



## Case Study

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## UNIQUE UNDERSTANDING AND APPROACH OF AYURVEDA IN METABOLIC SYNDROME: A CASE STUDY

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**ABSTRACT**

Metabolic syndrome is a rapidly emerging disease associated with a sedentary lifestyle and unhealthy dietary patterns. The key components of metabolic syndrome include Central Obesity, Elevated triglyceride levels, reduced High-density lipoprotein (HDL) levels, Hyperglycemia, and Hypertension. These abnormalities lead to a higher risk of Cardiovascular diseases and Diabetes mellitus. Over the past few decades, the prevalence of Metabolic syndrome has risen significantly in India as well as globally. In present case study, Sarvanaga Udwartana, Bashpa sweda, Shiro takradhara followed by Virechana and Shamanoushadhis like Cap Trimpil, Tab Arogyavardhini rasa, Tab Shilapravang, Asanadi Kashaya were given to a diagnosed patient of Obesity, Diabetes mellitus type II, Hypertension with Dyslipidemia i.e. Metabolic syndrome for around 20 days, along with dietary and lifestyle modification including regular physical activity were also suggested to the patient. Physical and laboratory parameters were evaluated prior to the initiation of therapy, during the course of treatment, and at the end of the 20 days period. Results - Significant improvement in objective parameters like Waist circumference (106 cm to 100 cm), body weight (89 kg to 84 kg), Blood pressure 178/102 mmHg to 138/88 mmHg, Body Mass Index (27.77 to 26.21 kg/m<sup>2</sup>) were reported. Significant reduction in FBS (138 to 121 mg/dL), PPBS (285.8 to 117 mg/dL) Serum cholesterol (239 to 163 mg/dL) and Serum triglycerides (992 to 174 mg/dL) were also found. This case study indicates the effectiveness of Ayurvedic medicines, in combination with lifestyle modifications, in the management of Metabolic syndrome.

**Keywords:** Metabolic syndrome, Virechana, Shilapravang, Asanadi Kashaya, Arogyavardhini rasa.**INTRODUCTION**

Metabolism is a vital physiological process through which the body produces energy and synthesizes essential components required for growth and development. It comprises both catabolic and anabolic reactions carried out through various metabolic pathways within the body. These processes also generate nitrogenous waste products, which are eliminated via the excretory system. Therefore, a well-regulated metabolic system is essential for maintaining cellular balance and overall health. Disturbances in metabolic functioning can lead to a variety of disorders, including obesity, diabetes mellitus, hypertension, and gastrointestinal diseases. Lifestyle factors play a significant role in maintaining healthy metabolism. Genetic susceptibility, sedentary lifestyle, and unhealthy dietary habits are common contributors to metabolic imbalance.<sup>1</sup>

Metabolic syndrome is one such disorder and is also referred to as syndrome X, insulin resistance syndrome, or dysmetabolic syndrome. Its prevalence has increased markedly over the past few decades. An analysis of data spanning nearly thirty years revealed a rising prevalence of metabolic syndrome among adults in the United States. Similarly, a study conducted in an underdeveloped urban area of eastern India reported age-standardized prevalence rates of 24.9% in males, 42.3% in females, and an overall prevalence of 33.5%. In the urban population of India, metabolic syndrome is more commonly observed in individuals aged 41–60 years, with obesity identified as the primary contributing factor in its development.<sup>2</sup> Owing to

its holistic approach, Ayurveda holds considerable potential in addressing rapidly increasing non-communicable lifestyle-related disorders such as metabolic syndrome. The risk of developing metabolic syndrome is strongly associated with factors such as obesity, advancing age, female sex, low fruit consumption, hypercholesterolemia, and middle-to-high socioeconomic status. The definition and diagnostic guidelines for metabolic syndrome have undergone multiple revisions over time. According to the most recent guidelines issued by the National Heart, Lung, and Blood Institute and the American Heart Association, a diagnosis of metabolic syndrome can be made when an individual presents with three or more of the specified criteria.

