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ANATOMICAL ESTABLISHMENT OF PLEEHA AS RAKTASHAYA

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ABSTRACT

Ayurveda is known to be the oldest healing science originating more than five thousand years ago. The Sanskrit word "Ayurveda" is derived from the combination of two words i.e. "*Ayu*" and "*Veda*". *Ashayas* are the place where the components and ingredients are naturally present in our body. It's just like a "home" where they can live. The key elements required for bodily function occupy these spaces. *Ashayas* are 7 in numbers. *Raktashya* is one of these seven *ashayas* which is the storehouse of *rakta*. *Acharyas* have described *ykrut* and *pleeha* as *raktashaya*. In modern science, we can correlate *yakrut* as liver and *pleeha* as spleen. We are hereby anatomically exploring *pleeha* as *raktashaya.*

KEYWORDS: *Ashaya*, Ayurveda, *Yakrut*, *Pleeha*, *Rakta*,

INTRODUCTION

Ashayas are defined as spaces, abode or places meant for occupancy. These are occupied by the essentials ingredients needed for body functioning.

- आशय्य अभ्यास योगेन करोति आशय सम्भवम् II (Su.Sha 4/29)[1]

By the virtue of repeatedly staying at a place, the *vayu* creates *Ashayas*. Mainly, *Ashayas* are 7 in numbers they are,

- आशयाः तु वाताशयः, पित्ताशयः, श्लेमाशयो, रक्ताशयः, आमाशयः, पक्वाशयो, मूत्राशयः, स्त्रीणां गर्भाशयो अष्ठम इति II (Su. Sha.5/8)[2]

Vatashaya, *Pittashaya*, *Shleshmashaya*, *Raktashaya*, *Amashaya*, *Pakwashaya*, and *Mutrashaya*. These 7 *ashayas* are common in both men and women, and 10 *ashayas* are seen in women including *garbhashaya* and two *sthanasayas* according to *sharangadhara.*

Raktashaya is the place of *rakta*. There is similarity & difference in the *raktashayas* according to different *acharya's*. As many of them have an opinion of *raktashaya* as *yakrut* & *pleeha*. There is need to know anatomically where exactly blood resides, so it can be used in emergency conditions. There is a need for the study, why *acharyas* concentrated specifically on some organs only as *raktashayas*, as *rakta* is flowing throughout the body. Hereby this anatomical exploration of "*yakrut and pleeha*" as *Raktashaya* is studied.

Aims and Objectives

- To review the literature regarding *Raktashaya*.
- To analyse *yakrut* and *pleeha* as *Raktashaya*.
- To establish the importance of *pleeha* as *Raktashaya*.

Methodology

This is a comparative literal study from the informations and references collected from secondary sources such as samhita, modern literature, journals, articles, internet etc.

Study type

Literal Study

DISCUSSION

- आशयः अधिष्ठानं II

Ashaya is the place where *dosha*, *dhatus* etc stays/resides.

Raktashaya/Shonitashaya is the abode or storehouse of *rakta /shonita*.

- शोणितस्य स्थानं यकृतप्लीहानौ II (Su.Su.21)[3]

The *sthana* of *rakta* is *yakrut* and *pleeha*.

- जीव रक्ताशय इति जीव तुल्यं रक्तं, तस्य आशयस्थानम्, तत प्लीहा इति प्रसिद्धं ,हृदयस्य वामाश्रितं भवति II (Sharangadhara Samhita)[4]

According to Sharangadhara, the site of *jeevarakta*, which is in the form of life, i.e. *pleeha* located towards the left of heart.

- स्रोतांसि आशया नामानि । (च.वि.5)[5]

According to *Acharya Charaka*, *Ashaya* are similar to *Srotasa*.

- शोणितवहानां स्रोतसां यकृन्मूलं प्लीहा च । (च.वि.5)[6]

He considered *Yakrut* and *pleeha* as the *moola* of *raktavaha srotasa.*

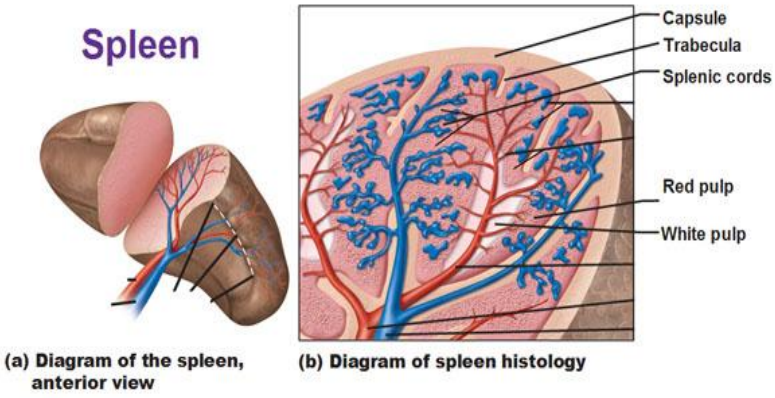
❖ सप्त चाधारा रक्तस्याद्य: क्रमात परे ॥ (अ.ह.शा.3 । 10)[7]

Acharya Vagbhatta said *Adhara* word in place of *Ashaya*. He considered *Raktadhara* in first place giving importance to it.

