

CRITICAL ANALYSIS OF MARGAVARANA SAMPRAPTI IN HRIDROGA W.S.R TO CORONARY ARTERY DISEASE

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ABSTRACT

The incidence of cardiac diseases is increasing at an alarming rate in our society due to sedentary lifestyle as an impact of western culture. In India, many studies have reported increasing coronary artery disease incidence over 60 years. One in 4 deaths in India is due to coronary artery disease. So thorough understanding of the pathogenesis of this disease is very important. Ayurveda literature elaborates on multiple maladies related to the heart under *Hridroga*. *Margavarana* is a unique pathology explained in our classics. Various dietary, behavioural, psychological factors contribute to the morbid accumulation of *Kapha* and *Medas* leading to *Shonita Abhishyandana*. A further morbid state of *Shonita Abhishyandana* by *Upalepa* of *Dhamani* culminates in the development of *Dhamani Prathicchaya*. Eventually due to *Siraja granthi Dhamani Prathichchaya* ends up in *Margavarana* and is the leading pathology of *Hridroga*. In the realm of conventional medicine, it is said that a sedentary lifestyle is the major cause of morbid accumulation of fat in the body leading to metabolic syndrome. It is characterised by dyslipidemia which in turn leads to atherosclerosis. Atherosclerosis predisposes thromboembolism and complete obliteration of blood circulation within the vessel.

Keywords: Margavarana, Dhamni Prathicchaya, Coronary artery disease, Atherosclerosis

INTRODUCTION

The incidence of cardiac diseases is increasing at an alarming rate in our society due to sedentary lifestyle, faulty diet and mechanical life as an impact of western culture. One in 4 deaths in India is due to coronary artery disease. An estimated 3.8 million men and 3.4 million women die each year from this disease.¹ coronary artery disease is the thinning or blockage of the coronary arteries which are usually caused by atherosclerosis. Atherosclerosis refers to the build-up of fats, cholesterol and other substances in the artery walls which can resist blood flow to the distal part of the artery. Atherosclerosis of coronary arteries may present with Angina, MI and in some with sudden cardiac death. *Margavarana* is a unique pathology explained in our classics which may herald a wide variety of diseases namely *Vatarakta*, *Pakshaghata* and *Hridroga*.² *Vaivarnya* (cyanosis), *Murcha* (syncope), *Shwasa* (dyspnoea), *Kasa*(cough) and *Hritshoola* (chest pain) are the cardinal features explained for *Hridroga* which are also the symptoms of coronary artery disease. *Margavarana* is formed by the two component terms i.e *Marga* and *Avarana*. *Marga* refers to channels in general. *Avarana* refers to *Avarodha* and is translated as obstruction. So together we can consider *Margavarana* as an obstruction in the channels. Due to the sedentary lifestyle which we can understand as indulging in *Santarpana Nidanas* and *Virudhaahara*, there is vitiation of *Kapha* and *Medas* which gets lodged in the *Rasa Rakta Marga* leading to *Dhamani Prathichaya* which eventually end up in *Margavarana*.

MATERIALS AND METHODS

Coronary artery disease

Ischemic heart disease is defined as an acute or chronic form of cardiac disability arising from an imbalance between the myocardial supply and demand for oxygenated blood. Since narrowing or obstruction of the coronary arterial system is the most common cause of myocardial anoxia, the alternate term 'coronary artery

disease (CAD)' is used synonymously with IHD. IHD or CAD is the leading cause of death in most developed countries and a somewhat low incidence is observed in the developing countries. Men develop IHD earlier than women and death rates are also slightly higher for men than for women until menopause. IHD is invariably caused by disease affecting coronary arteries. The most prevalent is atherosclerosis accounting for more than 90% of cases.³

