Publisher
Maharshi Charaka Ayurveda
www.maharshicharaka.in

E-ISSN:2456-3110

Journal of Ayurveda and Integrated Medical Sciences

2025 Volume 10 Number 7 JULY

Review Article

metabolic diseases

A review study on the role of Avarana in the clinical presentation and pathogenesis of metabolic diseases

Sisodiya G[1*], Singh R[2]

DOI:10.21760/jaims.10.7.41

[1*] Garima Sisodiya, Post Graduate Scholar, Department of Rog Nidan Evum Vikruti Vigyan, Pt Khushilal Sharma Govt (Autonomous) Ayurveda College and Institute, Bhopal, Madhya Pradesh, India.

[2] Rita Singh, Reader and HOD, Department of Rog Nidan Evum Vikruti Vigyan, Pt Khushilal Sharma Govt (Autonomous) Ayurveda College and Institute, Bhopal, Madhya Pradesh, India.

The Ayurvedic principle of Avarana, which describes the obstruction of Vata's natural movement by another Dosha or Dhatu, provides a comprehensive lens through which various metabolic disorders now increasingly common globally and in India can be interpreted. In this review, classical sources were systematically examined alongside modern biomedical literature following SANARA guidelines to elucidate how Avarana mechanisms map onto contemporary pathophysiology. Distinct obstruction patterns were identified: in diabetes mellitus and obesity, Kapha and Meda obstruct Vyana and Samana Vata, correlating with insulin resistance and adiposity; in hypertension, Pitta's encroachment upon Prana Vata parallels autonomic imbalance; in non-alcoholic fatty liver disease, excess Kapha envelops Doṣhivisha, mirroring hepatic steatosis and inflammation; hypothyroidism reflects Kapha's blockade of Udana Vata, akin to slowed metabolism; In gout, the diseased state develops as aggravated Rakta blocks the movement of Vyana Vata, which parallels the pathological process of elevated uric acid levels and subsequent crystal accumulation in joints; and irritable bowel syndrome embodies mutual obstruction between Samana and Apana Vata, corresponding to dysregulated gut motility. This integrative analysis underscores the value of Avarana in offering personalized diagnostic and therapeutic strategies herbal formulations to remove obstructions, targeted Panchakarma procedures to restore Doshic balance, and lifestyle modifications tailored to the specific Dosha interactions. By bridging classical Ayurvedic theory with modern biomedical insights, this work proposes a nuanced, patient-centric approach for the prevention and management of metabolic disorders, advocating further clinical studies to validate Avarana-guided interventions.

Keywords: Avarana; metabolic disorders; Vata; obstruction; integrative medicine

Corresponding Author

Garima Sisodiya, Post Graduate Scholar, Department of Rog Nidan Evum Vikruti Vigyan, Pt Khushilal Sharma Govt (Autonomous) Ayurveda College and Institute, Bhopal, Madhya Pradesh, India.
Email: garimasisodiya41@gmail.com

How to Cite this Article

Sisodiya G, Singh R, A review study on the role of Avarana in the clinical presentation and pathogenesis of metabolic diseases. J Ayu Int Med Sci. 2025;10(7):269-276.
Available From
https://jaims.in/jaims/article/view/4456/

To Browse

Manuscript Received	Review Round 1	Review Round 2	Review Round 3	Accepted
2025-05-15	2025-05-26	2025-06-06	2025-06-16	2025-06-26

Conflict of Interest	Funding	Ethical Approval	Plagiarism X-checker	Note
None	Nil	Not required	12.36	

