WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 12, 26-35. Review Article ISSN 2277–7105

CRITICAL REVIEW OF VAPAVAHAN AS MOOLASTHANA OF MEDOVAHA STROTAS

[1]*Vd. Sayali B. Patil and [2]Vd. Manoj Jagtap

[1]Assistant Professor, Rachana Sharir Department, YMT Ayurveda Medical College and Hospital, Khargar.

[2]HOD and Professor, Rachana Sharir Department, YMT Ayurveda Medical College and Hospital, Khargar.

Article Received on
26 April 2024,

Revised on 16 May 2024,
Accepted on 06 June 2024

DOI: 10.20959/wjpr202412-29952

***Corresponding Author**
Vd. Sayali B. Patil
Assistant Professor,
Rachana Sharir Department,
YMT Ayurveda Medical College and Hospital,
Khargar.

ABSTRACT

Ayurveda, the ancient has given different basic principles for understanding the anatomical and functional structures present in the human body. There are quite differences seen when we look through the point of modern medicine because modern medicine is completely based on *Pratyaksha Pramana* only whereas Ayurved science looks beyond that. The concept of *Strotas* and their *Mool Sthana* is given by all the *Acharyas* with slight differences. According to the principle, the human body is made up of multiple *Strotas* which act as a channel to transport the *Dosha, Dhatu* and *Mala. Medovaha Strotas* is one of them which acts as a channel for *Medodhatu. Vrukka* and *Vapavahan* are said to be the *Mool Sthana* of *Medovaha Strotas.* This study is made with the intention to understand the *Vapavahan* as a *Mool Sthan* of *Medovaha Strotas* and to study the correlation between *Vapavahan* and modern anatomical organs related to it.

KEYWORDS: *Medovaha strotas, Moolsthana,* Mesentry, Omentum, *Vapavahan.*

INTRODUCTION

Ayurveda is a most ancient science and it has a hoary past. It can be stated that the concepts discussed in the text have been discovered to be appropriate in today's medical science context if thoroughly investigated. As modern science is fully developed and founded on *Pratyaksha Praman,* it is necessary to interpret Ayurvedic principles on modern scientific parameters wherever possible.

The concept of *Dhatu* is very well elaborated in Ayurveda. The basic function of *Dhatus* are to provide nourishment an support to the body.[1] These *Dhatus* have their own *Srotas*, where they are generated and transported. *Srotas* are characterized as passages of *Dhatus* that are undergoing metamorphosis.[2] The *Samhitas* list the root sites for each *Dhatu*. Exploration of the idea of *Srotasa* root locations is essential for treating *Srotasa* disorders. As Ayurveda's basic principles also stated that to treat the disease of any *Strotas*, we should treat the root sites.[3] According to Ayurveda, the human body is made up of numerous *Strotas* (channels) that are responsible for all physiological and functional activities. These *Strotas* help all *Dosha, Dhathu,* and *Mala* accomplish their functioning tasks. To allow these materials to flow, the body requires a network of big and small hollow tubes that function as a transport system. The body is divided into small units based on its main function or structure. Each unit is made up of numerous *Avayavas* (Organs), and each organ is made up of numerous *Strotas*. As a result, these units are often referred to as *Strotas*.

When its comes to *Medovaha Strotas,* its *Moola Stahana* is mentioned as *Vapavahan*. While describing *Vapavahana* as *Medovaha srotomoola,* there is a reference to its location as *Udara,* which is also known as *Snigdhavartika*.[4] *Tailavartika* has been quoted as a seat for *Medas* in *Chakrapani Teeka*.[5] The concepts and their relationship to *Vapavahana* require additional research in determining a relevant organ or component from a modern perspective and their association as *Moolasthana* of *Medovahasrotas* with practical importance.

AIM

1) To study *Vapavahan* from ancient *Ayurved Samhitas.*
2) To study the correlation of *Vapavahan* with modern anatomical organs.

MATERIALS AND METHODS

All the literature from compendium *Samhitas* of *Ayurveda*. viz. *Charaka Samhita, Sushruta Samhita, Ashtanga Sangrah, Ashtanga Hridaya* and *Sharangdhar Samhita* with the respective commentary has reviewed. Modern Anatomy books were referred for review of modern perspective. The information from research database from various search engines, journals, *Ayurvedic Samhita* and commentaries, books were referred for recent information. Critical analysis of available literature was done.