**Table 1: Components of Metabolic Syndrome**

Abdominal Obesity (Waist circumference)	WC > 40 inches in males WC > 35 inches in females
Triglycerides level (TG)	>150 mg/dL
HDL cholesterol	< 40 mg/dL in males < 50 mg/dL in females
Blood Pressure	Systolic blood pressure ≥ 130 mmHg Or Diastolic blood pressure ≥ 85 mmHg
Fasting glucose level	≥ 100 mg/dL

Individuals with metabolic syndrome have a significantly increased risk of developing type II diabetes, cardiovascular disease, and stroke. Reaven, in his 1988 Banting lecture, identified insulin resistance or hyperinsulinemia as the central mechanism underlying the development of hypertension and

hyperglycemia. A large, visible waistline is often the most noticeable feature of metabolic syndrome, while other clinical manifestations may be associated with elevated blood pressure or high blood glucose levels. The primary approach to managing metabolic syndrome aims to reduce the morbidity linked to coronary artery disease by controlling blood sugar, serum cholesterol, and blood pressure.<sup>3</sup>

**Ayurveda Perspective**

In Ayurveda, Agni is described as having a central role in the body, particularly in regulating all metabolic activities. Manda Agni (poor digestion/metabolism), primarily caused by vitiated Kapha dosha, is regarded as the root cause of most diseases.<sup>4</sup> Among the Sapta dhatus (seven bodily tissues), Meda Dhatu corresponds to fat or adipose tissue. Excess production and accumulation of Meda in the body is termed Medo-roga. Factors such as lack of physical activity, daytime sleeping, and excessive consumption of sweet, unctuous, or other Kapha-aggravating foods lead to Medovaha Srotodushti, resulting in an abnormal increase of Medo Dhatu. Ayurveda explains that excessive intake of sweets is converted into Sneha (fat), which causes deposition of Meda Dhatu in various parts of the body, particularly around the abdomen. Aberrantly elevated Meda Dhatu at the cellular level produces Abadha Meda, which serves as a substrate for the pathogenesis of Prameha, including Madhumeha (diabetes mellitus).<sup>5</sup> Since the etiological factors for Meda Dhatu Dushti and Kapha vitiation are almost identical, aggravated Kapha can give rise to Dhamani-pratichaya, and its association with vitiated Meda Dhatu may result in Vyana Bala Vaishamyia (hypertension).<sup>6</sup> Hypertension may develop as a chronic complication or comorbid condition of Obesity. Ultimately, these factors produce the complete picture of Medo-roga with Vyana Bala Vaishamyia, which closely parallels the concept of metabolic syndrome. Acharya Charaka has also mentioned Prameha and Atisthoulya, <sup>7</sup>along with other conditions arising from similar etiological factors, under Santarpanajanya Vyadhi (diseases caused by over-nutrition).<sup>8</sup>

**CASE STUDY**

A 50-year-old male patient presented to Kayachikitsa OPD Room number two at Sri Kalabyraweshwara Swamy Ayurvedic Medical College Hospital and Research Centre, with complaints of increased frequency of micturition, breathlessness while climbing one flight of stairs, excessive hunger, fatigue, dryness of mouth, excessive thirst, frontal headache, and disturbed sleep. He was apparently healthy six years earlier. During that time, he experienced significant stress due to a family dispute, following which he developed breathlessness and dizziness. He was taken to a nearby hospital by family members, where his vital signs and blood investigations revealed elevated blood pressure and increased blood sugar levels. He was treated with intravenous fluids and oral medications for diabetes and hypertension (details unknown) and was discharged after four days. The patient continued these medications for two years, along with dietary modifications. He also attended regular follow-ups once every three months. After two years of medication, within a span of four months, he began experiencing increased frequency of micturition (6–7 times during the day and 1–2 times at night) along with the feeling of heaviness in the body. He also reported lethargy and a tendency to lie down in the afternoon even after minimal work. Due to these complaints, he consulted his family physician and underwent blood investigations, which showed elevated blood sugar levels. Consequently, his medications were modified and a new treatment regimen (details unknown) was prescribed, which he continued for one year.

In 2021, the patient contracted COVID-19 and was hospitalized for one week. Following recovery, he was unable to adhere to dietary restrictions or engage in physical activity. He began experiencing excessive hunger, increased food intake, and fatigue. Upon consulting his family physician, he was advised to continue his medications and implement lifestyle modifications. He followed this advice and continued treatment for two more years. Additionally, he started consuming curry leaves and Methi (fenugreek) powder on alternate days in the early morning on an empty stomach for one year, along with brisk walking on a flat surface for 4 km daily during the early morning hours. In July 2022, he developed fatigue even with mild exertion, frontal headache, and numbness in both soles. He then visited a Diabetes Center (details unknown), where investigations revealed an HbA1c level of 8.3% along with elevated cholesterol levels. He was prescribed medications and advised regular follow-up. Later, in January 2024, he experienced a weight gain of 5 kg within two months, exertional dyspnoea, along with burning sensations in both palms and soles, fatigue, increased craving for sweets, and dryness of mouth. For these complaints, he visited a nearby hospital where blood investigations showed elevated blood sugar levels with an HbA1c of 7.0%, deficiency of vitamin B12 and vitamin D, and increased cholesterol levels. So for the above complaints he visited OPD for further management.