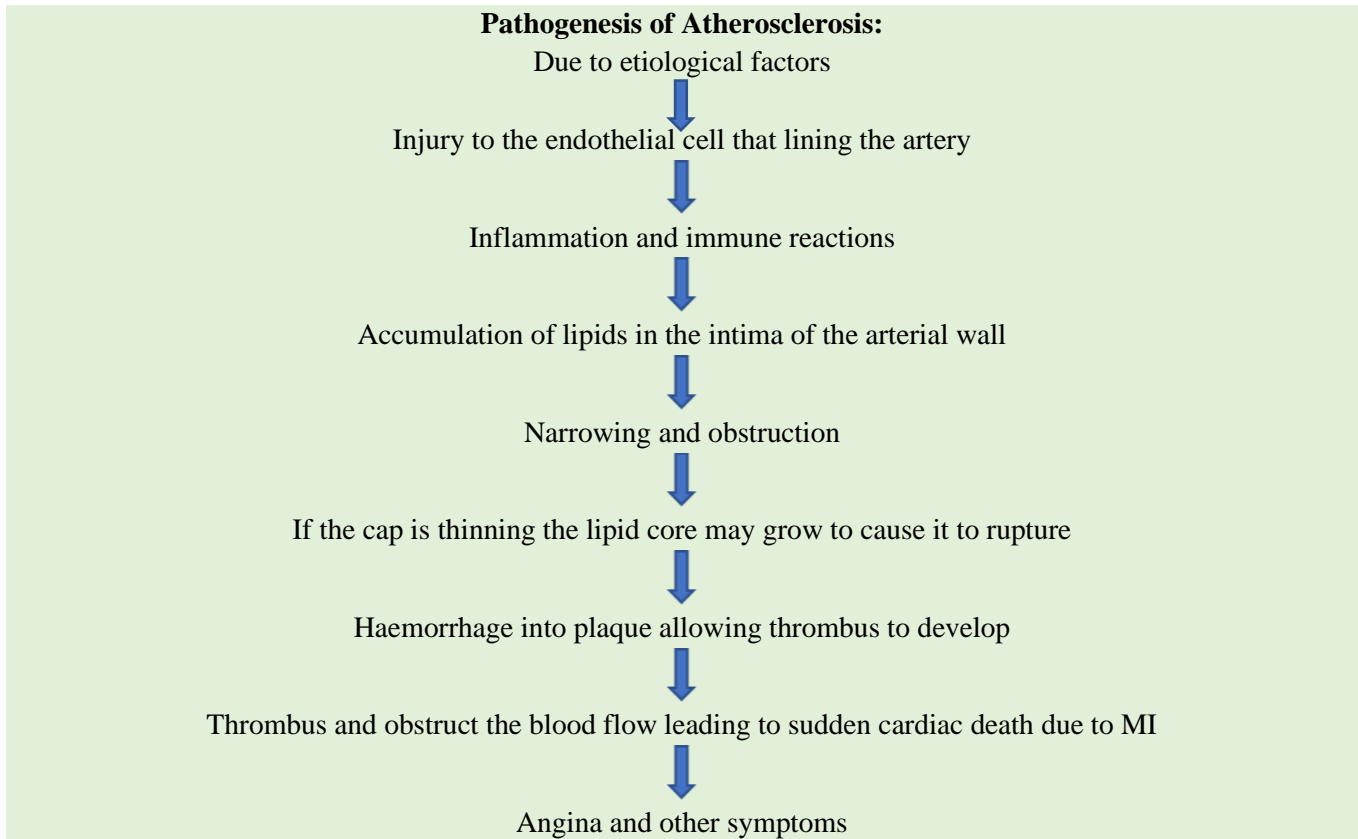
Atherosclerosis

Atherosclerosis is a progressive inflammatory disorder of the arterial wall that is characterised by focal lipid-rich deposits of atheroma that remain clinically silent until they become large enough to impair tissue perfusion or until ulceration and disruption of the lesion resulting in thrombotic occlusion or distal embolization of the vessel. Atherosclerosis begins early in life with deposits of lipids in the vessel wall, which tend to occur at sites of altered arterial shear stress, such as bifurcations and are associated with abnormalities of endothelial function at that site.⁴