Acharya Gananath sen has an opinion of *hridaya* as *Raktashaya.*
Acharya Haranachandra has mentioned that as *rakta* is circulating throughout the body, *hridaya* and *twachadi avayava* can also be considered as *raktashaya.*
There are various opinion about the specific organs of *raktashaya*, most of these acharyas point out *yakrut* and *pleeha* as *raktashaya*.
In modern science, we can correlate yakrut as liver, pleeha as spleen.
So anatomically, we have to explore these organs to rule out the specific structure involved as *raktashaya.*

Spleen is the largest lymphoid organ in the body and it is highly vascular. It is situated in left hypochondric region, i.e. upper left part of the abdomen, behind the stomach and just below the diaphragm. Spleen is covered by an outer serous coat and an inner fibromuscular capsule. From the capsule, the trabeculae and trabecular network arise.

All the three structures, i.e. capsule, trabeculae and trabecular network contain collagen fibres, elastic fibres, smooth muscle fibres and reticular cells. The capsule plus trabeculae, reticular fibres, and fibroblasts constitute the stroma of the spleen. The parenchyma of the spleen consists of two different kinds of tissue called white pulp and red pulp. White pulp is lymphatic tissue, consisting mostly of lymphocytes and macrophages arranged around branches of the splenic artery called central arteries. Red pulp consists of blood filled venous sinuses and cords of splenic tissue called splenic/ Billroth's cords. Splenic cords consists of red blood cells, macrophages, lymphocytes, plasma cells, and granulocytes. Veins are closely associated with the red pulp.[8]



Spleen help in the maintainance of quality control over erythrocytes in red pulp by removal of defective RBCs. The normal human spleen contains 1/3rd of total body platelets and neutrophils. Spleen also stores Red blood cells in some animals and improve their oxygen carrying capacity by doing autotransfusion in case of stress.[9]

Liver is the largest internal organ of the human body. Anatomically liver consists of 4 lobes, two larger ones (right and left) and two smaller lobes (quadrate and caudate) Liver stroma consists of connective tissue proper, trabeculae and reticular fibres. Liver tissue is made up of lots of smaller units of liver cells called lobules. Many canals carrying blood and bile run between the liver cells. Blood coming from the digestive organs flows through the portal vein to the liver, carrying nutrients, medication and also toxic substances. Once they reach the liver, these substances are processed, stored, altered, detoxified and passed back into the blood or released in the bowel to be eliminated. It is also one of the organs that break down old or damaged blood cells. Hepatocytes carry out many metabolic functions, including the production of bile. Kupffer cells line the liver's vascular system, they play a role in blood formation and the destruction of cellular debris. The lobules of liver, or hepatic lobules are small divisions of the liver. Blood enters the lobules through branches of the portal vein and hepatic artery proper, then flows through sinusoids. Sinusoids receive blood from terminal branches of the hepatic artery and portal vein at the periphery of lobule and deliver it into central veins. Central veins of liver, found at the center of hepatic lobules receive the blood mixed in the liver sinusoids and return it to circulation via the hepatic veins.[10]

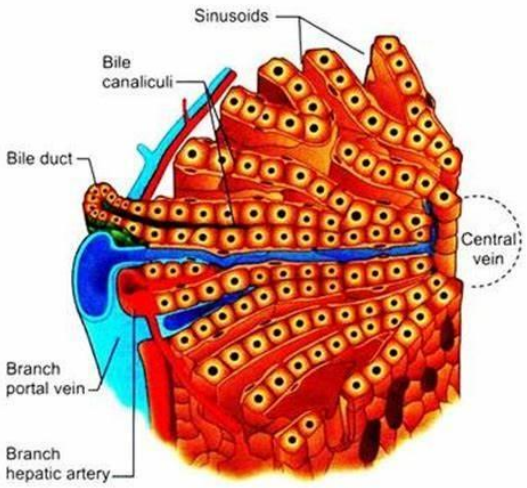


Fig. 5.22: Basic histology of liver

In human embryo, the yolk sac is the main site of haematopoiesis in first few weeks of gestation. By about 3rd month, liver and spleen are the main site of blood cell formation and continue to do so until about 2 weeks after birth. During normal childhood and adult life, bone marrow is the source of new blood cells.

However extramedullary haematopoeisis also take place in spleen and liver during gestation period and under some pathological conditions.[11]

CONCLUSION

- As *ashayas* are the aboding place or store house, *Raktashayas* is where blood resides.
- In our human body it is spleen which is mainly for store house and filtering of blood.
- Spleen is also called "Blood bank "as it store blood and make it available to the circulation when there is a need.
- In liver mainly processing of blood is happening when it is circulated through it, before reaching into main circulation.
- But both "*yakrut*" and "*pleeha*" are involved in the formation of blood during embryological life, thus shows the importance of both.
- In emergency conditions like hypoglycaemia, the role of liver is mainly converting the components resides in it like glycogen to glucose in to the circulation.
- In liver mainly processing and conversion of components in the blood is happening during circulation.
- Spleen is the organ which clean damaged red blood cells & platelets and stores it for future needs of the body.

- Spleen is also that organ which carries out immunological functions by the stored macrophages and lymphocytes.
- The reservoir function of spleen plays a considerable role. As a result of various influences such as, cyclic disturbances, inhalation of carbon monoxide, haemorrhage, exercise etc., it is capable of contracting sufficiently to increase the circulating volume by 10-12%.
- Spleen can modify both the volume and quality of blood in a mechanical way.
- So spleen is more likely to tell as *raktashaya,* ie abode of "*rakta*" or *shonita,* where blood stays and used afterwards.

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