



Systemic Review of the Concept of *Pleehotpatti*

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ABSTRACT

Background: *Ayurveda* has its own view to understand the development of human body and its various organs. As the quotations are in a concise manner. It is essential to amalgamate the basics stated by various *Acharyas* with comprehensive explanation of modern science. The spleen is a lymphatic organ connected to the blood vascular system. *Acharyas* have opined about the genesis of *Pleeha* (spleen) from *Rakta Dhatu* (blood tissue).

Methods: Information was collected from recent textbooks, online scientific journals and various databases of life sciences. This was a literary study and the references were gathered from critically analysed and previous studies.

Conclusion: This may be useful for utilizing the ancient medical science in a new perspective. Therefore, it is attempted to correlate the genesis of spleen in *Ayurveda* with modern science.

KEYWORDS: *Angapratyanga Nirman*, Embryology, *Spleen*, *Pleeha*

Introduction

The visceral organs may be researched from two perspectives, according to current science anatomical observations and physio-pathological derangements. *Ayurveda Samhitas* condense the learning under the umbrella of *Sharir*. The subject includes both anatomical and physiological investigations of the individual organ.

Ayurveda describes the fundamental principles of embryology and organogenesis, such as *Panchamahabhoota*, *Tridosha*, *Saptadhatu*, and so on. The various organs are formed by diverse combinations of these *Bhava Padharthas*. Spleen formation occurs in the mesoderm of the cephalic region of the left layer of the dorsal mesogastrium. The development takes place throughout the sixth week of intrauterine life. A number of nodules arise, which quickly unite to produce a lobulated spleen. The superior border of the mature spleen is nicked, indicating that it has several origins. Modern research has discovered several new diseases such as splenomegaly, splenic rupture, hypersplenism, splenic cysts & tumours and blood problems. In order to develop the precise aetiology and therapy in *Ayurveda*, it is necessary to understand the underlying origin of the spleen. The current study is being conducted to better grasp this idea in light of modern science. This may be beneficial in the treatment of splenic diseases.

Aims of the Study

The study is supposed to assess the views of *Ayurveda* and modern science on the development of the spleen.

Review of the Literature

The spleen is a well-explained organ in *Ayurveda* with the nomenclature as *Pleeha*. *Pleeha* (Sanskrit: *Pliho*) is a *Paittika* organ, according to *Ayurveda*, since it is positioned in the *Pitta* area of the body. Rather than acting on the digestive system, its major functions are to combat infections and destroy micro-organisms in the body. It can also be regarded a *Kapha* organ because its action is protective and strongly tied to the immune system as well. *Acharyas* have opined about the genesis of *Pleeha* (spleen) from *Rakta Dhatu* (blood tissue).

Review of the Literature in Modern

The spleen is the largest organ in our lymphatic system, which is a part of the immune system. Its network of trabeculae, blood arteries and lymphoid tissue fosters the proliferation of white blood cells (lymphocytes) while recycling the old, damaged red blood cells (erythrocytes).

Although it may appear to be unnecessary because it is possible to survive without it, the spleen is continuously filtering blood to identify the presence of bacteria. If someone ends up at the emergency department, the spleen has a big pool of blood that may be put back into circulation if necessary.

To best depict the location of the spleen, its relations must have to be known. The spleen is found in the left [hypochondriac region of the abdomen](#) (left upper quadrant). More precisely, the spleen is located posterior to the [stomach](#) and anterior to the left hemidiaphragm at the level of [ribs 9-10](#). Medial to the spleen is the left [kidney](#); superior to it is the [diaphragm](#), while inferiorly it rests directly on the left colic flexure (splenic flexure).

Although the spleen can descend as far as the pubic symphysis, as seen in mantle cell lymphoma, it normally does not move beyond the left rib arch and therefore is unavailable for palpation in healthy individuals.

The spleen is a purple, fist-sized organ. It is wrapped by a fibroelastic capsule which allows the spleen to significantly increase its size when necessary. The spleen is an intraperitoneal organ, so all of its surfaces are covered with visceral [peritoneum](#). Only the hilum of the spleen, the site through which the [splenic artery](#) and vein pass, is peritoneum-free.

DISCUSSION

According to *Ayurved Samhitas*, spleen develops from *Rakta Dhatu*. It is supposed to be understood as following:

In humans foetus from the 14th to 24th week of gestation, the development of splenic tissue in the form of red and white pulp starts in close relationship to the differentiation of the vascular tree and the T-cell, B-cell regions and stationary cells.

The initial phase, referred to as the "primary vascular reticulum," continues until the fourteenth week of pregnancy. In this stage, a network of mesenchymal cells and argyrophilic fibres is visible, along with a large number of erythrocytes, normoblasts, and macrophages. At this point, hematopoiesis—particularly erythropoiesis—can be identified.

Beginning with the fifteenth week of pregnancy, the foetal spleen undergoes a following transition stage that determines the typical organ anatomy. During the fifteenth to seventeenth gestational week, splenic lobules start to form. They are comprised of a core artery encircled by a layer of myofibroblast-like, stationary cells that are weakly stained. The crimson pulp is generated at these lobules' margins. Throughout the reticulum at first, mobile cells are dispersed. Before long, they start to gather in the venous sinuses, which emerge from reticular network lacunae and interact with the venous pathway. The "open" vascularization of the spleen idea is supported by the discontinuous endothelium wall of these sinuses. The differentiation of the bigger veins and their development are connected.

Beginning approximately the 18th gestational week, the development of the white pulp is associated with the stage of lymphoid colonisation within the spleen. During the 19th and 20th gestational weeks, there is a buildup of lymphocytes surrounding the central arteries that is noticeable. These lymphoid cells have T-precursor cell morphology and immunohistochemical features. A few discernible progenitors of interdigitating cells (IDC) within the newly forming Peri Arterial Lymphoid Sheath (PALS) provide proof of the T-cell region's differentiation.

Around the 23rd gestational week, the assemblage of primary follicles is discernible at the periphery of the PALS. Precursors of the follicular dendritic reticulum cell (FDRC), the specific stationary cell of the B-cell region, start becoming recognized. This observation leads to the conclusion that the small primary follicles represent the beginning formation of the B-cell region. The significance of the vascular system for the differentiation of the specific splenic organization is also found at this time.

Conclusion and Future Prespective

Except the method of presentation, no differentiation was identified in the development of spleen in both *Ayurvedic* as well as modern perspectives. In view of the above facts, it is clear that *Ayurvedic* classics have a fabulous scientific approach in understating the fundamentals in general and *Rachana Sharir* in particular.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgment

The authors sincerely acknowledge the faculties of the Department of Rachana Sharir, Postgraduate Institute of Ayurveda, Jodhpur, Rajasthan, India for their hands of help.

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