

A CRITICAL REVIEW OF HRIDAYA MARMA WITH SPECIAL REFERENCE TO SIGNIFICANCE OF SADHYA PRANAHARA MARMA

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ABSTRACT

The direct understanding of the word *Marma* in ancient science was evident, but there were no sufficient techniques to make out their original structural aspects involvement in the particular *MarmaSthanas*. It was confined to the war in the earlier age where the warrior used to achieve their target by destroying the vulnerable points - *Marmas* of the enemies. So its knowledge was limited to surgery and war medicine. But later on its application has been extended to clinical field which is evident from the close observation of the classics of *Ayurveda*. Ancient *Acharyas* have mentioned 107 susceptible vital points on the surface of the body and labeled as *Marmas*. These *Marma* points are the seats of *Prana*. If trauma is inflicted on these *Marma* points, the *Prana* is disturbed producing disease leading to deformity or death. *Hridaya*, one among the *Trimarma* is said to be the *Chetanasthana*. It is a *Koshtanga*, which is the seat of *Parajus*, *Moola of Rasa* and *PranavahaSrotas*, and the seat of *Trigunas*. Its position, size, shape, structure and function are mentioned in different *Ayurvedic* classics. It is a *Matrujaavayava*, is one among the *DashaPranayatana*. One among them is *Hridaya* present in Thoracic region. After collecting information from various ancient texts and detailed dissection on cadaver, the structures present at the site *Hridaya* can be understood as heart and its related structures. As per ancient texts, it comes under the variety of *SadhyaPranaharaMarma* resulting in death of the patient.

Key words: *Marma, Trimarma, Hridaya, Koshtanga, Chetanasthana, DashaPranayatana,*

INTRODUCTION

Ayurveda is the outcome of the knowledge and vast experiences of Indian scientists and philosophers of ancient India. The description of *Marmas* is specialty of *Ayurveda*. This is a part of *Ayurveda Sharir Shastra*. Such a description is not seen in any of the Medical System. Knowledge of *marmas* exists from very ancient time of *Vedas* (Holy books). But its development took place from Indus valley civilization to the time period of *Acharya Charaka, Sushruta and Vagbhata*.

Marmas is defined as an anatomical site where five structures i.e. *Mamsa* (muscles), *Sira* (conducting system), *Snayu* (ligaments and supporting structures), *Asthi* (bones) and *Sandhi* (joints) meet together in which particularly *Prana* (life) stays by nature^{1,2}. In an individual, generally *Soma* (*Kapha*), *Maruta* (*Vayu*), *Tejas* (*Pitta*) and *Satva, Raja, Tama* along with *Aatma* stay in *marmas*. If the *marmas* are injured, they either can result into death or can cause various disease or deformities which are difficult to cure. There are 107 such vital points

in our body (11 in each limb, 26 in trunk and 37 in region of head and neck)^{3,4}. Acharya Sushruta and Vagbhat have mentioned various types of *marmas* depending upon their position, constitution, number, dimensions and prognosis of injury to *marmas*. There are five types as *Sadhyo-pranahara*, *Kalantara-pranahara*, *Vishalyaghna*, *Vaikalyakara* and *Rujakara*^{5,6}.

Out of them, *Sadhyo-pranaharamarmas* are the points where injury causes death or *marana* immediately or within a span of 7 days. These *marmas* are predominant of *agnayabhavas*. They are total 19 in number^{7,8}. *Hridayamarma* is explained as *Sadhyo-pranahara*⁹ (based on prognosis of injury) and *Sira* (based on constitution) *marma*¹⁰, total 1 in number¹¹. It is related to *Pranvahasrotomoola* and *Rasavahasrotomoolasthanas*^{12,13}. The term *Hridaya* is formed by applying *Kayanato HriDhatu*. *HriDhatu* is used for taking something. 'Da' means to give and 'Ya' means that which always functioning. So it is meant that *Hridaya* is an organ that takes and gives something¹⁴.