Introduction

In *Ayurvedic* medicine, *Avarana* obstruction of natural flow of *Vata Dosha* is a central concept in understanding pathogenesis of many metabolic disorders. When *Vata's* movement is blocked by other *Dosha*s or bodily substances, it leads to significant physiological disruptions. For example, in diabetes, *Vata* is obstructed by *Kapha* and *Meda*, impairing metabolic function; in hypertension, *Vyana Vayu* and *prana Vayu* is blocked by *Pitta* and *Kapha*, disturbing circulation; and in NAFLD, excessive *Meda* obstructs liver channels. Viewing these conditions through lens of *Avarana* provides a nuanced diagnostic and therapeutic framework with-in *Ayurveda*. Metabolic disorders such as diabetes, hypertension, NAFLD, gout, and hypothyroidism are increasingly prevalent, particularly in India. Current data show that diabetes affects around 101 million adults, hypertension 29.8%, NAFLD up to 38% in urban areas, gout 0.12–0.4%, and hypothyroidism around 11%, especially in women. This study explores relevance of *Avarana* in *Ayurvedic* understanding of these disorders. By integrating classical *Ayurvedic* theory with modern scientific insights, it aims to clarify underlying mechanisms and evaluate traditional treatments. This approach supports development of holistic, personalized strategies for managing metabolic diseases and advancing integrative healthcare.

Aim and Objectives

Aim

A review study on the role of *Avarana* in the clinical presentation and pathogenesis of metabolic diseases.

Objective

1. To correlate the concept of *Avarana* with various disease conditions classified under metabolic disorders.
2. To establish the role of *Avarana* in the progression of metabolic disorders.

Concept of *Avarana*

Definition & Etymology

Avarana refers to obstruction or restriction of movement, acting as a hindering factor that disrupts or conceals normal physiological functions.

Key Components

1. Avaraka - The obstructing entity which is strong, vitiated *Dosha* or *Dhatu*.
2. Avruta - The obstructed entity which is weakened *Dosha* or *Dhatu*.

Causes of *Vata* vitiation

1. Dhatu Kshaya
2. Marga Avarana

In *Dhathu Kshaya*, there will be depletion of *Rasadi Dhatus* that results in vitiation of *Vata*. In the case of *Marga Avarana*, the normal pathway of *Vata* becomes obstructed.

Classification of *Avarana*.

Types	Description	Example
Murta Avarana	Obstruction by tangible entities.	Pitta or Kapha blocking Vata.
▪ Murta on Murta	Solid obstructions like Dhatu blocking Strotas.	Ama blocking Rasa Dhatu.
▪ Murta on Amurta	Tangible blocking intangible.	Pureesh obstructing Apana Vata.
Amurta Avarana	Obsturction of Vata on its own types.	Prana Vayu obstructing Apana Vayu.
Abhibhavatmaka Avarana	Mental disturbance causing physical dysfunction.	Stress induced Vata imbalance.

Diagnostic Framework

Acharya Charaka emphasizes that diagnosing *Avarana* requires assessing changes in *Vata's* functions and identifying the site of vitiation. If the obstructing factor is stronger, it suppresses the functions of obstructed entity and vice versa. *Chakrapani* highlights the role of natural function and loss in functions in diagnosis *Sushruta* categorizes *Avarana* into three types *Kevala Vata*, *Dosha-Dhatu Yukta Vata*, and *Avruta Vata*, based on symptomatic presentation and rational analysis. *Vagbhatta* stresses the importance of repeated examinations and therapeutic trials for an accurate diagnosis.

Metabolic Disorders

Definition:

Metabolic disorders are conditions that disrupt normal metabolism - the process by which the body converts food into energy at the cellular level.

These disorders may arise from inherited genetic mutations or acquired factors such as lifestyle and diet.

Classification:

1. Primary Metabolic Disorders: Often genetic, such as phenylketonuria or Tay-Sachs.
2. Secondary Metabolic Disorders: Acquired due to environmental, dietary, or lifestyle factors; examples include diabetes, obesity, and non-alcoholic fatty liver disease.

Pathophysiology

These disorders typically involve abnormalities in:

- Carbohydrate metabolism (e.g., diabetes)
- Lipid metabolism (e.g., fatty liver)
- Protein metabolism (e.g., gout)
- Thyroid hormone production and regulation (e.g., hypothyroidism)

Risk Factors

- Sedentary lifestyle
- Poor diet
- Obesity
- Genetic predisposition
- Stress and hormonal imbalance

Clinical Significance:

They often co-exist and lead to complications like cardiovascular disease, kidney disease, and neuropathy, forming a part of the metabolic syndrome spectrum.