**Nidana**

**Aharaja** Guru snigdha Madhura ahara, Madhya  
**Viharaja** Sukha shayasana, Avyayama  
**Manasika** Krodha, chinta

Figure No. 1 Samprapti of Metabolic Syndrome  
 Nidana (Santarpanaja Ahara, Avyayama, Manasika Nidana – Chinta, Shoka, Bhaya),



**Table 2: Clinical and Laboratory findings of the patient**

Relevant clinical findings of the present case are as follows		
1.	Height	179cm
2.	Weight	89kg
3.	Blood pressure	178/102mmhg
4.	Abdominal girth	106 cm
5.	Addiction	Alcohol (weekly once)
6.	Diet	Mixed
7.	Appetite	Good
8.	Sleep	Sound
9.	Body Mass Index	27.77
II. Laboratory investigations		
1.	Fasting Blood sugar(FBS)	138 mg/dl
2.	Post prandial sugar(PPBS)	285 mg/dl
3.	LDL	100 mg /dl
4.	HDL	32.7 mg/dl
5.	Total cholesterol	239 mg/dl
6.	Serum Triglycerides	992 mg/dl
7.	HbA1c	7.0%

**Table 3: Atura Pariksha**

Nadi (pulse)	Kapha pradhana Pulse rate- 102 bpm
Mutra (Urine frequency)	Diurnal- 6-7 times/ day Nocturnal- 0-1 times/ night
Mala (Bowel habits)	Once/ day
Jihva (Tongue)	Sa ama (coated)
Shabda ( Speech)	Clear
Sparsha (Touch)	Warm
Drik (Eyes)	Blurred vision
Aakruti (Built)	Sthula (Over weight)
Prakriti (Constitution)	Kapha pradhana pitta
Agni (Digestion)	Abhyavarana- Normal Jarana- poor
Vyayama shakti (Endurance)	Madhyama (moderate)
Satmya (Adaptability)	Madhyama
Satva (mental Strength)	Madhyama

**Systemic examination**

Respiratory system: B/L NVBS heard  
 Cardio vascular system: S1, S2 heard  
 Per Abdomen: Soft and non-tender, Bowel sounds heard  
 Central nervous system: Conscious and well oriented to time, place and person

The patient was diagnosed as a case of Medoroga associated with Vyanabala vaishmya and treatment was planned accordingly. Patient was advised to continue his allopathic oral Hypoglycemic (Tab Glimepiride, Metformin Hydrochloride and Pioglitazone) and anti-hypertensive (Tab Telmisartan, Amlodipine and Hydrochlorothiazide) along with the Ayurveda medications for a period of 20 days. He was also advised about the dietary modifications like reduction in intake of saturated fats, refined carbohydrates, sweetened beverages, munching/ snacking in between major meals, intake of low fat dietary items like tone milk, avoidance to salted and processed food items, increased intake of green leafy vegetables and fruits and rich fibre diet, quitting alcohol, performing regular 45 mins of exercise and about 03-05kms of brisk walk( at least 05 days/week). He was also advised for follow up for every 15 days.

**Table 4: Details of Panchakarma treatment given**

Phase I:	Sarvanga Udwartana with Triphala+ Yava+ Kolakullatadi churna F/b Shiro takradhara with Musta+Amalaki+ Jatamansi churna F/b Bashpa sweda	7 days	*Heaviness of body reduced by 30 % *Fatigue and headache in frontal region reduced by 40% *Exertional dyspnoea reduced by 40% *disturbed sleep by 50% improved *Excessive thirst reduced by 30%
Phase II:	Snehapana with Guggulu tikta gritha+ Sukumara gritha based on agni and koshta Day1- Dose 30ml Day2- Dose- 70ml Day 3- Dose 120ml Day 4- Dose 160 ml Vishrama kala - Sarvanga abhyanga with Asanadi taila F/b Bashpa sweda Virechana with Trivrut Avaleha- 70 gm and Triphala kashaya 100 ml was given	4 days  3 days 1 day	*Patient was feeling lightness in the body *Fatigue and headache in frontal region reduced by 90 %. *Exertional dyspnoea reduced by 90% *Cravings reduced completely *Disturbed sleep improved by 80% *Dryness of mouth reduced by 80% *Excessive thirst reduced by 80%
Phase III	Samsarjana krama- Madhyama Shuddhi	5 days	

