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A CRITICAL ANALYSIS OF *ADHOGAMI DHAMANI* IN *AYURVEDA* W.S.R. TO *SUSHRUTA SAMHITA*

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ABSTRACT

Ancient works in the field of *Rachana Sharir* had presented by *Acharya Susruta, Charaka, &* other *Acharyas* as the documentation of profound scientific study. *Ayurvedic Acharyas* has used an anatomical term *Dhamani,* which is one of the controversial terms (structure), used to represents tubular structure and it is one of the synonyms of *Srotas*. Modern science describes blood vessels of three types' viz-artery, vein & capillaries. The other two important channels for the maintenance of the body are lymphatic & nerves. The relevant terms in *Ayurvedic* language are *Sira, Dhamani* and *Srotas* and in these three terms the modern five structures namely artery, vein, capillary, lymphatic and nerve are incorporated. Cardiovascular System is an important life supporting and nourishing system of the human body. The term *Hridaya, Siras* and *Dhamanis* are as old as *Vedas*. They have been generally used in the sense of *Ayurvedic* cardiovascular system. In general, *Siras* and *Dhamanis* mean blood vessels and *Hridaya* is pumping organ. On the basis of interpretation of commentators *Dhamani* is a channel connected to the heart which is thick walled, whereas *Sira* is a thin walled blood vessel. *Sira* and *Dhamani* both are related to heart, but their relations are different. In relation to *Dhamani*, *Hridaya* is *Ashraya* (abode). *Ashraya* is those structures which provide base, nutrition and protection to their *Ashrayi* (shelters). Heart is place of *Ojus*, so *Dhamani* which carry *Ojus* are called as *Ojovaha Dhamani*. Heart is also place of *Prana*, so *Dhamani* are also *Pranavaha*.

KEYWORDS: *Ayurveda, Dhamani, Adhogami,* nerve, artery.

INTRODUCTION

Thorough structural scientific knowledge of the life was recommended by ancient *Acharyas*. The knowledge of *Rachana Sharira* is mandatory for the students of any system of medicine. It is a vital subject in pre-clinical studies. *Sira* and *Dhamani* along with *Hridaya* form the basis of cardiovascular system. In fact, the term vascular in CVS comprises of *Sira* and *Dhamani* i.e. hollow and tubular structures. *Hridaya* is also a modified, specialized tubular hollow structure. Contemporary authors use the terms *Sira* and *Dhamani* to designate the veins and arteries respectively. Originally, the ancient Greeks believed that arteries only held air. This was because, in the absence of a heartbeat, the arteries of the dead were empty. In the middle ages it was believed that arteries carried vital spirits, separate and different from blood. *Acharya Susruta* has said to be the father of surgery because of description available in *Susruta Samhita* regarding methodology for learning of the anatomy, dissection on cadaver, *Dhamani*, *Sira*, *Marma*, management of fractures, different surgical procedures etc. He has given more emphasis on the practical knowledge. A surgeon who desires to obtain thorough knowledge of the body must dissect a dead body properly and see each and every structure and organ in it.[1]

Aim and Objectives- In this study author effort to deal all these possible aspects of *Adhogami Dhamani* with great determination.

Aim of study are as follows

a. To explore the concerned literature, this is available in *Ayurveda* and modern text books.

b. To collect and review the views of commentator and different modern *Ayurveda* scholars.

c. To analyze our concepts with recent anatomical researches and knowledge.

Objects of study are as follows

a. The critical, scientific analysis and explanation of related *Slokas* having deep rooted or hidden scientific thinking and approaches given by our ancient scholars will be done to provide the new dimensions for the research.

b. Effort will be made to provide the momentum in the library work, because now-a-days the basic concept of *Ayurveda* are not being studied and understood well as they are required. It is thought to be having only teaching and examination importance. It seems that these types of thought are the root cause of the slow progress of *Ayurveda* otherwise the therapeutic

potential and approaches of *Ayurveda* are hidden in these basic anatomical concept and interpretation on the basis of recent knowledge.

c. The critical analysis of this study will be the outcome of the systemic literary, correlative and conceptual study. In this study an attempt will be made to explore and correlate the 'A critical analysis of *Adhogami Dhamani* in *Ayurveda* w.s.r. to *Sushruta Samhita'* with recent knowledge.