Prevalence

Metabolic disorders have become a significant global health concern, with an alarming rise in their prevalence. Diabetes Mellitus affects approximately 537 million adults globally, with India alone accounting for around 101 million diabetic adults. Hypertension impacts about 1.3 billion people worldwide, and in India, it shows a 29.8% prevalence among adults. Non-Alcoholic Fatty Liver Disease (NAFLD), another major metabolic condition, has a global prevalence of around 25%, while in India, it is observed in 32–38% of the urban population. Gout, associated with hyperuricemia, affects 1–4% of the global population, with a relatively lower prevalence in India, estimated at 0.12–0.4%.

Hypothyroidism is also widely prevalent, affecting 5–10% of the global population, and in India, it affects about 11%, with a higher occurrence among women. These statistics reflect the growing burden of metabolic disorders, emphasizing the need for deeper understanding and effective management strategies, including approaches from traditional systems like *Ayurveda*.

Materials and Methods

This study integrates classical *Ayurvedic* knowledge with contemporary scientific research to investigate *Avarana* in metabolic disorders.

Traditional Sources: Analyzed authoritative *Ayurvedic* scriptures such as *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hridaya*, and *Madhava Nidana* to explore the pathogenesis and management strategies of *Avarana*.

Modern Scientific Literature: Conducted a search across electronic databases including PubMed and Scopus using keywords like *Vata Avarana*, *Paraspar Avarana Srotorodha*, Metabolic disorders, diabetes mellitus, Hypertension, Hypothyroidism, Gout, IBS Fatty liver NAFLD, focusing on peer-reviewed articles from 1990 to 2024.

Data Analysis:

- Performed a conceptual analysis of *Avarana*, including its definitions, classifications, and pathophysiological mechanisms.
- Compared traditional *Ayurvedic* concepts with modern biomedical understandings.

Quality Assurance:

Adhered to SANARA guidelines to maintain methodological rigor and transparency.

This approach offers a cohesive understanding of *Avarana*, bridging ancient *Ayurvedic* principles with current scientific knowledge of metabolic disorders.

Discussion

In *Ayurveda*, *Avarana* is key to understanding the pathogenesis of many diseases. It refers to a situation where the normal function of a *Dosha* especially *Vata* is impeded by another *Dosha*, *Dhatu*, or *Mala*. This blockage disrupts essential physiological processes, ultimately leading to disease.

Such perspective allows for correlating the concept of *Avarana* with various pathological mechanisms observed in multiple metabolic condition. Metabolic disorders are growing global health concern, characterized by imbalances in biochemical processes that affect energy production, nutrient utilization, and waste elimination in this discussion, we will explore the *Ayurvedic* perspective on metabolic disorders and its connection to *Avarana*.

How impaired tissue metabolism and fat metabolism dysfunction lead to conditions like obesity and NAFLD. Integrative approaches combining *Ayurvedic* principles with modern interventions for better metabolic health.

Diabetes Mellitus:

- *Avarana* Mechanism: The blockage of *Vata* by *Kapha* interferes with *Vata's* physiological roles, particularly in maintaining fluid equilibrium and supporting metabolism.
- *Charaka's* Insight: *Vata* obstructed by *Kapha* leads to *Dhatu Gata Vata*e., *Vata* localized in tissues, causing instability in *Meda Dhatu* (adipose tissue) and *Mutra Vaha Strotas* (urinary system).

Pathophysiology

- Role of *Kapha*: due to sedentary lifestyle and *Guru-Snigdha* diet excess of *Kapha Dosha* → *Srotorodha* (channel blockage) → *Vata* cannot maintain fluid regulation and metabolism → Hyperglycemia.
- Dysfunction of *Vata* and clinical manifestation:

Symptoms in Ayurveda	Symptoms in modern	Correlation
Prabhuta Mutrata (excess urine).	Polyurea	Apana Vayu blocked by Kapha
Avila Mutra (turbid urine).	Glycosuria	Kapha obstructing Mutravaha Strotas.
Kshudha Adhikyam (excess hunger)	Polyphagia.	Samana Vata dysfunction due to Avarana.

