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Review Article

CRITICAL ANALYSIS OF RAKTAVAHA SROTUS

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ABSTRACT

Srotus (body channels)is considered as an important entity of the body and is responsible for the *Vahana* (transferring) of *Dosha, Dhatu* etc. Full body is considered as *Srotomaya* (made of *Srotus*). Among the types of *Srotus, Raktavaha Srotus* (which does *Mutra Vahana*) is given prime importance. The root of *Raktavaha Srotus* is considered as *Yakrut* (Liver) and *Pleeha*(Spleen). Injury to *Raktavaha Srotus* leads to Cyanoses, Fever, Anemia, hemorrhage, reddish discoloration of eyes. *Raktavaha Srotus* gets vitiated by consumption of spicy food and drinks, Unctous & hot food stuffs and beverages, excessive consumption of liquids, excessive exposure to sunlight &wind. The characteristic manifestation of the vitiation of *Raktavaha Srotus* leads o different types of Skin disorders, abscess formation, Jaundice.

Formation of blood in fetus from 3rd – 5th month formation of blood is under the control of liver and spleen hence its called as hepatic phase is of prime importance for the continuation of the pregnancy and to have healthy progeny, Red blood cells live only about 120 days because of the wear and tear their plasma membranes undergo as they squeeze through blood capillaries. Without a nucleus and other organelles, RBCs cannot synthesize new components to replace damaged ones. The plasma membrane becomes more fragile with age, and the cells are more likely to burst, especially as they squeeze through narrow channels in the spleen. Ruptured red blood cells are removed from circulation and destroyed by fixed phagocytic macrophages in the spleen and liver, and thebreakdown products are recycled. Liver and spleen plays a major role life cycle of RBC, its destruction and recycling of components. Considering above aspect *Yakrut* (Liver) and *Pleeha* (Spleen) are considered as roots of *Raktavaha Srotus.*

Keywords: *Srotus, Raktavaha, Yakrut, Pleeha*..

INTRODUCTION

Dosha, Dhatu, Mala is considered as the basis of the body[1]. Other than these three entities *Srotus* is an another important entity which is the basis for the body. *Purusha* is called as *Srotomaya* because *Srotus* are present all over the body and they are essential in the increase and decrease of the *Dosha*, even it carries *Dhatu* and leads to the formation of the *Dhatu*[2]. *Srotus* are the hollow channels except *Sira*and *Dhamani*, which originating from root space and spreads in the body and carries specific entities[3]. *Srotus* are the channels through ed which the various body entities flow[4]. Srotus are the channels of circulation that carry *Dhatu* undergoing transformation to their destination[5].Regarding the number/types of *Srotus* it is mentioned that number of substances having definite shape are there in this universe that much types of *Srotus* are there in the body. Some opine it is numerable and others opine it is innumerable[6].

These channels have the colour similar to that of the *Dhatu* that they carry; they are tubular, either large or small in size and either straight or reticular in shape. The reasons for the vitiation of the *Srotus* their pathological features and treatment for the same is mentioned. Increase or obstruction in the flow of the contents of the channels, appearance of nodules in the channels and diversion in the flow of the contents to improper channels are the general signs of the vitiation of the *Srotus*[7].

There is various numbers of types of *Srotus* mentioned by different authors. Among the list is given of *Srotus* prime importance is given to *Raktavahavaha Srotus*. The word meaning of *Raktavaha Srotus* signifies that, the channel through which *Mutra* flows can be considered as the *Raktavaha Srotus*. The root of *Raktavaha Srotus* is considered as *Yakrut* (Liver) and *Pleeha* (Spleen). Injury to *Raktavaha Srotus* leads to Cynosis, Fever, Anemia, hemorrhage, reddish discoloration of eyes[8]. *Raktavaha Srotus* gets vitiated by consumption of spicy food and drinks, Unctous & hot food stuffs and beverages, excessive consumption of liquids, excessive exposure to sunlight &wind. The characteristic

manifestation of the vitiation of *Raktavaha Srotus* leads to different types of Skin disorders, abscess formation, Jaundice[9]. Brief Physiological understanding of blood is required for the better understanding of *Mula Sthana* of *Raktavaha Srous*

Formation of blood in fetus in early stages is under Yolk sac, from 3rd – 5th month formation of blood is under the control of liver and spleen hence its called as hepatic phase and later bone marrow takes the function of formation of blood. Erythropoiesis, the production of RBCs, starts in the red bone marrow with a precursor cell called a proerythroblast. The proerythroblast divides several times, producing cells that begin to synthesize hemoglobin. Ultimately, a cell near the end of the development sequence ejects its nucleus and becomes a reticulocyte. Loss of the nucleus causes the center of the cell to indent, producing the red blood cell's distinctive biconcave shape. Reticulocytes retain some mitochondria, ribosomes, and endoplasmic reticulum. They pass from red bone marrow into the bloodstream by squeezing between the endothelial cells of blood capillaries. Reticulocytes develop into mature red blood cells within 1 to 2 days after their release from red bone marrow. Normally, erythropoiesis and red blood cell destruction proceed at roughly the same pace. If the oxygen-carrying capacity of the blood falls because erythropoiesis is not keeping up with RBC destruction, a negative feedback system steps up RBC production. The controlled condition is the amount of oxygen delivered to body tissues. Cellular oxygen deficiency, called hypoxia, may occur if too little oxygen enters the blood. For example, the lower oxygen content of air at high altitudes reduces the amount of oxygen in the blood. Oxygen delivery may also fall due to anemia, which has many causes: Lack of iron, lack of certain amino acids, and lack of vitamin B12 are but a few. Circulatory problems that reduce blood flow to tissues may also reduce oxygen delivery. Whatever the cause, hypoxia stimulates the kidneys to step up the release of erythropoietin, which speeds the development of proerythroblasts into reticulocytes in the red bone marrow. As the number of circulating RBCs increases, more oxygen can be delivered to body tissues. Premature newborns often exhibit anemia, due in part to inadequate production of erythropoietin. During the first weeks after birth, the liver, not the kidneys, produces most EPO. Because the liver is less sensitive than the kidneys to hypoxia, newborns have a smaller EPO response to anemia than do adults. Because fetal hemoglobin (hemoglobin present at birth) carries up to 30% more oxygen, the loss of fetal hemoglobin, due to insufficient erythropoietin production, makes the anemiaworse[10]