Origin & division of *Dhamani*- according *Susruta, Nabhi* is the site of origin of both *Dhamani* and *Sira.*[2] Even in *Charaka, Astanga Sangraha* and *Astanga Hridaya, Nabhi* word has been used in reference to fetal life. *Susruta* has himself shifted from his own view in relation to the origin of *Dhamanis* from *Nabhi* (umbilicus) to *Hridaya* (heart) in *Sutrasthan 'Sonita-Varniya Adhyaya'*[3] *Charaka* has also mentioned in 30th chapter of *Sutrasthan* that the *Dhamanis* (arteries) arise from the *Hridaya* (heart).[4] Among the *Dhamani* (arteries) arising from the *Nabhi* (umbilicus), ten spread upward, ten downward and four sideward (transverse).[5] As far as twenty-four numbers is concerned, there is presence of cardinal veins, vitelline plexuses, umbilical veins and umbilical arteries seen in this area during the intra uterine life. *Charaka* said that 10 *Dhamani* arises from *hriday.*[6] In *Astang Sangraha*, it is said that *Dhamani* are twenty four; by them the entire body gets supplied with nourishment similar to a vast plot of land by canals carrying water; from them *(Dhamani)* the *Nabhi* (umbilicus) is surrounded just as a axle hole is surrounded by the spokes (of wheel); at that umbilicus (centre) life is designed to dwell; hence it is seat of internal fire.[7] *Acharya Susruta* says that, we will now describe the features of derivations of the foetus, from the father, mother, *Rasa-Dhatu* (plasma), *Atma* (soul), *Satva* (mind) and *Satmya* (habituation). *Kesa* (hair of the head), *Samasru* (mustaches) and *Roma* (hairs on the body), *Asthi* (bone), *Nakha* (nails), *Danta* (teeth), *Sira* (veins), *Snayu* (ligaments), *Dhamanis* (arteries) and *Sukra* (semen) etc. which are stable are derived from the *Pitrija* (father).[8] *Hridaya* (heart) and the *Pranavaha Dhamani* (arteries sustaining respiration and life) attached to it are produced by the essence of *Sonita* (blood) and *Kapha.*[9]

***Adhoga Dhamani*- Su.sa.9/6,7**- *Dhamani* (arteries) spreading downward purvey flatus, feaces, semen, and menstrual blood etc downward. These, on reaching the *Pittasaya* acting upon the essence of foods and drinks (known as *Rasa-Dhatu*) produce by the heat separates it into *Sara* (essence) and *Kitta* (waste). Purveys it throughout the body and nourish the body supplying nutrient materials present in the essence of food, supply it to the *Dhamani*

