint 2013; MacMillan Publishers; P-252-253
14. Dr. B.G. Ghanekar Edited Sushruta Samhita Shaarir sthana 4/30, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-117
15. Inderbir Singh and GP Pal; Edited Human Embryology; 9th Edition; Reprint 2013; MacMillan Publishers; P-269-271
16. Dr. B.G. Ghanekar Edited Sushruta Samhita Shaarir sthana 4/30, Ayurveda Rahsahya Commentary, Reprint 2006 Varanasi: Meharchand Lakshmandas Publication; New Delhi. P-117
17. Inderbir Singh and GP Pal; Edited Human Embryology; 9th Edition; Reprint 2013; MacMillan Publishers; P-203-212
18. Vishram Singh; Edited Textbook of Clinical Embryology 1st Edition; Reprinted 2013; Elsevier; P-157-158

19. Vishram Singh; Edited Textbook of Clinical Embryology 1st Edition; Reprinted 2013; Elsevier;P-196-200

Source of Support: Nil
Conflict Of Interest: None Declared

How to cite this URL: Sakshi: A Review On Development Of The Moolasthanana Of Srotas With Reference To Embryology. International Ayurvedic Medical Journal {online} 2017 {cited August, 2017}
Available from:
http://www.iamj.in/posts/images/upload/3026_3030.pdf