**Table 5: Details of oral medications given**

Name of the medicines	Dose	Route	Kala	Anupana
Cap Trimpil	1-0-1	Oral	Adhobhakta (after meals), twice daily	Ushna jala
Tab Arogyavardhini Rasa	2-0-2	Oral	Adhobhakta (after meals), twice daily	Ushna jala
Tab Shilapravang	0-1-0	Oral	Adhobhakta (after meals), twice daily	Ushna jala
Asanadi kashaya	20ml-0-20ml with 40ml of warm water	Oral	Adhobhakta (after meals), twice daily	Ushna jala

**Table 6: Observation and Results**

Before Treatment	After Treatment
FBS- 134 mg/dl	FBS- 121 mg/dl
PPBS- 285.8 mg/dl	PPBS- 117 mg/dl
Total cholesterol- 239 mg/dl	Total cholesterol- 163 mg/dl
Triglycerides- 992 mg/dl	Triglycerides- 174 mg/dl
HDL- 32.7 mg/dl	HDL- 33 mg/dl
Non HDL- 206 mg/dl	Non HDL- 130 mg/dl
HbA1c- 7.0%	HbA1c- 6.5%
Weight- 89 kg	Weight- 84 kg
BMI- 27.77 kg/m <sup>2</sup>	BMI- 26.21 kg/m <sup>2</sup>
Blood pressure- 178/102 mmhg	Blood pressure- 138/88 mmhg



