

Ayurvedic Management of Metabolic Syndrome: A Case Report

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ABSTRACT:

Metabolic syndrome (MS) is a multifactorial disorder characterized by insulin resistance, central obesity, hypertension, and dyslipidaemia. In Ayurveda, it closely resembles *Santarpanajanya Vikaras*, including *Sthaulya*, *Medoroga*, *Prameha*, and *Hrdroga*. This case report describes the Ayurvedic management of a 52-year-old female with obesity, type 2 diabetes mellitus (T2DM), and dyslipidaemia who presented with generalized body ache, exertional dyspnoea, bilateral knee pain, and a 45 kg weight gain over 10 years following hysterectomy, compounded by unhealthy dietary habits and a sedentary lifestyle. The patient underwent a 45-day Ayurvedic treatment protocol comprising *Phalatrikadi Kvatha* (40 mL twice daily), *Triphala Guggulu* (250 mg, three tablets thrice daily), *Udvartana* with *Kolakulattadi Churna*, *Sarvanga Abhyanga* with *Triphala Taila* followed by *Bashpa Swedana*, and *Lekhana Basti* for 15 days using *Triphala Kwatha*, *Triphala Taila*, *Tila Taila*, *Gomutra Arka*, and *Ushakadi Gana Dravya*, along with *Pathya-Apathya*. Following treatment, body weight decreased by 7 kg, with BMI reducing from 40.32 to 37.5 kg/m². Significant reductions were observed in waist, hip, chest, mid-arm, and mid-thigh circumferences, while improvements were noted in serum total cholesterol (237–163 mg/dL), triglycerides (184–150 mg/dL), LDL cholesterol (163.86–122 mg/dL), and fasting blood glucose (165–100 mg/dL). These improvements were sustained during follow-up. This case suggests that classical Ayurvedic interventions, particularly *Lekhana Basti*, *Udvartana*, and *Shamana Chikitsa*, may offer a safe, holistic, and sustainable approach for managing obesity and metabolic syndrome. This case highlights the potential of classical Ayurvedic therapies, including *Lekhana Basti*, *Udvartana*, and *Shamana Chikitsa*, as safe and holistic approaches for managing *Sthaulya* (obesity).

KEYWORDS: Ayurveda, *Lekhana Basti*, Lifestyle modification, Metabolic Syndrome, *Udvartana*.

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INTRODUCTION:

Metabolic syndrome (MS) is a multifactorial cardiometabolic disorder characterized by central obesity, dyslipidaemia, hypertension, and insulin resistance. It is a major public health concern because of its strong association with cardiovascular disease, stroke, and type 2 diabetes mellitus.^[1] According to the American Heart Association/National Heart, Lung, and Blood Institute (AHA/NHLBI) criteria, MS is diagnosed when any three of the following are present: abdominal obesity (waist circumference >102 cm in men or >88 cm in women), elevated triglycerides (≥ 150 mg/dL), reduced high-density lipoprotein (HDL) cholesterol (<40 mg/dL in men or <50 mg/dL in women), elevated blood pressure ($\geq 130/85$ mmHg), and elevated fasting plasma glucose (≥ 100 mg/dL).^[2] Globally, MS affects approximately one-third of adults, with a pooled prevalence of 32%, and its prevalence continues to rise owing to sedentary lifestyles, unhealthy dietary habits, and increasing obesity, particularly among older adults.^[3] Although MS is not described as a distinct disease entity in Ayurveda, its pathogenesis closely resembles *Santarpanottha Vikara* (disorders due to overnutrition), *Sthaulya* (obesity), *Medoroga* (disorder of adipose tissue/fat metabolism), *Prameha* (metabolic disorders including diabetes), and *Vyadhi Sankara* (coexistence of multiple diseases). Excessive intake of *Guru* (heavy), *Snigdha* (unctuous), and *Madhura Ahara* (sweet foods), along with *Avyayama* (physical inactivity), *Divaswapna*