OBSERVATIONS

According to Ayurveda, the human body is made up of numerous *Strotas* (channels) that are responsible for all physiological and functional activities. These *Strotas* help all *Dosha, Dhathu,* and *Mala* accomplish their functioning tasks. To allow these materials to flow, the body requires a network of big and small hollow tubes that function as a transport system. The body is divided into small units based on its main function or structure. Each unit is made up of numerous *Avayavas* (Organs), and each organ is made up of numerous *Strotas*. As a result, these units are often referred to as *Strotas*.

Types of *Strotas*

Various *Acharyas* told various number of *Stortasa*. Though there are several types, *Acharya Charaka* and *Acharya Vagbhata* have categorized them into two major groups: *Bahirmukha Strotas* and *Antarmukha Strotas*. While according to *Acharya Sushrut*, there are 11 types of *Strotas*. 1)*Pranahava Strotas* 2)*Udakvaha Strotas* 3)*Annavaha Strotas* 4)*Rasavaha Strotas* 5) *Raktavaha Strotas* 6)*Mansavaha Strotas* 7)*Medovaha Strotas* 8)*Mutravaha Strotas* 9)*Purishvaha Strotas* 10)*Shukravaha Strotas* 11)*Artavavaha Strotasa*.[6]

Table No. 1: Types of *Strotas* – Acc. to *Charak Acharya*.[7]

Bahirmukha Strotas: 9 (+3 in females)	*Netra(2), Karna(2), Nasa(2), Mukha(1), Guda(1), Medhra(1) Yoni(1) and Sthana*(2) in females
Antarmukha Strotas (13Paired)	*Prana, Anna, Udaka, Rasa, Rakta, Mamsa, Meda, Asthi, Majja, Shukra, Mutra, Pureesha, Sweda*

Root of *Strotas (Stotas Moola)*

Strotomool is a area of influence, according to *Chakradatta*, is the place where *Strotas* evolves or originates. *Stroto Moola* (root) of a particular *Strotas* is considered the anatomical seat, which is also the primary site of disease manifestation. *Acharya Chakrapanidutta* uses the metaphor of a deep-rooted tree to convey the significance of *Stroto moola ("Moolamiti Prabhava: Sthanam*"). Further he explained that "As a tree is destroyed when its roots are severed, so is injury to *Moola Sthana*; the entire *Strotas* suffers."[8]

Table No. 2: Types of *Strotas* according to *Acharya Charak* and *Acharya Sushruta*.

Sr.No.	*Strotas*	*Stoto Mool (Charak)*	*Stoto Mool (Sushrut)*
1.	*Pranvaha Strotas*	*Hridaya, Mahastrtas*	*Hridaya, Rasavi Dhamani*
2.	*Udakavaha strotas*	*Taali, Klom*	*Taali, Klom*
3.	*Annavaha Strotas*	*Amashaya, Vaamparsha*	*Amashaya, Aanavahi Dhamni*
4.	*Rasavaha Strotas*	*Hridaya, Das Dhamani*	*Hridaya, Rasavahi Dhamani*
5.	*Raktavaha Strotas*	*Yakrit, Pleeha*	*Yakrit, Pleeha, Raktavahi*

			Dhamani
6.	*Mamsavah Strotas*	*Snayu. Twak*	*Snayu. Twak, Raktavahi Dhamani*
7.	*Medovaha Strotas*	*Vrikka Mool, Vapavahan*	*Kati, Vrikka*
8.	*Asthivvaha Strotas*	*Medo Mool, Jaghan Pradesh*	
9.	*Majjavaha Strotas*	*Asthimool, Sandhi*	
10.	*Shukravaha Strotas*	*Vrishana, Shef*	*Stanya, Vrishana*
11.	*Mutravaha Strotas*	*Basti, Vankshan*	*Medhra, Basti*
12.	*Purishvaha Strotas*	*Pkvashaya, Sthool Guda*	*Guda, Pakvashaya*
13.	*Swedavah Strotas*	*Romakoop*	
14.	*Artavaah Strotas*	*Garbhashaya, Artavaahi Dhamani*	*Garbhashaya, Artavaahi Dhamani*

Medo Dhatu* and *Medovaha Strotas

Meda is a fourth *Dhatu* among the *Saptadhatu* mentioned in *Samhitas*. It is made up of the essence of *Aahar Rasa* and has *Matruj Bhava* i.e maternal origin. The *Medo Dhatu's* primary role is to impart sneha bhava (unctousness) "Medyati snihyati meda iti meda."[9] Acharya Sushruta said that the function of *Meda* is to provide unctuousness and firmness to the body, nutrition to the bones. In addition to the functions mentioned above, *Vagbhata Acharya* defines unctuousness of the body and eyes. *Medas* is the *dhatu* which undergoes *Mridu Pāka* or *Khara Pāka* because of this *Sira* and *Snayu* are formed respectively.