Image 1



Image 2

Before treatment

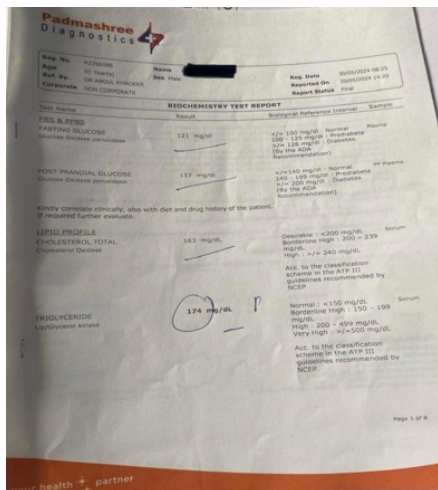


Image 3

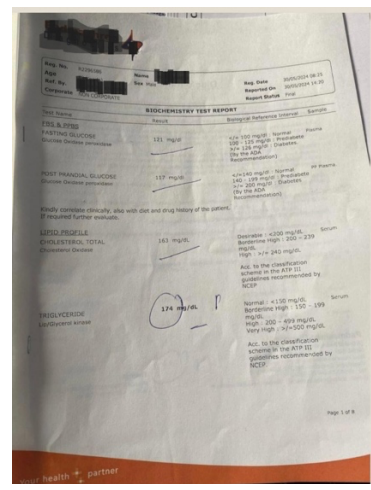


Image 4

After treatment

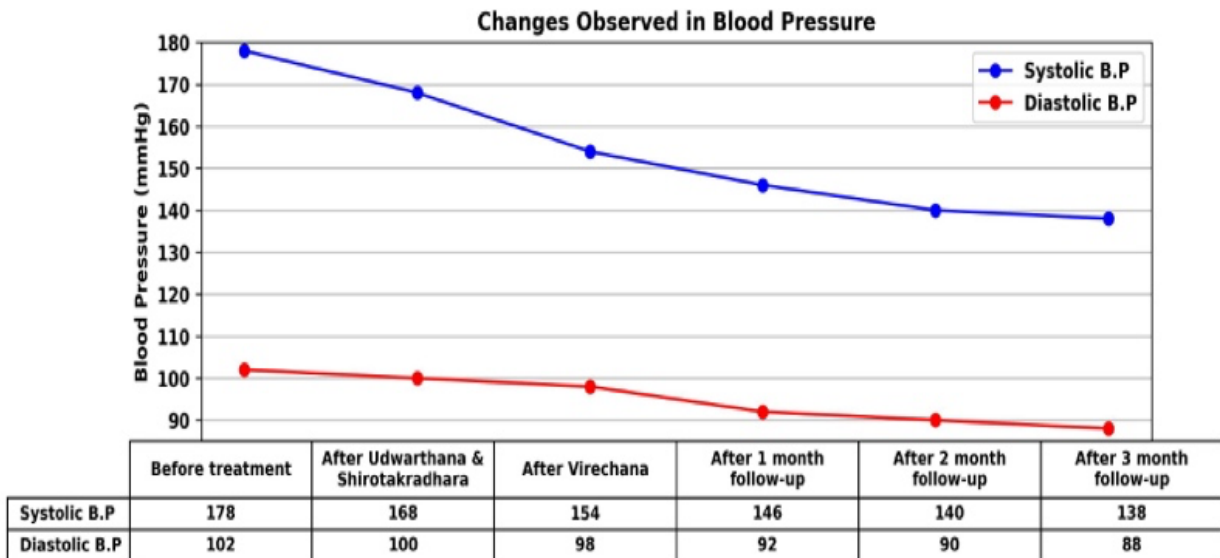


Image 5: Changes observed in Blood pressure

Table 7: Anthropometric measurements

Anthropometric measurements	Before treatment	After treatment
Right mid arm	32 cm	30 cm
Left mid arm	32 cm	30 cm
Chest	101 cm	98 cm
Abdomen	106 cm	98 cm
Hip	100 cm	95 cm
Right mid thigh	46 cm	45 cm
Left mid thigh	45 cm	45 cm

## DISCUSSION

Metabolic syndrome presents with features of multiple disorders, yet its core pathology lies in Meda dhatu dushti. The excessive accumulation of Meda dhatu leads to obstruction of the srotas (body channels), resulting in conditions such as Medoroga, Madhumeha, and Vyanabala vaishmya. Vyanabala vaishmya (essential hypertension) may at times develop due to upachaya within the blood vessels, which narrows the lumen of the channels and produces sankocha (constriction). Acharya Chakrapani, in his commentary on the Charaka Samhita, emphasizes that the management of Sthoulya should be specifically directed toward the depletion of Meda dhatu. Accordingly, the present case study aimed to manage the condition by eliminating causative factors such as improper dietary habits and a sedentary lifestyle, thereby enhancing the state of Agni and promoting the reduction of Meda dhatu.<sup>9</sup>

### Probable mode of action of Shirotakradhara

Takradhara acts by influencing neuroendocrine functions by stimulating the pituitary and pineal glands. It helps regulate hormones, relieve stress, and alleviate depression by enhancing dopamine and serotonin activity. By stimulating the Sthapani Marma between the eyebrows, it can reduce hypertension through baroreceptor reflexes, thereby relieving symptoms such as headache and anxiety. The therapy penetrates through sebaceous glands into deeper tissues, promoting vasodilation, hormonal balance, mental clarity, and pacification of aggravated Pitta Dosh through its cooling effect, especially in stress-related conditions.<sup>10</sup>

### Probable mode of action of Udwartana

Obesity involves excessive fat accumulation that obstructs body channels, thicker subcutaneous fat reduces blood flow per unit weight, mobilizing this fat requires increased circulation, which can be locally enhanced by Udwartana through constant rubbing with ruksha and kapha-meda vilayana dravyas. This process stimulates beta-3 receptors in subcutaneous adipose tissue, promoting triglyceride breakdown into fatty acids. Since insulin resistance is closely linked to obesity and adipose deposition, regular Udwartana helps reduce insulin resistance. In metabolic syndrome, dyslipidemia marked by high triglycerides and low HDL, Udwartana reduces tissue fat and serum lipids, increases HDL, and enhances lipolytic enzyme activity. Hypertension in metabolic syndrome arises from reduced insulin-mediated vasodilation and increased vasoconstriction due to excess free fatty acids; during Udwartana, constant rubbing causes cutaneous vasodilation, raises local temperature, improves systemic circulation, facilitates transport of free fatty acids to the liver, and thereby helps counter their adverse effects.<sup>11</sup>