The main risk factors of atherosclerosis are:

- High blood pressure
- Heredity
- Obesity, Diabetes
- High cholesterol, triglycerides
- Smoking and tobacco use
- Lack of exercise and unhealthy diet

In contemporary science, it is said that a sedentary lifestyle is the major cause of morbid accumulation of fat in the body leading to metabolic syndrome. It is characterised by dyslipidaemia which in long run leads to atherosclerosis. Again, atherosclerosis predisposes to the complete obliteration of the blood circulation within a vessel. A sedentary lifestyle leading to dyslipidaemia is characterized by abnormal levels of serum lipids.



Dhamani Praticchaya

The term *Margavarana* has two terms i.e., *Marga* and *Avarana*. The word *Marga* refers to circulating channels inside our body but in general, it refers to carrying *Rasa* and *Rakta dhatu*. Consumption of excessive sweets and greasy foods in conjunction with lack of physical activities causes morbid accumulation of *Kapha* and *Medas* in *Marga* carrying *Rasa* and *Rakta dhatu*. This morbid accumulation tends to get adhered to the vessel wall causing its thickening, tortuosity, stiffness as well as narrowing. This change in the vessel wall is referred to as *Dhamani Praticchaya* (atherosclerosis). The event of *Margavarana* can happen in any part of the body and hence manifests as different diseases in different parts of the body. It is also said in the text that *Hridroga* is said to be caused by the pathology of *Margavarana*.⁵

Shonita Abhishyandana is the initial event of *Margavarana*. In our classics, Acharyas have explained various *Santarpana Nidanas* and *Viruddha Aharas* which will cause *Margavarana*.

- Excessive consumption of unctuous food, sweet foods
- Consumption of food that is heavy to digest and slimy food
- New grains, new wines
- The flesh of animals living in the marshy area or born in water
- Cow's milk and its products
- Food products prepared from sugar and molasses
- Indulging in sedentary lifestyle, inactive lifestyles
- Sleep during day time⁶

All these *Nidanas* will lead to *Santarpana*. This will lead to the accumulation of *Kapha* and *Medas* within the vessels of *Rasa Rakta marga*. Consumption of dishes prepared with milk and fish is mutual contradictory because both are having *Madhura Vipaka* and it is *Mahaabhishyanda*.⁷ This will lead to morbid accumulation of *Kapha* and *Medas* in the *Rasa Rakta marga* which is termed as *Shonitabhishyanadana* (dyslipidemia). Other examples like potherb of *Pushkara* or *Rohini*, the meat of pigeon fried with mustard

oil should not be taken along with honey and milk because it causes *Shonitabhishyanadana*⁸ i.e., obstruction in blood circulation, atherosclerosis. *Dhamani praticaya* is enlisted as one among the 20 *Kaphaja Nanatmaja Vikaras*.⁹ The pathogenesis begins with the morbid accumulation of *Kapha* and *Medas* in the blood is referred to as *Shonitabhishyandana*. Thus, morbid *Shonita* circulating in the *Dhamani* predisposes to *Upalepa* or adherence of *Kapha* and *Medas* within the wall of the *Dhamani*.¹⁰ Vessels affected by this tend to increase in diameter a phenomenon known as compensatory enlargement in the type of vascular remodelling. This pathological change in the *Dhamani* is known as *Dhamani Praticaya*. Eventually, these changes in the *Dhamani* and are the events of *Sirajagranthi*.¹¹ The formation of *Sirajagranthi* leads to *Margavarana*.