The concept of *marma* is not well developed in modern system of medicines. Clinicians of old times have collected detailed information regarding injuries and their prognosis on every vital part of body and presented that theory in very concise form known as *marma – shareera*. There is need to understand this ancient science in modern ways as in today's world, incidence of traumas have increased. The science of *marma* is very vast. Out of all the vital points explained, a point in thorax-*Hridaya* is selected. *Charaka* explains the *Hridaya* as the *Chetanaadhishthana Avayava*. *Sushruta* and *Sharangadara* mention it as the *ChetanaSthana*. This *Chetana* is perceptible

through the automatic and self-controlled pulsation of *Hridaya*. And thus *Hridaya Marma* if injured or disordered than it results in the stopping of the chain of *Chetana* (*ChetanaanurittiAyu*), resulting in death^{15,16}. An effort is taken to elaborate it with the help of available literature and cadaveric dissection to understand the structure present at its site and prognosis of injury to it.

MATERIALS AND METHODOLOGY

Material –

1. Available literature regarding *marmas-Ayurvedic* and modern material
2. Two cadavers – one male, one female
3. Dissection kit

Methodology –

Study type – observational study

1. Literature study – collection of information regarding *Hridayamarma* from ancient texts like *Sushrut Samhita*, *Ash-tangHridayam* is done in detail.
2. Cadaveric study - Dissection of two cadavers (one male, one female) is done in dissection hall of department of anatomy – ADAMC, Ashta. At first markings are done on cadaver regarding the position of *Hridayamarmain* thoracic region explained in *Ayurvedic* texts. Thorax is dissected as per the guidelines given in the Cunningham's manual of practical anatomy¹⁷ and Human anatomy by B. D. Chaurasia¹⁸. Superficial and deep dissection is done carefully to study the structures present at the marked site.
3. The information collected from literature is co-related to the findings from dissection and conclusion is drawn.

OBSERVATIONS –

The site of *Hridayamarmais* given in *Sushrut Samhita* as – it is situated between two breasts and is at the *Amashayadwara*¹⁹. *Ash-*

tanga Hridayakara opines the same that the Satvadidhamahridaya is situated in the Madhya bhaga of Stana, Ura and Kosh-ta²⁰. Acharya Gananath Sen also agrees with Acharya Ghanekar, has given an elaborate description regarding Hridaya in Pratyaksha Sharira. He explains Hridaya along with its covering sheath pericardium is situated in the middle mediastinum just behind the sternum. He elaborated the relations too, i.e., lungs are present in both sides of Hridaya along with the principle bronchus. Annanaliika (esophagus) in its posterior aspect^{21, 22}. By considering all these points, a region is marked on cadaver. The heart is demarcated by

- A point 9cm to the left of the midsternal line (apex of the heart).

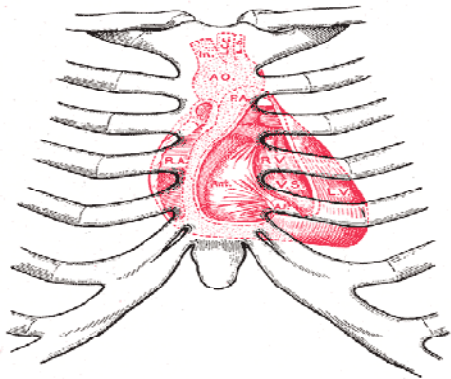
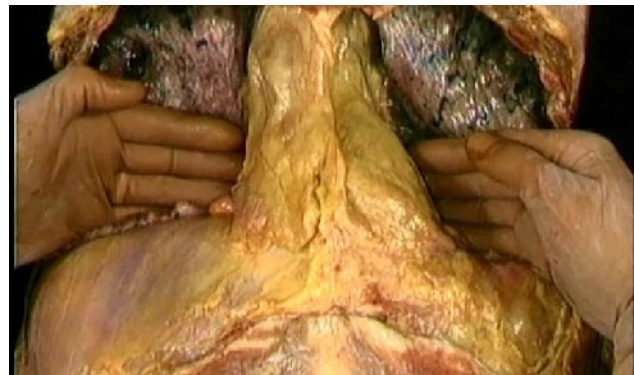


Figure 1 - Surface anatomy of Heart

- The seventh right sternocostal articulation.
- The upper border of the third right costal cartilage 1cm from the right sternal line.
- The lower border of the second left costal cartilage 2.5cm from the left lateral sternal line.