Red blood cells live only about 120 days because of the wear and tear their plasma membranes undergo as they squeeze through blood capillaries. Without a nucleus and other organelles, RBCs cannot synthesize new components to replace damaged ones. The plasma membrane becomes more fragile with age, and the cells are more likely to burst, especially as they squeeze through narrow channels in the spleen. Rupturedred blood cells are removed from circulation and destroyed byfixed phagocytic macrophages in the spleen and liver, and the breakdown products are recycled, as follows: Macrophages in the spleen, liver, or red bone marrow phagocytize ruptured and worn-out red blood cells. The globin and heme portions of hemoglobin are split apart. Globin is broken down into amino acids, which can be reused to synthesize other proteins. Iron is removed from the heme portion in the form of Fe3_, which associates with the plasma protein transferrin, a transporter for Fe3_ in the bloodstream. In muscle fibers, liver cells, and macrophages of the spleen and liver, Fe3_ detaches from transferrin and attaches to an iron-storage protein called ferritin. Upon release from a storage site or absorption from the gastrointestinal tract, Fe3_ reattaches to transferrin. The Fe3_–transferrin complex is then carried to red bone marrow, where RBC precursor cells take it up through receptor-mediated endocytosis for use in hemoglobin synthesis. Iron is needed for the heme needed for the globin portion. Vitamin B12 is also needed for the synthesis of hemoglobin. Erythropoiesis in red bone marrow results in the production of red blood cells, which enter the circulation. When iron is removed from heme, the non-iron portion of heme is converted to biliverdin, a green pigment, and then into bilirubin, a yellow orange pigment. Bilirubin enters the blood and is transported to the liver. Within the liver, bilirubin is released by liver cells into bile, which passes into the small intestine and then into the large intestine. In the large intestine, bacteria convert bilirubin into urobilinogen. Some urobilinogen is absorbed back into the blood, converted to a yellow pigment called urobilin and excreted in urine. Most urobilinogen is eliminated in feces in the form of a brown pigment called stercobilin, which gives feces its characteristic color[11].

DISCUSSION

The root of *Raktavaha Srotus* is considered as *Yakrut* (Liver) and *Pleeha* (Spleen). Injury to *Raktavaha Srotus* leads to Cyanosis, Fever, Anemia, Hemorrhage, reddish discoloration of eyes. *Raktavaha Srotus* gets vitiated by consumption of spicy food and drinks, Unctous& hot food stuffs and beverages, excessive consumption of liquids, excessive exposure to sunlight &wind. The characteristic manifestation of the vitiation of *Raktavaha Srotus* leads to different types of Skin disorders, abscess formation, Jaundice.

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CONCLUSION

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REFERENCES

1. Paradara HSS. Ashtanga Hrudaya with Sarvanga sundara commentary of Arunadatta and Ayurveda rasayana commentary of Hemadri. 9th ed. Varanasi (India): Chaukambha Orientalia; 2005. p. 67.
2. Acharya JT. Charaka Samhita with Ayurveda Dipika commentary of Chakrapani Datta. Reprint ed. Varanasi (India): Chaukambha Orientalia; 2007. p. 250.
3. Acharya JT. Susrutha Samhita with Nibandha sangraha commentary of Dalhana. Reprint ed. Varanasi (India): Chaukambha Sanskrit Sansthan; 2009. p. 385.
4. Acharya JT. Susrutha Samhita with Nibandha sangraha commentary of Dalhana. Reprint ed. Varanasi (India): Chaukambha Sanskrit Sansthan; 2009. p. 2.
5. Acharya JT. Charaka Samhita with Ayurveda Dipika commentary of Chakrapani Datta. Reprint ed. Varanasi (India): Chaukambha Orientalia; 2007. p. 249.
6. Acharya JT. Charaka Samhita with Ayurveda Dipika commentary of Chakrapani Datta. Reprint ed. Varanasi (India): Chaukambha Orientalia; 2007. p. 250.
7. Acharya JT. Charaka Samhita with Ayurveda Dipika commentary of Chakrapani Datta. Reprint ed. Varanasi (India): Chaukambha Orientalia; 2007. p. 252.
8. Acharya JT. Susrutha Samhita with Nibandha sangraha commentary of Dalhana. Reprint ed. Varanasi (India): Chaukambha Sanskrit Sansthan; 2009. p. 387.
9. Acharya JT. Charaka Samhita with Ayurveda Dipika commentary of Chakrapani Datta. Reprint ed. Varanasi (India): Chaukambha Orientalia; 2007. p. 250.
10. Toratora GJ, Derickson B. Principles of anatomy and physiology.11thedi. United States of America: John wiley& sons.Inc; 2007,701-3.
11. Toratora GJ, Derickson B. Principles of anatomy and physiology.11thedi. United States of America: John wiley& sons.Inc; 2007,695-7.

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