Vapavahan* as a *Strotomoola* of *Medovaha Strotas

The *Moola* of *Medovaha Strotas* is often referred to as *Vrikka* in *Brihattrayi*, however *Vapavahana*, as mentioned by *Charaka Acharya*, is replaced by *Kati* by *Susruta Acharya* and *Mamsa* by *Vagbhata Acharya. Charaka Samhita* mentions *Vapavahana* as one among the *Panchaadasha Koshtanga.*[5] *Vapavahana* is explained as '*Udarastha Snigdhavartika'*. As per *Vaidyaka Shabda Sindu, Medasthana Roopi Koshtanga* is *Vapavahana*. While explaining *Vapavahana* as *Medovahastrotomoola* there is a reference regarding its location as *Udara* and is also referred as *Snigdhavartika*.[10] While explaining *Chikitsa* for *Udara* in second chapter of *Chikitsasthana Acharya Sushruta* mention the *Medovarti* which can associate with *Vapavahan*.[11] *Ghanekar* said that there is a covering layer in the abdominal cavity that contains fat, therefore the name *Vapavahana* is given.[12] *Tailavartika, Medosthana, Vapa,* and *Udarastha Medhodharakala* are all synonyms for *Vapavahana* in *Parishadya Shabdhartha Shareeram*.[13] According to author D. G. Thatte human body *Paryudara* Kala is divided into 3 types, which are *Snayu, Antrayojani* and *Vapa. Vapa* is a layer of the *Paryudara Kala* (peritoneum) which lies between *Amashaya* and other abdominal internal organs. Further author said that presence of abundant amount of *Vasa* in *Paryudara Kala*, can

be considered as *Medodar Kala*. *Vapavahan* is considered as *Koshhtang* as transportation of fat is occurs through it.[14]

Author *Gananathasen Sharma* described *Vapavahan* as *Audarya Kala* and support for *Amashaya*. It safeguards *Kshudrantra* and *Sthoolantra*.[15] According to Krishna Kanth Pandey, it is a component of the *Paryudara Kala* (peritoneum). He further subdivided it into *Laghu Vapa* (lesser omentum) and *Deergha Vapa* (larger omentum).[16] *Vapavahana* has been described as omentum by some modern authors C.R Agnivesh[17] and Tharachand Sharma.[18] Further studies on *Medovaha Srotas* carried out by Anil avhad and Vishal M Khandre only considered *Vapavahana* as an omentum.[19] According to Shriram Khadilkar's conceptual study (*Vapavahana* overview), *Vapavahana* is nothing but the pancreas. Further provides more evidance of *Vartika* implies a little piece of cotton. *Vartika* represents the diminutive nature of that part. The pancreas is a tiny organ. It is similar to the traditional *Vartika*, which is used for lamp and twin in nature and is imbedded in oil or ghee. It is greasy, larger in the middle, and tapering towards the end. As a result, *Upama* of *Taila Vartika* is more associated with the Pancreas.[20]

DISCUSSION

According to all of the references, *Strotas* is the aspect identified as carrying passages of *Dhatus* undergoing change. It signifies that the *Strotas* develops, uses, and mobilizes the *Dhatus* that are being transformed. The *Medovaha Srotas Moola* refers to an organ that is strongly associated to *Medo Dhatu* functions or is an essential place related to the commencement or ending of *Medo Dhatu* channels. According to *Charaka Samhita, Medovah Strotas* has two root sites: *Vrikka* (kidneys) and *Vapavahan* (omentum). *Sushrut Samhita* mentions *Vrikka* (kidneys) and *Kati* (waist), while *Vaghbhat Samhita* mentions roots in *Vrikka* (kidneys) and *Mamsa Dhatu*. The phrase *Vapavahana* refers to a thing that carries *Vapa. Vapa* is not other than *Shudha Mamsa Sneha* or *Medas* by itself, and *Medas* in *Udara* is known as *Vapa*.[21],[22],[23],[24]