### Probable mode of action of Virechana

Metabolic syndrome can be correlated with Santarpanjanya Vikaras described in *Ayurveda*, which arise from overnutrition and impaired tissue metabolism. Its key feature, Central obesity, aligns with Medovrudhi. Virechana Karma is considered the

primary therapy for conditions involving Bahudosh Avastha and Santarpanjanya Vyadhi, especially when Meda Dhatu and Pitta Dosh are predominant. According to Ayurvedic principles, Virechana helps improve lipid metabolism by reducing intestinal cholesterol absorption and positively influencing serum lipid profiles—lowering total cholesterol, LDL, VLDL, and triglycerides, while potentially increasing HDL. During Snehapana, lipid-rich substances promote the conversion of cholesterol into bile acids. The presence of fats in the duodenum triggers cholecystinin release, stimulating bile secretion, a process further enhanced by Virechana. It also restores Agni and optimizes hepatic function, leading to better metabolic balance. By regulating liver function, Virechana controls cholesterol synthesis and increases its excretion through bile. Excess lipids and metabolic waste are mobilized from peripheral tissues to the gastrointestinal tract for elimination, even without dietary fat intake. This highlights the importance of Purvakarma in shifting morbid Doshas from Shakha to Kostha for complete elimination. Overall, Virechana Karma supports improved liver function, reduced cholesterol absorption, and favorable modulation of lipid profiles.<sup>12</sup>

Table 8: Probable mode of action

Musta churna	Ruksha guna, lekhana, deepana pachana, kapha pittahara
Amalaki churna	Tridosahara, rasayana
Jatamansi churna	Tridosahara
Triphala churna	Tridosahara
Yava churna	Lekhana
Kolakulattadi churna	Medohara
Sukumara gritha	Ushna veerya, vatapittahara, rasayana
Guggulu tikta gritha	Lekhana, upashoshana of kleda and meda
Asanadi taila	Medo dosha nirharana
Trivrut avaleha	Ushna veerya, ruksha guna, kapha pitta nashaka

### Probable mode of action of Vrikshamla and other Ingredients

Main ingredient Garcinia Cambogia (Vrikshamla) consists of HCA which works mainly by inhibiting ATP-citrate lyase, an enzyme involved in producing fatty acids, cholesterol, and triglycerides. This inhibition may help improve features of metabolic syndrome by supporting weight loss, reducing body and visceral fat, improving cholesterol and triglyceride levels (with possible increases in HDL), enhancing glucose metabolism and insulin sensitivity, and lowering inflammation markers such as TNF- $\alpha$ . Guggulu having ruksha guna, ushna veerya tridosahara and lekhana property improves HDL, LDL, and triglycerides. Musta having ruksha guna, deepana pachana and lekhana property supports digestion and glucose-lipid metabolism. Pippali has teekshna guna, ushna veerya deepana properties due to which it supports metabolic health by improving glucose metabolism and insulin sensitivity, lowering cholesterol and triglycerides, enhancing nutrient and drug absorption through piperine, promoting fat metabolism for weight management, and reducing oxidative stress due to its antioxidant

properties. Shunti has teekhsna guna, ushna veerya, deepana property and supports metabolic health by improving insulin sensitivity and secretion, enhancing glucose uptake via GLUT-4, inhibiting carbohydrate-digesting enzymes, for better glucose metabolism. It regulates lipid metabolism by lowering cholesterol and triglycerides, reducing fat formation, and promoting fat breakdown.

#### Probable mode of action of Asanadi Kashaya

Asanadi Kashaya shows significant antidiabetic activity along with hypolipidemic and antioxidant effects, with fewer side effects than oral hypoglycemic agents. Its action is due to bioactive constituents such as polyphenols, flavonoids, alkaloids, terpenoids, and glycosides, which reduce blood glucose levels. It acts by stimulating pancreatic  $\beta$ -cells, enhancing insulin secretion and sensitivity, and exhibiting insulin-like activity. It also improves glucose homeostasis by increasing peripheral glucose utilization, promoting hepatic glycogen synthesis, reducing glycogenolysis, and inhibiting intestinal glucose absorption. These combined mechanisms help reduce diabetic complications, though further clinical evaluation is required.<sup>13</sup>