On the detailed dissection of the marked region following structures are seen –

1. Fibrous skeleton of the heart
2. 4 chambered structure – 2 atria and 2 ventricles
3. Ascending aorta, arch of aorta and its branches, Superior vena cava and inferior vena cava, pulmonary vein and pulmonary artery.
4. Coronary arteries and coronary veins



Dissection Photo No. 1



Dissection Photo No. 2



Dissection Photo No. 3

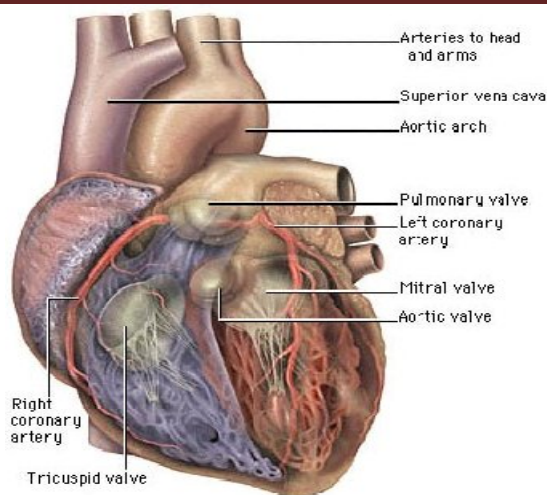


Figure 2- showing Heart at its structures

DISCUSSION

The study is carried out in two parts – literature study and cadaveric study.

The points to be understood regarding *Hridayamarma* from literature study are –

1. Total number is 1 only
2. Based on the predominance of anatomical structure, it is *Siramarma*.
3. Based on prognosis of injury to it, it is *Sadhyo-pranahara* (injury causes death or marana immediately or within a span of 7 days.)
4. *Hridayamarma* measures *Swa – Panitala* or *Chaturangula* (one's own fist) in dimensions.
5. It is situated between two breasts and is at the *Amashayadwara* (near cardiac orifice).
6. *Hridaya* is formed by applying *Kayana* to *HriDhatu*. *HriDhatu* is used for taking something. 'Da' means to give and 'Ya' means that which always functioning. So it is meant that *Hridaya* is an organ that takes and gives something.

The structural study of *Hridayamarma* with the help of cadaveric dissection shows that Fibrous skeleton of the heart, 4 chambered structure – 2 atria and 2 ventricles, Ascending aorta, arch of aorta and its

branches, Superior vena cava and inferior vena cava, pulmonary vein and pulmonary artery, Coronary arteries and coronary veins. Depending the dominance of anatomical structure present in that site, is termed as *Siramarma*. *Chetana* is perceptible through the automatic and self-controlled pulsation of *Hridaya*. And thus *HridayaMarma* if injured or disordered than it results in the stopping of the chain of *Chetana* (*Chetnau-nuvrittiAyu*), resulting in death. An injury to the blood vessels – coronary veins or arteries (atherosclerosis or arteriosclerosis resulting in thrombus formation) leads to myocardial infarction ultimately in death of the person.

CONCLUSION

The *Hridayamarma* is present in the thoracic region between two breasts, posterior to the sternum. The structures that are present in the region of *Hridayamarma* are

1. *Mamsa – Hridaya* is a muscular bag or a structure made up of muscles. The myocardium can be considered as the *Mamsa Bhaga*.
2. *Sira*– means blood vessels. The single organ to which, the entire main blood vessels of the body are attached is to the *Hridaya*.
3. *Snayu* – ligaments attached to the heart. There are multiple tendinous structure called Chordae Tendinae. They are present in the chambers. These can be compared to *Snayus*.
4. *Asthi* – fibrous skeleton of the heart can be considered as the *AsthiBhaga*.
5. *Sandhi* – it is explained in *Samhita* as that, *Mandala Sandhi* is present in the heart. They are ring like structures. The attachment of Valves to the heart can be compared to *Mandala Sandhis*.

6. *DashaDhaamanis* – can be compared to the main vessels related to the heart

- Aorta
- Pulmonary trunk
- Four Pulmonary Veins
- Superior Vena Cava
- Inferior Vena Cava
- Right Coronary Artery
- Left Coronary Artery

Hridayamarma can be termed as *Sadhyopranaharamarma* as trauma results in death of the person immediately or within period of 7 days (fatal period).

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Source of support: Nil
Conflict of interest: None Declared