spreading in upward and transverse direction, fill the seat of *Rasa (Hridaya)* and separate urine, feces and sweat (from the *rasa*). In between the *Amasaya* (stomach) and *Pakvasaya* (colon) each one of these (*Dhamanis*) divides into three branches thus becoming thirty; out of these, two each carry *Vata, Pitta, Kapha, Sonita* and *Rasa*- thus ten. Two present in the intestine purvey *Anna*, two carry *Toya* (water produce during digestion), two present in the bladder carry urine, two are meant for production of *Sukra* in the testes, and two meant for its elimination, these only purvey the blood known as *Artava* in women and eliminate it; two attached to the large intestine are for expelling the faces- thus twelve. Another eight *Dhamani* supply sweat to those *(Dhamani)* spreading transversely; thus the thirty branches are described. By these *(Dhamani)*, the parts of the body below the umbilicus such as *Pakwasaya* (large intestines), *Kati* (pelvis), *Mutrasaya* (urinary bladder), *Purisasaya* (organs of feces i.e. rectum), *Guda* (anus), *Vasti* (bladder), *Medhra* (penis) and *Sakthi* (legs) are supported and maintained. *Dhamani* spreading downward perform these functions all the time (throughout life).[10] *Acharya Vagbhatta* says that, Each one of those spreading downwards, on reaching the *Pakvashaya* (colon), divides into three (branches); of these, the first ten acts as described earlier, (two each carry *Vata*, *Pitta*, *Kapha*, *Rakta* and *Rasa*) two carry the *Anna* (food) which is in its usual quantity, two carry *Toya* (water), two the *Mutra* (urine), two carry the *Sukra* (semen) and two *Munchati* (eliminate) it (out); the same way in women they carry the *Artava* (menstrual fluid) and *Munchati* (eliminate) it; two located in the *Sthulantra* (large intestine) to *Varchonirashini* (eliminate the faeces), thus these are twelve; the remaining eight *Dhamanis* spreading side wards *Swedam Abhitarpayati* (eliminate sweats).[11]

Table of *Adhogami Dhamanis*

S. No.	Name of *Dhamani*	No.	Function	Nerve	Artery
1.	*Vatavaha*	2	Transportation of *Vata*	-	-
2.	*Pittavaha*	2	Transportation of *Pitta*	-	-
3.	*Kaphavaha*	2	Transportation of *Kapha*	-	-
4.	*Rasavaha*	2	Transportation of *Rasa* from heart to target part of body	-	-
5.	*Raktavaha*	2	Transportation of *Rakta* from heart to target part of body	-	-
6.	*Annavaha*	2	The *Dhamanis* which supplies to *Amashaya* and *Chhudrantra* are capable to move digested food in downward direction	vagi and sympathetic nerves nerve	celiac artery and superior mesenteric artery
7.	*Toyavaha*	2	carry *Toya* (water produce during digestion)	-	-
8.	*Mutravaha*	2	The *Dhamani* which supply to	nerves from the renal	vessical arteries/

			the organ where urine is formed. In *Ayurveda* main site of urine is *Basti* (urinary bladder)	plexus, spermatic, ovarian, inferior mesenteric plexus and hypogastric plexus	renal arteries
9.	*Sukravaha/Artavavaha*	2	meant for production of *Sukra / Artava* in the testes/ovary	spermatic plexus/ hypogastric & ovarian plexus	Testicular and Spermatic artery/uterine & ovarian arteries
10.	*Sukra / Artava Visarjini*	2	meant for *Sukra / Artava* elimination	Nerves of male / female genital organ	Arteries of male / female genital organs
11.	*Varcho-Nirasini*	2	to move fecal matter downward and defecate it outside the body	Pelvic visceral nerve	Inferior mesenteric & colic arteries
12.	*Swedavahi*	8	Purvey sweat and Rasa inside and outside of the body	Cutaneous nerves	Cutaneous arteries
Total *Dhamani*		= 30- By these *(Dhamani)*, the parts of the body below the umbilicus such as *Pakwasaya*, *Kati*, *Mutrasaya*, *Purisasaya*, *Vasti*, *Medhra* and *Sakthi* are supported and maintained.			