#### Probable mode of action of Shilajatu and other Ingredients

Shilapravang consists of Shilajatu as one of the major ingredient which works through its Medodhata, Mehahara, Chedana and Rasayana action to correct Medodhata imbalance and cleanse the Medovaha srotas, thereby targeting early diabetic pathology related to excess fat and insulin resistance. By lowering lipid accumulation and Obesity, while its Madhura tikta rasa soothes aggravated *pitta* and promotes Rakta prasadana, alleviating burning sensation. Furthermore, as a Rasayana useful in Avruta vata, Shilajatu helps clear *pitta* obstruction and restore normal vata function. Guduchi exerts anti-hyperglycaemic, hypolipidemic, antioxidant and anti-inflammatory effects. Gokshura supports blood sugar and lipid regulation and reduces oxidative stress. Vanga bhasma, Pravala pishti, Mouktika pishti, Suvarnamakshika bhasma, Vamshalochana and Elaichi enhance digestion, nutrient absorption and metabolic balance.

#### Probable mode of action of Arogyavardhini rasa

Arogyavardhini Rasa balances the tridosha in the body. Haritaki has ruksha guna, ushna veerya, Anulomana, Rasayana, and Lekhana properties, along with hypoglycemic activity; Vibhitaki possesses Kapha-Pitta balancing effects; Amalaki acts as a Rasayana and Vayasthapana, with antioxidant, hypoglycemic, hypotensive, and immunomodulatory properties. Abhraka Bhasma and Tamra Bhasma provide significant antioxidant effects. Parada and Gandhaka, with Ushna veerya and Katu rasa, stimulate Jatharagni and Dhatwagni, enhancing digestion and tissue metabolism. Shuddha Shilajathu rejuvenates vitality and offers strong antioxidant activity, delaying aging. Guggulu helps remove excess fats and regulate cholesterol, while Chitra supports digestive health, appetite, liver function, and relieves disorders such as indigestion, piles, worms, colitis, and liver issues. Arogyavardhini Rasa absorbs excess Snigdha substances, digests Drava and Kleda, promotes Raktavardhana, and reduces Dravatva and Snigdhatva in Meda dhatu.<sup>14</sup>

During this case study, the patient lost 5 kg of body weight without experiencing any physical illness or drowsiness. A significant reduction in waist circumference of up to 6 cm was also observed. Body Mass Index (BMI), an important assessment parameter for obesity, was 27.77 kg/m<sup>2</sup> in the present case study, indicating an overweight status as per the World Health Organization (W.H.O) International Classification of adult underweight, overweight, and obesity. The BMI was reduced to 26.21 kg/m<sup>2</sup>.

Blood pressure was elevated prior to treatment and was therefore monitored daily throughout the entire treatment course. A gradual reduction in blood pressure was noted, decreasing from 178/102 mmHg to 138/88 mmHg. Since the blood pressure was significantly high on the first day, daily monitoring was continued for the full duration of treatment. During the follow-up period, blood pressure remained well controlled, ranging between 134–139/84–88 mmHg.

Fasting Blood Sugar (FBS) levels showed a significant reduction from 138 mg/dl to 121 mg/dl, while Post-Prandial Blood Sugar (PPBS) levels decreased from 285.8 mg/dl to 117 mg/dl. Glycosylated haemoglobin (HbA1c), a key marker for assessing long-term glycemic control in diabetic patients, was reduced from 7.0% to 6.5% after three months of follow-up, clearly indicating improved diabetic control.

Marked improvements were also observed in the lipid profile, with total cholesterol decreasing from 239 mg/dl to 163 mg/dl, serum triglycerides from 992 mg/dl to 174 mg/dl, HDL from 32.7 mg/dl to 33 mg/dl, and Non-HDL cholesterol from 206 mg/dl to 130 mg/dl. According to the definition of metabolic syndrome, all five components were present in this case study, and significant improvements were achieved in all five parameters.

Table 9: Pathya and Apathya

<b>Pathya ahara-</b> Yava, Chanaka, Kulattha, Mudga, Takra, Shasthika shali, Jangala mamsa rasa, Shigru, Karavellaka, Methika, patola	<b>Apathya ahara-</b> Nava dhanya, Masha, Shaali, Payasya, Mandaka dadhi, Gramya and Anupa mamsa, Aluka
<b>Pathya vihara-</b> Vyayama, Chankaramana, Pranayama and Asanas	<b>Apathya vihara-</b> Asyasukha, Swapnasukha, Madhyapana, Avyayama, Rathri jagarana, Diwaswapna