Therapeutic Approach

To remove excess *Kapha*, therapies such as *Langhana* and *Rukshana* are recommended. Herbal remedies like *Musta, Guduchi*, and *Haridra* help reduce *Kapha* and eliminate. To restore the normal function of obstructed *Vata*, *Basti* is used to support *Apana Vata*, while *Tikta Kashaya* help clear the bodily channels.

Additionally, an active lifestyle with regular exercise aids in *Vata* regulation, and following a *Kapha*-reducing diet further supports balance and overall well-being.

Hypothyroidism

Core Mechanism: *Kapha Avarana* on *Udana Vata*

Udana Vata located in chest, governs speech, enthusiasm and metabolism gets obstructed by *Kapha* → Metabolic slowdown and thyroid dysfunction.

Sequence of *Avarana* in Hypothyroidism

1. Agni Mandya (Low metabolism) → *Ama* (toxins) formation → Aggravates *Kapha*.
2. Kapha Accumulation → Blocks *Udana Vata* in *Rasavaha*, *Medovaha Strotas.*

***Udana Vata* Dysfunction**

- Impaired production of thyroid hormones, indicated by a disproportion between TSH and thyroxine.
- Systemic symptoms (fatigue, cold intolerance, weight gain).
- Type of *Avarana*: ***Murta Avarana*:** A condition in which the solid and substantial nature of *Kapha* impedes the function of *Udana Vata*.

Disease pathway:

Factor	Role in Hypothyroidism
Dosha	Kapha and Vata
Dushya	Rasa and Meda Dhatu
Stotas	Rasavaha and Medovaha
Stoto Dushti	Sanga
Adhisthana	Sarvashareer

Gout

In pathogenesis of *Rakta-Avruta Vata*, *Rakta* becomes vitiated due to an improper diet & lifestyle, involving factors such excess intake of nonvegetarian , salty sour & pungent diet. Thickened blood obstructs *Vata*, particularly *Vyana Vata*, which governs circulation, leading to *Murta Avarana*. This condition correlates with hyperuricemia, where elevated uric acid forms urate crystals in joints, causing gouty inflammation. Enzyme defects like HGPRT deficiency impair purine metabolism, paralleling *Ayurvedic Agni Mandya*. The disease process begins with *Rakta Pradushana* from *Pitta*-provoking diet, followed by *Rakta Avruta Vata* & culminates in joint erosion as progression.

Factor	Role in Avarana	Biochemical correlation
Rakta: Hyperviscosity, microcirculatory blockage.	Creates obstruction in movement of Vata.	Hyperurecemia and impaired joint perfusion.
Ranjak Pitta: Purine metabolism failure in liver.	Elevated Pitta cause vitiation of Rakta Dhatu.	HGPRT enzyme defect cause purine metabolism failure and uric acid imbalance.
Vyana Vayu: Impaired synovial fluid dynamics.	Functions obstructed due to vitiated Rakta.	Sandhi Shotha which is urate crystal induced synovitis.

Essential Hypertension

Different *Ayurvedic* scholars offer varied perspectives on hypertension. On closer examination, the disease falls under the concept of *Avarana*, with its causes and symptoms closely resembling those of *Pittavrutta Pranvayu*.

Therefore, correlating Essential Hypertension with *Pittavrutta Pranvayu* simplifies its management.

Etiology of EHT

1. Excessive Salt (*Atilavan Rasa Sevan*)
- Causes water retention, increased blood volume, and resistance.
- Leads to *Pittadushti* and *Raktavriddhi*.

2. Excessive Alcohol (*Atimadyapan*)
- Weakens heart muscles, raises BP.
- Causes *Pitta* and *Vata* vitiation,

3. Stress (*Manovighaat*)
- Activates sympathetic system, increases BP.
- *Atichinta, Bhaya, Krodh* aggravate *Prana Vayu*.