DISCUSSION

in modern anatomy it is described that abdominal aorta is the continuation of the descending thoracic aorta. It gives branches as- inferior phrenic artery (2), celiac trunk, middle suprarenal artery (2), lumbar artery (4 pairs), superior mesenteric artery, renal artery (2), testicular/ovarian artery (2), inferior mesenteric artery, median sacral artery, and common iliac artery (2). Branches of abdominal aorta supplies to abdominal wall, gastrointestinal tract and body below the level of the respiratory diaphragm. Abdominal aorta passes posterior to the diaphragm (aortic hiatus) at the level of the T12 vertebral body.[12]

1. *Adhogami Dhamanis* are related to the abdominal region and lower limbs. *Vata*, *Mutra*, *Purisha*, *Sukra* and *Artava* are formed (produced) in abdomen and they move downwards. These substances are formed in their respective organs after getting blood supply from their arteries and then after it move downward direction to pass out from body.[13]

2. *Adhogami Dhamani* moving downward to reach in *Amashaya* and *Pittashaya*. This is the place of *Pittadhara-Kala*. In this place food are digested and absorbed to form *Anna-Rasa*, which nourishes the body in proper way. These functions (digestion and absorption) of intestine are possible only, when *Adhogami Dhamanis* supply blood to intestine. So this *Dhamani* is called as *Vivechak* (differentiator) and *Abhivahak* (supplier).[14]

In modern medicine 2nd part of duodenum is considered as the junction of for-gut and mid-gut and also here is the opening of bile duct and pancreatic duct, collectively known as hepato-pancreatic duct.[15] According to *Ayurveda* this is the place of *Amashaya* and *Aittashaya*. So the arterial supply of this part is very important. Anterior inferior pancreatico-duodenal artery is the branch of inferior pancreatico-duodenal artery. It gives pancreatic branches and duodenal branches. It supplies to lower duodenum and head of the pancreas.

Anterior inferior pancreatico-duodenal artery anastomoses with the anterior superior pancreatico-duodenal artery to form the anterior pancreatic arcade. Anterior superior pancreatico-duodenal artery is branch of gastro-duodenal artery. It gives pancreatic branches and duodenal branches. It supplies to upper duodenum and head of the pancreas. Anterior superior pancreatico-duodenal artery anastomoses with the anterior inferior pancreatico-duodenal artery to form the anterior pancreatic arcade.[16]

Superior mesenteric artery gives inferior pancreatico-duodenal artery which supplies to inferior part of the head of the pancreas and distal duodenum. Dorsal pancreatic artery is a branch of splenic artery and supplies to neck of the pancreas. Right branch of the dorsal pancreatic artery anastomoses with the anterior superior pancreatico-duodenal artery in the pre-pancreatic arcade. Intestinal arteries are branches of superior mesenteric artery. It forms arterial arches and supplies to jejunum and ileum. Intestinal arteries are 12-15 in number and are found in the mesentery. Ileocolic artery is branch of superior mesenteric artery. It gives colic branch, anterior cecal branch, posterior cecal branch, appendicular artery and ileal branches. It supplies to cecum, appendix, terminal portion of the ileum. Colic branche of the ileocolic artery participates in the formation of the marginal artery.[17]

3.By the help of *Adhogami Dhamanis*, ingested food are digested to form *rasa*, which moves upward to reach heart through *Siras* (veins) and *Rasayanis* (lymphatic vessels) to nourish the *Urdhvaga* and *Tiryaga Dhamanis*. It means that nourishment of *Urdhvaga Dhamanis* is indirectly done by the *adhogami dhamanis*. After digestion of food material *satmya* part of digested food is absorbed by *Rasa-Prapa* (cisterna chili) and *Rasa-Kulya* (thoracic duct) to carry it in heart.[18]

4. *Mutra* (urine), *Purisha* (fecal matter) and *Sweda* (sweat) are *Malas* of *Pakwa-Anna* (digested food). These *Malas* are differentiated in *Udar Vibhag* (abdominal region). *Sweda*

Sravan (sweating) is the function of *Tiryaggami Dhamani*, but blood supply to *Tiryaggami Dhamani* is the job of *Adhogami Dhamani*. So *Sweda* is described here.[19]

Blood vessels are essential in order to supply sufficient oxygen and nutrients to the skin, maintain normal tissue homeostasis and function, and meet the increased nutritional needs of the skin in various pathologic conditions. Blood flows from arteries and arterioles through capillary loops to post-capillary venules and veins. For practical and didactic purposes, the vascular system of the skin has been divided into a superficial and a deep vascular plexus, with additional vascular networks surrounding sweat glands and hair follicles. The architecture of the cutaneous vascular system varies in different areas of the body.[20]

5. Each *Adhogami Dhamanis* divided into three branches between the space of *Amashaya* and *Pakwashaya*. This is the site of origin and branches of celiac trunk, superior mesenteric artery, renal artery and inferior mesenteric artery.