## CONCLUSION

This case study demonstrates that a combination of Ayurvedic therapies, including Panchakarma (Sarvanga Udwartana, Bashpa Sweda, Shiro takradhara, Snehapana, and Virechana) and oral formulations (Cap Trimpil, Asanadi Kashaya, Arogyavardhini Rasa, and Shilapravang), alongside lifestyle and dietary modifications, can effectively manage Metabolic syndrome. Over a 20-day period, significant improvements were observed in anthropometric parameters (body weight, BMI, waist circumference, mid-arm and thigh circumferences) and clinical markers (blood pressure, FBS, PPBS, total cholesterol, LDL, HDL, and triglycerides). The interventions likely acted by correcting impaired Agni, balancing Doshas, improving Meda Dhatu metabolism, and enhancing hepatic and peripheral glucose-lipid metabolism. This case highlights the holistic potential of Ayurveda in managing lifestyle-related metabolic disorders when integrated with proper diet, exercise, and modern medical supervision.

#### Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for the reports and other clinical information to be reported in the journal.

#### Ethical consideration

The study is carried out as per International conference of Harmonization- Good Clinical Practices Guidelines (ICH-GCP) or as per ICMR National Ethical Guidelines for Biomedical and Health Research involving Human participants.

## REFERENCES

1. John S, Unnikrishnan S & Jayan A. Ayurvedic insights into metabolic syndrome: Harnessing ancient wisdom for holistic health. *Journal of Ayurveda and Integrative Medical Sciences*, 2025;10(8): 138–143.
2. Kasper DL, Fauci AS, Hauser SL, Longo DL, Jameson JL & Loscalzo J. (Eds.). (2015). The metabolic syndrome (p. 2449). In *Harrison's principles of internal medicine* (19th ed., Vol. 2). McGraw-Hill Education.
3. Kasper DL, Fauci AS, Hauser SL, Longo DL, Jameson JL & Loscalzo J. (Eds.). (2015). The metabolic syndrome (p. 2450). In *Harrison's principles of internal medicine* (19th ed., Vol. 2). McGraw-Hill Education.
4. Patil SH. Role of Ayurveda in metabolic syndrome with special reference to Medo Pradushaja Vyadhi: A review article. *International Journal of Scientific Research*, 2021;10(6):30
5. Agnivesha. *Charaka Samhita* (Chakrapanidutta, Comm.; Revised ed., Nidana Sthana, Ch. 4, v. 7, p. 212). Chaukhamba Surbharati Prakashan. 2011.
6. Agnivesha. *Charaka Samhita* (Chakrapanidutta, Comm.; Revised ed., Sutra Sthana, Ch. 20, v. 17, p. 115). Chaukhamba Surbharati Prakashan. 2011.
7. Babu VV & Deepa MS. Metabolic syndrome: An Ayurvedic perspective. *International Journal of Ayurveda and Pharmaceutical Research*, 2022;10(9): 64–69.
8. Sharma RK & Dash B. *Agnivesa Caraka Samhita* (Reprint ed., Vol. 1, p. 395). Chaukhamba Sanskrit Series Office. 2020.
9. Agnivesha. *Charaka Samhita* (Chakrapanidutta, Comm.; Revised ed., Sutra Sthana, Ch. 21, v. 20, p. 117). Chaukhamba Surbharati Prakashan. 2011.
10. Devraja TL. *Keraliya Panchakarma Chikitsa Vigyanam* (Ch. 1, vv. 5–6, p. 2). Chaukhamba Bharati Academy. 2013.
11. Mishra S & Kumar M. Role of Udvartana in prevention and management of metabolic syndrome: A review. *International Journal of Health Sciences Research*, 2024;14(8): 388–393.
12. Agarwal S, Srivastava A, Sharma KK & Anand N. A case study on the role of Virechana karma as a conservative management in metabolic syndrome (Santarpana janya vyadhi). *Journal of Ayurveda and Integrative Medical Sciences*, 2025;10(2): 373–377.
13. Vagbhata. *Ashtanga Hridaya* (H. S. Paradakara, Ed.; Arunadatta & Hemadri, Comms.; Sutrasthana, Ch. 15, vv. 19–20, p. 236). Chaukhamba Orientalia. 2023.
14. Gopala. *Rasendrasārasangraha* (I. Tripathi, Ed.; Jvararogadhikara, vv. 13–105). Chaukhamba Orientalia. 2015.

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