4. Age (*Vaya*)
- Arterial stiffness from degeneration.
- *Vata Prakopa, Dhamani Kathinya* raise BP.

Pathogenesis - Vitiated *Pitta* obstructs *Prana Vayu,* impairing its functions:
- *Hridaya Dharan* (heart function)
- *Dhamani Poshan* (vascular regulation)

Results in:
- *Raktavriddhi* → Increased blood volume & cardiac output
- *Vatadushti* → vascular constriction
- Leads to increased peripheral resistance and cardiac output → Hypertension

Clinical Features

Pittavrutta Pranvayu Lakshana	Modern Symptoms
Bhrama	Giddiness
Daha	Burning Sensation
Ruja	Headache
Moorcha	Fainting
Vaman	Vomiting

Early stages may be asymptomatic. Later symptoms correlate with *Pittavrutta Pranavayu Avarana*. Other possible *Avarana*s linked with EHT are *Raktavrutta, Medasavrutta, Kaphavrutta*, and *Udanavrutta Vata.*

Nonalcoholic Fatty Liver Disorder

Correlation of NAFLD with the *Ayurvedic* concept of *Dooshivisha* and its pathogenesis through the lens of *Kapha Avarana*. Here's a breakdown of how *Avarana* drives NAFLD:

***Kapha Avarana* on *Dooshivisha*:** *Dooshivisha* which is cumulative toxins from incompatible food, preservatives, etc. enters the body but cannot be fully eliminated due to weak digestive and metabolic fire. *Kapha Dosha* envelops these toxins, rendering them latent but chronically disruptive. *Kapha*'s dulling properties suppress the toxins acute effects, but prolong their stay in *Dhatu*.

Pathogenesis

Stage 1: Impaired Digestion
- Incompatible diet and lifestyle → Weakens digestive fire.
- Undigested food combined with accumulated toxins becomes encapsulated by *Kapha*, leading to the formation of abnormal fat globules.

Stage 2: Impaired Tissue Metabolism
- *Kapha*'s *Avarana* specifically targets fat metabolism:
- *Medodhatvagnimandhya* leads to S*amamedas* formation: Faulty fat metabolism → fat globules accumulate in the liver.

Stage 3: Channel Obstruction
- Accumulation of *Samamedas* in the liver hampers the activity of *Ranjaka Pitta*, which governs key metabolic processes in the organ.
- *Avarana* of *Ranjaka Pitta* by *Kapha*-mediated fat → Liver dysfunction (steatohepatitis, fibrosis).

Symptoms

Kapha Avarana Signs:

- Lethargy, excessive sleep, fatigue - classic *Kapha* symptoms in NAFLD.
- Malaise/RUQ discomfort due to *Srotorodha* in

Pitta Avarana Signs:

- If Ranjaka *Pitta* is obstructed → Jaundice in advanced stages.

Treatment Implications

1. Remove *Kapha Avarana.*
2. Detoxify cumulative toxins.
3. Restore Medodhatwagni.

Irritable Bowel Syndrome

There is a strong *Ayurvedic* correlation between Irritable Bowel Syndrome and *Samana Avritta Apan,* a subtype of *Avarana*.

Pathophysiological Correlation

- IBS is characterized by altered GI motility, visceral hypersensitivity, & stress-induced exacerbation, mirroring *Vata Vikruti* in *Ayurveda*.
- *Samana Vayu* located near *Jathragni* governs digestion, absorption, and nutrient segregation. When vitiated, it obstructs *Apana Vayu*, leading to mutual obstruction.
- Vitiated *Samana Vayu*: Causes incomplete digestion, increased metabolites, and disrupts peristalsis.
- Obstructed *Apana Vayu*: Results in erratic bowel movements (diarrhea/constipation), bloating, and abdominal pain.