6. The arteries which supplies to *Amashaya* and *Chhudrantra* are capable to move digested food in downward direction i.e. celiac artery and superior mesenteric artery (vagi and sympathetic nerves) are capable to do it.

Celiac trunk is the branch of abdominal aorta at the level of the T12-L1 inter-vertebral disc. It gives three major branches- left gastric artery, splenic artery and common hepatic artery. It supplies to stomach, lower esophagus, liver, upper duodenum, pancreas and spleen. Celiac trunk supplies the foregut derivatives. Left gastric artery gives esophageal branches. It supplies to superior part of the stomach near the lesser curvature. Left gastric artery anastomoses with the right gastric artery on the lesser curvature of the stomach; it also anastomoses with the esophageal branches. Splenic artery gives dorsal pancreatic artery, pancreatic branches, pancreatica magna artery, caudal pancreatic artery, short gastric arteries, left gastro-omental artery and splenic branches. Common hepatic artery gives gastro-duodenal artery, proper hepatic artery. It supplies to liver, upper parts of the duodenum, upper part of the pancreas, right side of the stomach. Common hepatic artery supplies some of the foregut derivatives.[21]

Superior mesenteric artery is the branch of abdominal aorta at the level of the lower 1/3 of the L1 vertebral body. It gives inferior pancreatico-duodenal artery, middle colic artery, jejunal artery, ileal artery, right colic artery and ileo-colic artery. It supplies to inferior part of the

head of the pancreas, distal duodenum, jejunum, ileum, cecum, appendix, ascending colon and transverse colon. Superior mesenteric artery supplies the mid-gut derivatives; branches of the superior mesenteric artery participate in formation of the marginal artery.[22]

Sympathetic chain ganglia is formed by preganglionic sympathetic fibers arrive via white rami communicantes of ventral primary rami of spinal nerves T1-L2. It gives postganglionic sympathetic fibers depart via gray rami communicantes to all spinal nerves. It gives motor supply to dilator pupillae, vascular smooth muscle, arrector pili muscles, sweat glands, suprarenal medulla, heart, lungs and gut.[23]

7. The artery which supplies blood to the organ where urine is formed is *Mutravahi Dhamani*. In *Ayurveda* main site of urine is *Basti* (urinary bladder). In this reference we take vesical arteries as *Mutravahi Dhamani.*[24]

Superior vesical artery is the branch of umbilical artery. It supplies to superior aspect of the bladder. Inferior vesical artery is the branch of internal iliac artery, anterior division or it may arise from the middle rectal artery. It supplies to lower part of the urinary bladder, prostate/ vagina. Vesical plexus is formed by inferior hypogastric plexus. It is continuous with the prostatic plexus. It carries motor impulse to sympathetic: vascular smooth muscle of the pelvic viscera, especially the urinary bladder, seminal vesicle, ductus deferens and ejaculatory duct; parasympathetic: smooth muscle and glands of the pelvic viscera, especially the urinary bladder, seminal vesicle, ductus deferens and ejaculatory duct. It carries sensory information of pain and general sensation from the bladder, seminal vesicle and ductus deferens.[25]

But, if we understand the urine formation according to modern science then we take renal arteries (nerves from the renal plexus, spermatic, ovarian, inferior mesenteric plexus and hypogastric plexus) as *Mutravahi Dhamani*. *Kaviraj Gananath Sen* says that *Gavini* (ureter) is suitable for *Mutravahi Dhamani.*[26]

Superior hypogastric plexus is formed by inter-mesenteric plexus and lumbar splanchnic nerves. Hypogastric nerve (right and left) is the motor branch of superior hypogastric plexus and vascular smooth muscle of the pelvic viscera (sympathetic) is sensory branch of it. It carries pain from the pelvic viscera; general visceral afferent from the pelvic viscera.