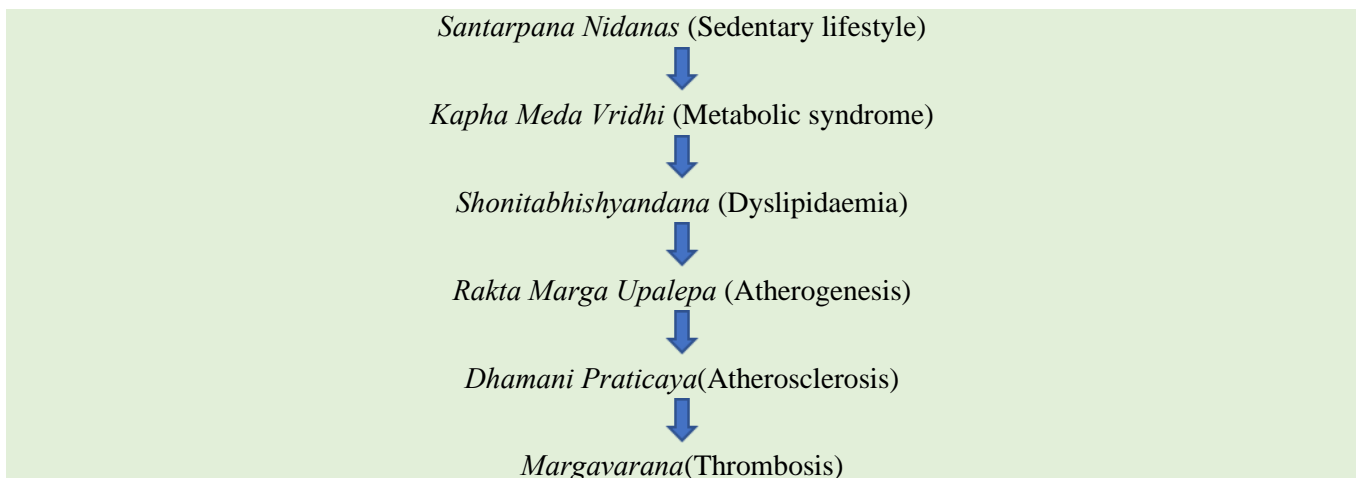
DISCUSSION

Nowadays due to the sedentary lifestyle and faulty diet, there is an increase in metabolic syndrome. Eating high fatty foods, physical inactivity is the main reason for metabolic syndrome. Indulging in *Santarpana Nidanas* like excessive use of *Snigdha*, *Madhura*, *Guru aharas*, intake of cow's milk and its products etc will lead to an increase in *Kapha* and *Medas* in the body. This *Kapha* and *Medas* gets lodged in the *Rasa Rakta Marga* leading to *Shonitabhishyandana* and finally ends up causing *Maragavarana*. Atherosclerosis is considered as the major cause of coronary artery disease leading to Myocardial infarction. Elevation of

serum lipids like LDL and total cholesterol as well as decrease of HDL levels characterize dyslipidaemia and are comparable to the *Shonitabhishyandana*. Dyslipidaemia leading to atherosclerosis with endothelial dysfunction parallels with the description of *Dhamani Praticaya*. To be clearer, the initial step is infiltration and entrapment of LDL in a blood vessel resulting in atheroma formation. This is referred to as *Dhamani Upalepa*. Because of this, the vessels tend to increase in diameter as well as reduced elasticity and thereby narrowing the lumen. This is referred to as *Dhamani Pushtata*, *Vistara Bhava* indicating vascular remodelling. Such atheromatous plaques are vulnerable to spontaneous rupture leading to acute thrombosis, occlusion and infarction. The total event is indicated by *Siraja Granthi* and eventually leads to *Margavarana*. The final event of *Margavarana* can happen in any part of the body. *Hridaya Marma* when affected by the *Margavarana* patient suffers from *Hritsula*.

CONCLUSION

Hence various *Santarpana Nidanas* (sedentary lifestyle) will cause *Kapho Medas Vridhi* (metabolic syndrome) in the *Rasa Rakta Marga*. This will lead to *Shonitabhishyandana* (dyslipidaemia) which in turn causes *Rakta Marga Upalepa* (atherogenesis), this eventually leads to *Dhamani Praticaya* and finally end up in *Margavarana*. *Hidroga* has been highlighted as one of the diseases which occur as a consequence of *Margavarana*.



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