Vapavahana's role in *Medovaha Strotas* can be interpreted as both storage and a conduit. *Chakrapani*, a *Charak Samhita* commentator, says *Vapavahan* is *Meda* deposition in the belly, which he refers to as *'Tail Varti'* (oil wick) located in the abdominal region.[5] According to contemporary science, it is an organ called the omentum, which is normally thin and cribriform but always contains some adipose tissue, which can be immense in the obese, present in between the two layers of its anterior folds.[25] *Vapavahana* is *Udarastha*

Medodhara Kala and acts as store house of fat in abdominal region. Whereas, *Acharya Sushruta* called it as '*Medodharakala'. Snigdhavartika* or *Tailavartika* are synonyms for *Vapavahana* since the word indicates it is dipped in oil, which means that it is entirely coated with *Sneha* or *Vapa*.

So we can say that *Vapavahana* as peritoneal folds with abundant fat. One of the distinguishing characteristics of the large intestine is the existence of appendices epiploicae, which resemble wicks and have the shape of sesame seeds containing oil/fat. Apart from peritoneal folds, mesentery is an extension of peritoneal folds. Further mesentery forms the serous coat of the small intestine and extends up to the root where it extends in the form of dorsal mesogastrium conducting blood vessels, lymphatics and restoring fat abundance along with omenta (both greater and lesser omenta), sigmoid mesocolon and transverse mesocolon. Mesentery mediates both local and systemic responses. C reactive protein synthesis in the mesentery is a significant predictor of systemic concentrations. C-reactive protein is a protein that affects glycemic and lipid metabolism. It is the greatest fat reservoir and promotes lipid metabolism and transport. Compared to subcutaneous or extra peritoneal fat, mesenteric fat has a higher metabolic activity.

According to Marisa Coelho et al., adipose tissue is the main storehouse for surplus energy, but it is also known as an endocrine organ. This adipocyte is primarily deposited as visceral fat in the abdominal region's omentam and mesentery. As a result, mesenteric fat has the potential to disrupt normality and cause metabolic diseases.[26] So the above points are accurate in correlating *Vapavahana* with mesentery because they correspond to *Acharya Charaka's Medovaha Sroto Dushti Lakshana*. According to modern science and classical references, vitiation will only result in metabolic problems.

Vapa can be classified as a fat/lipid. *Vapavahana* refers to something which transports/stores/circulates *Vapa*/lipids. Digestion and absorption of dietary lipid in the gastrointestinal tract involves various steps. As follows