Inferior hypogastric plexus is formed by hypogastric nerve and sacral splanchnic nerve; pelvic splanchnic nerve (preganglionic parasympathetic axons from the ventral primary rami of spinal nerves S2-S4). It contributes motor branches to: uterine/vaginal plexus, vesical plexus and prostatic plexus. Sympathetic: supplies vascular smooth muscle of vessels supplying the pelvic viscera; parasympathetic: supplies smooth muscle of the pelvic viscera. It carries pain from the pelvic viscera; general visceral afferent from the pelvic viscera. Renal plexus is formed by inter-mesenteric plexus, aortic-renal ganglion and least thoracic splanchnic nerve. It carries pain from the kidney, renal pelvis and upper ureter. Inferior mesenteric plexus is formed by inter-mesenteric plexus. It carries pain from the descending colon, sigmoid colon and rectum. Inferior mesenteric plexus contains no vagal parasympathetic fibers; pelvic splanchnic nerve axons join the most distal nerve of the plexus near gut wall.[27]

8. Arteries which supply blood to sperm producing organ can be taken as *Sukravahi Dhamani* i.e. testicular and spermatic arteries (spermatic plexus).[28]

Testicular artery is a branch of abdominal aorta, it gives ureteric branches and supplies to testis, epididymis, lower part of the ductus deferens, ureter near its midpoint. Testicular artery is one of the contents of the spermatic cord; the origin of the testicular artery from the aorta at the L2 vertebral level indicates the embryonic level of origin of the testis prior to its descent. Artery of ductus deferens is the branch of umbilical artery; may be a branch of the superior or inferior vesical artery. It supplies to ductus deferens, seminal vesical; possibly supplies the ureter.

In case of female ovarian and uterine artery is important for *artava vahan*, which are well described in *Artavvaha Srotas.*[29]

Utero-vaginal plexus is formed by inferior hypogastric plexus and is continuous with the rectal plexus. It carries pain from the pelvic viscera listed above. The utero-vaginal plexus is a subsidiary plexus of the inferior hypogastric plexus.

9. In *Maithun* (coitus), sperm produced by testis moves to epididymis, vas deference and prostate. By contraction of urethra sperm ejaculation occurs. In this context arteries supplying to epididymis, vas deference and prostate are considered as *Sukra-Visharjini Dhamani.*[30]

Epididymis is supplied by the testicular artery through a branch which anastomoses with the tiny artery to the ductus diference. Artery of ductus deferens is the branch of umbilical artery; may be a branch of the superior or inferior vesical artery. It supplies to ductus deferens, seminal vesical; possibly supplies the ureter. Artery of the ductus deferens is also known as: deferential artery. Prostate is supplied by branches from the inferior vesical, middle rectal and internal pudendal arteries. Internal pudendal artery is a branch of anterior division of internal iliac artery. It gives branches as inferior rectal artery, perineal artery, artery of the bulb of the clitoris/penis, urethral artery, deep clitoral/penile artery, dorsal clitoral/penile artery. It supplies to anus, muscles of the superficial and deep perineal spaces, clitoris/penis, posterior aspect of the scrotum/labium majus. Internal pudendal artery is the primary blood supply to the perineum. Urethral artery and artery of bulb of penis are branches of internal pudendal artery and it supplies to penile urethra, bulb of the penis and associated tissues. Deep artery of penis is also a branch of internal pudendal artery. It supplies to corpus cavernosum of the penis. Dorsal artery of penis is a branch of internal pudendal artery. It supplies to superficial tissues of the penis. Dorsal artery of the penis and deep artery of the penis are the terminal branches. In case of women it should be ovarian and uterine artery. Ovarian artery is the direct branch of abdominal aorta. It gives tubal branches and uterine branches. It supplies to ovary and uterine tube. Ovarian artery anastomoses with the uterine artery internal pudendal artery. Uterine artery is the branche of anterior division of internal iliac artery. It gives tubal branch and vaginal branch. It supplies to uterus and uterine tube. Uterine artery anastomoses with the ovarian artery and the vaginal artery. Vaginal artery is a branch of anterior division of internal iliac artery; occasionally it arises from uterine artery and supplies to vagina.[31]