Clinical Presentation

Saman Avritta Apan Symptoms	IBS Symptoms
Grahani Roga	Malabsorption and altered bowel habit
Parshwashoola	Abdominal pain with Discomfort.
Amashyagata Vedana	Postprandial pain
Hrudshool	Heartburn, bloating, dyspepsia

Mechanism of *Avarana* in IBS

- *Samana Vayu* Aggravation: *Ruksha* and *Tikshna* qualities impair nutrient-waste separation, causing undigested food to stagnate.
- *Apana Vayu* Dysfunction: Obstruction leads to: IBS-C (Constipation): Due to reduced motility.

Conclusion

Avarana serves as vital yet often overlooked concept in *Ayurvedic* understand. of metabolic disorders. These conditions such as diabetes, hypertension, NAFLD, gout, and hypothyroidism often arise from the disruption of *Vata's* natural flow due to the influence of other *Dosha*s or *Dhatu*s. Identifying the specific obstructed *Dosha* and the obstructing factor is crucial for effective management, especially given the individualized nature of disease manifestation.

Each patient presents with unique causative factors, levels of *Dosha* aggravation, site of affliction, and interaction between *Dosha*s and body tissues, which influence the type and extent of *Avarana*.

By applying the concept of *Avarana* to the pathogenesis and treatment of metabolic disorders, *Ayurveda* offers a comprehensive, personalized framework that complements modern medicine. This integrative approach not only enhances diagnostic accuracy but also supports targeted, holistic interventions ultimately working toward *Roga Mukti* and improved patient outcomes.

References

1. Arathi, D. , Gopikrishna, S. , & Saranya, K. (2023). *Critical review on Avarana with contemporary understanding. AYUSHDHARA, 10(Suppl1), 7782. [Article][Crossref][PubMed][Google Scholar]*

2. Acharya Yadavji Trikamji. Susruta Samhita (Sutrasthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2019. p. *99 [Crossref][PubMed][Google Scholar]*

3. Bhishagacharya Harisastri Paradakara Vaidya. Ashtanga Hrudayam (Sutrasthana). Varanasi: Chaukhamba Orientalia; 2011. p. *9 [Crossref][PubMed][Google Scholar]*

4. Yadavji Trikamji Acharya. Charaka Samhita (Sutrasthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *114 [Crossref][PubMed][Google Scholar]*

5. Pandit Sarangadhara Acharya. Sarangadhara Samhitha (PrathAma Khanda). Varanasi: Chaukhamba Orientalia; Reprint 2012. p. *50 [Crossref][PubMed][Google Scholar]*

6. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *616 [Crossref][PubMed][Google Scholar]*

7. Bhishagacharya Harisastri Paradakara Vaidya. Ashtanga Hrudayam (Sutrasthana). Varanasi: Chaukhamba Orientalia; 2011. p. *193 [Crossref] [PubMed][Google Scholar]*

8. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *626 [Crossref][PubMed][Google Scholar]*

9. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *626 [Crossref][PubMed][Google Scholar]*

10. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *626 [Crossref][PubMed][Google Scholar]*

11. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *619 [Crossref][PubMed][Google Scholar]*

12. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *626 [Crossref][PubMed][Google Scholar]*

13. Yadavji Trikamji Acharya. Charaka Samhita (Vimana Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *249 [Crossref][PubMed][Google Scholar]*

14. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *626 [Crossref][PubMed][Google Scholar]*

15. Yadavji Trikamji Acharya. Charaka Samhita (Sutrasthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *79 [Crossref][PubMed][Google Scholar]*

16. Yadavji Trikamji Acharya. Charaka Samhita (Sutrasthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *174 [Crossref][PubMed][Google Scholar]*

17. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *617 [Crossref][PubMed][Google Scholar]*

18. Yadavji Trikamji Acharya. Charaka Samhita (Sutrasthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *113 [Crossref][PubMed][Google Scholar]*

19. Sri Madhavakara. Madhava Nidana. Varanasi: Chaukhamba Sanskrit Sansthan; 2012. p. *6 [Crossref][PubMed][Google Scholar]*

20. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *620 [Crossref][PubMed][Google Scholar]*

21. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 2021. p. *627 [Crossref][PubMed][Google Scholar]*

22. Guyton, A. C. , & Hall, J. E. *(2008). Textbook of Medical Physiology. Elsevier Saunders. p.185 [Crossref][PubMed][Google Scholar]*

23. Guyton, A. C. , & Hall, J. E. *(2008). Textbook of Medical Physiology. Elsevier Saunders. p.165 [Crossref][PubMed][Google Scholar]*

24. Picture courtesy. https://www. cvphysiology. com/Hemodynamics/H007. *[Crossref][PubMed] [Google Scholar]*

25. Guyton, A. C. , & Hall, J. E. *(2008). Textbook of Medical Physiology. Elsevier Saunders. p.281 [Crossref][PubMed][Google Scholar]*

26. Yadavji Trikamji Acharya. Charaka Samhita (Chikitsa Sthana). Varanasi: Chaukhamba Sanskrit Sansthan; 1994. p. *617 [Crossref][PubMed][Google Scholar]*

27. Eckel, R. H. , Grundy, S. M. *, & Zimmet, P. Z. (2005). The metabolic syndrome. The Lancet, 365(9468), 1415–1428. [Article][Crossref][PubMed] [Google Scholar]*

28. Alberti, K. G. M. M. *, Zimmet, P., & Shaw, J. (2006). Metabolic syndrome—a new world-wide definition. Diabetic Medicine, 23(5), 469–480. [Article][Crossref][PubMed][Google Scholar]*

29. Kahn, B. B. , & Flier, J. S. *(2000). Obesity and insulin resistance. The Journal of Clinical Investigation, 106(4), 473–481. [Article][Crossref] [PubMed][Google Scholar]*

30. Grundy, S. M. (2016). Metabolic syndrome update. *Trends in Cardiovascular Medicine, 26(4), 364–373. [Article][Crossref][PubMed][Google Scholar]*

31. DeFronzo, R. A. , & Ferrannini, E. (1991). *Insulin resistance: A multifaceted syndrome responsible for NIDDM, obesity, hypertension, dyslipidemia, and atherosclerotic cardiovascular disease. Diabetes Care, 14(3), 173–194. [Article] [Crossref][PubMed][Google Scholar]*

32. Krishnan, V. B. , & Prashanth, A. S. *(2018). Avarana and serum uric acid metabolism – A conceptual interpretation. Journal of Ayurveda and Integrated Medical Sciences, 4, 133–135. [Article] [Crossref][PubMed][Google Scholar]*

33. Sumayya, P. , & Vinod, D. S. (2021). *Conceptual and clinical aspects of Avarana: A review. International Journal of Research in Ayurveda and Pharmacy, 12(4), 112–116. [Article][Crossref] [PubMed][Google Scholar]*

34. Kalaskar, A. , Garge, K. , Chatufale, K. , & Shinde, D. *(n.d.). Study of correlation between Pittavruta Prana and acute gastritis. International Ayurvedic Medical Journal, 2488–2494 [Crossref] [PubMed][Google Scholar]*

35. Arjunrao, T. S. , Dharmadhikari, B. D. *, & Amale, D. J. (n.d.). Understanding of Avarana W.S.R. to Pittavrutta Pran in Essential Hypertension. International Ayurvedic Medical Journal, 2356–2359 [Crossref][PubMed][Google Scholar]*

36. Thakre, Y. J. , Deshmukh, A. M. *, & Amale, D. J. (n.d.). Correlation study of Samana Avritta Apan & Irritable Bowel Syndrome. International Ayurvedic Medical Journal, 2568–2571 [Crossref][PubMed] [Google Scholar]*

37. Babu, R. R. , & Jayakrishnan, P. G. *(2020). An Agadatantra perspective of non-alcoholic fatty liver disease – A critical review. Journal of Emerging Technologies and Innovative Research, 7(7), 404–407 [Crossref][PubMed][Google Scholar]*