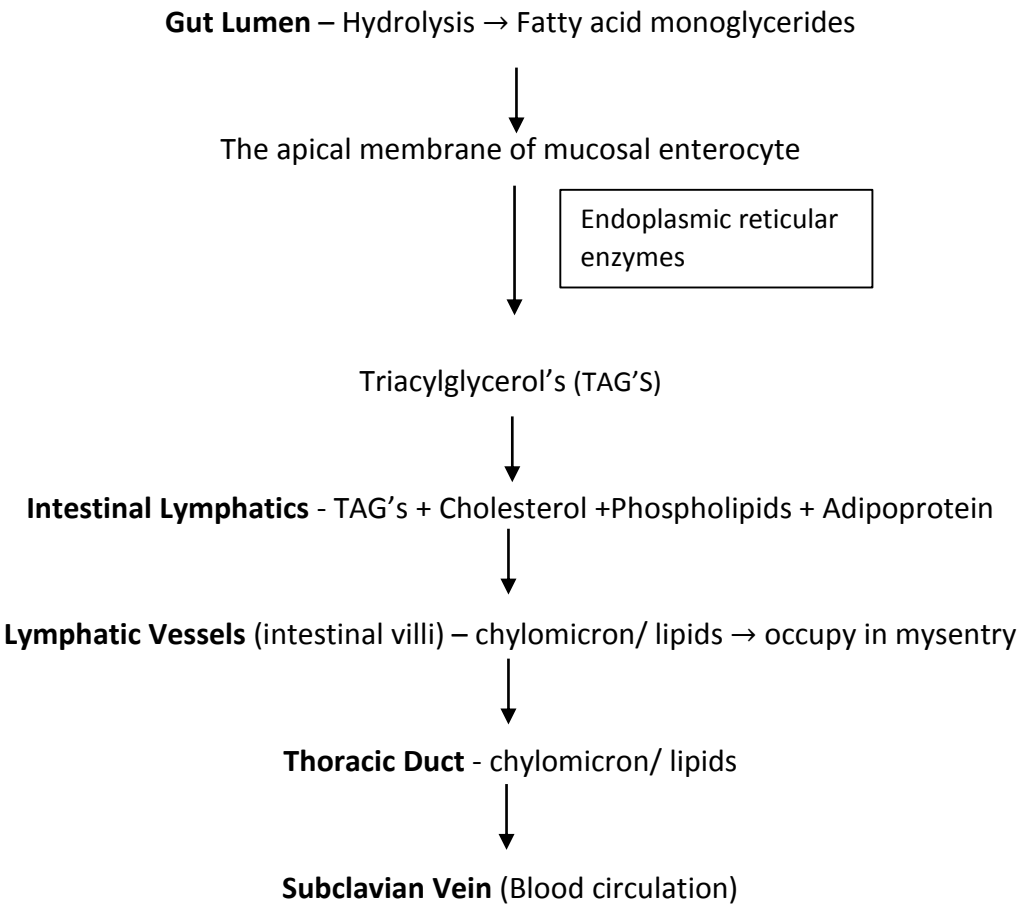

Fig. 1: Showing Digestion and Absorption Process of Dietary Lipids.

We can say that mesentery plays important role in lipid transport which validates the term *Vapavhan* as *Vapa*. It is a double fold of peritoneum which is a storehouse of fat, located in abdominal region which is nothing but the *Udarastha Medodhara Kala*. It protects *Kshudrantra* and *Sthoolantra* (it holds the small intestine in place). Mesenteric fat has a direct relationship with metabolic problems.

To understand it more deeply we can take a mesenteric adipose and beta cell function into consideration. Mesentric adipose tissue is considered as a new organ which connected to the pancreas by the superior mesenteric artery. Communication between the mesentery and endocrine pancreas through the mesenteric artery has been demonstrated in experimental tests where drugs given through the artery effectively reach and affect the β-cells.[27] Another study on mesentery shows that it is one continuous organ from the oesophagogastric to anorectal junctions. The upper and lower regions are connected at the mesenteric root and serve specific purposes.[28]

CONCLUSION

From all the above discussion we can conclude that *Vapavahan* is one of the *Panchadasha Koshthang*. Also one of the *Moolasthana* of *Medovaha Strotas*. We can resemble it with *Snigdhavartika* and *Tailavartika*. After reviewing all descriptions given in various compendiums we can conclude that the place of *Vapavahan* is in *Udar* (stomach). Structurally we can correlate the *Vapavahan* with peritoneum. Whereas its fold can correlated with folds and omentum and mesentery.

REFERENCES

1. Ambikadattshastri. Sushrut Samhita of Maharshi Sushrut with Ayurved Tatvasandipika Hindi commentary, sutrasthan chapter 14/20 1st edition. Varanasi; Chaukhamba Oriental Publisher Reprint, 2008; 52.
2. Agnivesha, Charak Samhita revised by Charaka and Dridabala, edited by Acharya Vidyadhar Shukla, Ravi Dutta Tripathi. Delhi: Chaukhamba Sanskrit Pratishthan, 2011; 2, Vimansthana, 5 chapter, verse no 3.
3. Agnivesha, Charak Samhita revised by Charaka and Dridabala, edited by Acharya Vidyadhar Shukla, Ravi Dutta Tripathi. Delhi: Chaukhamba Sanskrit Pratishthan, 2011; 2, Vimansthana, 5 chapter, verse no 10.
4. Agnivesha, Charak Samhita revised by Charaka and Dridabala, edited by Acharya Vidyadhar Shukla, Ravi Dutta Tripathi. Delhi: Chaukhamba Sanskrit Pratishthan, 2011; 2, Vimansthana, 1 chapter, verse no 18.
5. Agnivesha, Charak Samhita revised by Charaka and Dridabala, edited by Acharya Vidyadhar Shukla, Ravi Dutta Tripathi. Delhi: Chaukhamba Sanskrit Pratishthan, 2011; 2, Sharirsthana, 7 chapter, verse no 10.
6. Ambikadattshastri. Sushrut Samhita of Maharshi Sushrut with Ayurved Tatvasandipika Hindi commentary, 1st edition. Varanasi; Chaukhamba Oriental Publisher Reprint, 2008, Sharirsthana 9 chapter, verse no 11.
7. Agnivesha, Charak Samhita revised by Charaka and Dridabala, edited by Acharya Vidyadhar Shukla, Ravi Dutta Tripathi. Delhi: Chaukhamba Sanskrit Pratishthan, 2011; 2, Vimansthana, 5 chapter, verse no 7.
8. Agnivesha, Charak Samhita revised by Charaka and Dridabala, edited by Acharya Vidyadhar Shukla, Ravi Dutta Tripathi. Delhi: Chaukhamba Sanskrit Pratishthan, 2011; 2, Vimansthana, 5 chapter, verse no 9.