10. The function of large intestine is to move fecal matter downward and defecate it outside the body. So the *Dhamanis* (arteries) which help to do this job are called as *Varcho-Nirashni Dhamani* i.e. inferior mesenteric artery, middle colic and right colic arteries (pelvic visceral nerve).[32]

Right colic artery is a branch of superior mesenteric artery. It gives ascending and descending branches. It supplies to ascending colon. Right colic artery anastomoses with the ileocolic artery and the middle colic artery to form part of the marginal artery. Middle colic artery is a branch of superior mesenteri artery. It gives right and left branches and supplies to transverse colon. Middle colic artery anastomoses with the right colic artery and the left colic artery to form part of the marginal artery.

Inferior mesenteric artery is the branch of abdominal aorta at the level of the L3 vertebral body. It gives branch three major branches as- left colic artery, sigmoid artery (2-3), superior rectal artery. It supplies to splenic flexure, descending colon, sigmoid colon, superior part of rectum. Branches of the inferior mesenteric artery anastomose in the marginal artery. Left colic artery is the branch of inferior mesenteric artery. It gives ascending and descending branches to supply descending colon. Left colic artery anastomoses with the middle colic artery and the sigmoid artery to form part of the marginal artery. Sigmoid artery is the branch of inferior mesenteric artery. It gives ascending and descending branches to supply sigmoid colon. sigmoid artery are 2-3 in number; they anastomose with the left colic artery to help form the marginal artery.

Marginal artery is formed by anastomoses of branches of the ileo-colic artery, right colic artery, middle colic artery, left colic artery and sigmoid artery. It gives colic branches to colon. It is an important anastomosis for the large intestine.

Superior rectal artery is the branch of inferior mesenteric artery. It gives two unnamed branches. It supplies to superior part of the rectum. Superior rectal artery is the continuation of the inferior mesenteric artery after the sigmoid branches are given off; it anastomoses with the middle rectal artery and the inferior rectal artery. Middle rectal artery is a branch of anterior division of internal iliac artery. It supplies to middle portion of the rectum. Middle rectal artery anastomoses with the inferior rectal artery and the superior rectal artery. Inferior rectal artery is the branch of internal pudendal artery. It supplies to anus and ischioanal fossa. Inferior rectal artery anastomoses with the middle rectal artery and the superior rectal artery.[33]

CONCLUSION

Although opinion differs regarding the identification and functions of *Dhamani*, some equate it to nerves while others to arteries, considering their number and functions in the text. Authors correlate *Dhamani* to arteries accepting the definition that *Dhamanis* are called because they pulsate. The nervous tissue, more than any other tissue of the body, depends for its normal functioning on the continuous supply of arterial blood. In a tissue whose activity depends so much upon its blood supply, the micro-anatomical relations between the cells and the blood vessels are of particular interest.

These thirty *Adhogami Dhamani* nourishes and support the abdominal organ by supplying blood to it through its branches. In modern anatomy *Adhogami Dhamanis* are considered as abdominal aorta and its branches. In lower limb there is no any description of special function done by *Dhamani* (arteries). So arteries of lower limbs are not described in this context, their names are given as *Swedam-Arpayanti*.

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