9. https://archive.org/details/ShabdaKalpadrumaComplete/page/n2095/mode/2 up?q=medas. Wed Sept 09 2023 12:17Hrs.
10. Agnivesha, Charak Samhita revised by Charaka and Dridabala, edited by Acharya Vidyadhar Shukla, Ravi Dutta Tripathi. Delhi: Chaukhamba Sanskrit Pratishthan, 2011; 2, Vimansthana, 5 chapter, verse no 8.
11. Ambikadattshastri. Sushrut Samhita of Maharshi Sushrut with Ayurved Tatvasandipika Hindi commentary, 1st edition. Varanasi; Chaukhamba Oriental Publisher Reprint, 2008, Chikitsasthana 2 chapter, verse no 45.
12. Ghanekar govind bhasker, Hindi Commentary Ayurveda rahasya deepika on Sushruta Samhita of Sushruta, Meharchand Lakshmandas publication, Newdelhi, 1997; 109-110.
13. Gowd Damodara sharma, Parishadya shabdartha Shareeram, Baidyanath Ayurveda bhavan. ltd, Nagpur, 69.
14. Dinakar Govind Thatte, Manava Shareera, 2nd edition, Ayurvedik evam tibbi academy uttarpradesh, Lucknow, 1992; 259-261.
15. Gananath sen Sharma, Pratyaksha Shareera, vol 2nd, reprint 2008, Rashtriya samskrutha samsthanam, Newdelhi, 199-202.
16. Krishna Kant Pandey, Rachana Shareera, Krishnadas AcademyEdition, Varanasi, 1993; 463-464.
17. C.R Agnives, A text book of Ayurvedic Anatomy. 2nd edition, Harisree publication, Thrissur, 2017; 181.
18. Tharachand Sharma, Ayurvediya Shareera Rachana Vigyana, Nath Pusthak Bhandar, Hariyana 1983; 312.
19. Anil Avhad et.al. Assessment and evaluation of Srotomoola. Joinsysmed, 2015; 3(4): 197-202.) (Vishal M Khandre et.al. Review of meda Dhatu in relevance with samprapti. journal of Sanskrit Samhita siddhanta, Apr–Jun. 2017; 2.4: 26-31.
20. Shriram khadilkar. Vapavahan: An Overview. AIIRJ. August, 2017; 4: 81-82.
21. Dr. Subhash Ranade, Dr.R.R. Deshpande and Dr.Swati Choubhe, A textbook of Sharir Kriya Vijnana, Part 2, Chaukhambha Sanskrit Pratisthan, 58.
22. Ambikadattshastri. Sushrut Samhita of Maharshi Sushrut with Ayurved Tatvasandipika Hindi commentary, 1st edition. Varanasi; Chaukhamba Oriental Publisher Reprint 2008, Sharirsthana 4 chapter, verse no 12.
23. Sarangadhara Samhita, Prof.K.R.Krishna Murthy, Choukamba Orientalia, 7th Edition, 2007; 25.

24. Sarangadhara, Sarangadhara Samhita, with commentary Adhamalla'sdipika and kasirama's Gudhartha dipika. 2nd edition, Nirnaya sagar, Bombay, 46.
25. The late Peter l. Williams, Grays Anatomy the Anatomical Basis of Medicine & Surgery chapter 15, 38th Edition. Harcourt Publishers, 1742.
26. Marisa Coelho et al. Biochemistry of adipose tissue: an endocrine organ. Arch Med Sci., 2, April 2, 2013; 191-200.
27. Saxton SN, Clark BJ, Withers SB, Eringa EC, Heagerty AM. Mechanistic Links Between Obesity, Diabetes, and Blood Pressure: Role of Perivascular Adipose Tissue Physiol Rev., 2019; 99: 1701–1763.
28. J Calvin Coff ey, D. Peter O'Leary. The mesentery: structure, function, and role in disease. Lancet Gastroenterol Hepatol, 2016; 1: 238–47.