(daytime sleep), and psychological stress, causes *Agnimandya* (impaired digestive and metabolic fire), leading to *Ama* (metabolic toxins), *Kapha Dosha* vitiation, *Meda Dhatu* (adipose tissue) derangement, and *Srotorodha* (obstruction of body channels), resulting in metabolic dysfunction comparable to MS. The concept of *Vyadhi Sankara*,^[4] described by Acharya Charaka, explains the coexistence of multiple metabolic disorders arising from a common etiopathogenesis. Accordingly, Ayurvedic management aims at *Samprapti Vighatana* (breaking the pathogenesis) through restoration of *Agni* (digestive and metabolic fire), elimination of *Ama*, correction of *Kapha-Meda Dushti* (vitiation of Kapha and adipose tissue), *Srotoshodhana* (channel purification), and individualized *Ahara* (diet), *Vihara* (lifestyle), and *Aushadha* (medication).^[5] The present case report describes the Ayurvedic management of a patient with MS following an inadequate response to conventional treatment, resulting in sustained improvements in anthropometric, metabolic, and biochemical parameters.

CASE REPORT:

A 52-year-old Hindu female presented to the outpatient department on March 25, 2025 (ID No. PG23025983) with progressive weight gain, generalized body ache, exertional dyspnoea, and bilateral knee pain for 10 years. She was a known case of type 2 diabetes mellitus and dyslipidaemia for the past two years. The patient had undergone a hysterectomy 10 years earlier, after which she experienced gradual weight

gain. Unhealthy dietary habits and a sedentary lifestyle contributed to a total weight gain of approximately 45 kg over the preceding decade. She also had a positive maternal family history of obesity. Despite treatment with antidiabetic, lipid-lowering, and analgesic medications, she experienced only temporary symptomatic relief without significant improvement. ... She subsequently sought Ayurvedic management at our institute and was admitted for treatment.

Clinical Findings

On examination, the patient was conscious, oriented, calm, and cooperative. Her blood pressure was 138/94 mmHg, pulse rate was 84 beats/min, and BMI was 40.32 kg/m². Laboratory investigations showed a fasting blood sugar of 165 mg/dL, total cholesterol of 237 mg/dL, triglycerides of 184 mg/dL, and LDL cholesterol of 163.86 mg/dL. Her medical history included type 2 diabetes mellitus and dyslipidaemia, while her surgical history was significant for two lower segment caesarean sections and a hysterectomy. On *Ashtavidha Pariksha* (eightfold examination), the patient had a *Pitta-Kaphaja Nadi* (pulse). *Mutra* (urination) was 5–6 times/day, *Mala* (bowel habits) was once daily with satisfactory evacuation, and *Jihva* (tongue) was *Sama* (coated). *Shabda* (speech), *Sparsha* (touch), and *Drik* (vision) were *Prakrita* (normal). *Akriti* (body build) was *Sthula* (obese). *Dashavidha Pariksha* was carried out for comprehensive assessment. The patient was found to have a *Kapha-Pitta Prakriti* (physical constitution). *Sara* was (excellence of

tissue elements) was *Med sara*, *Samhanana* (compactness) was *Avara* (poor) while *Pramana* (body measurement) was *Pravara* (excellent). *Satmya* was *Madhyama* (moderate), with adaptation primarily to *Madhura Rasa* and generally to all *Rasas*. *Satwa* (mental strength) was *Madhyama* (moderate). *Aharashakti* (capacity for food intake and digestion) was *Pavara* (excellent), whereas *Vyayama Shakti* (capacity for physical activity) was *Avara* (poor) The patient's *Vaya* (age category) corresponded to *Madhya* (middle age).

Timeline

The chronological timeline of the case is presented in Table 1.

Diagnostic Assessment

The patient was diagnosed with metabolic syndrome according to the American Heart Association/National Heart, Lung, and Blood Institute (AHA/NHLBI) criteria, fulfilling four of the five diagnostic components: elevated fasting blood glucose (165 mg/dL), serum triglycerides (184 mg/dL), blood pressure (138/94 mmHg), and central obesity (waist circumference 110 cm). Anthropometric assessment showed a body weight of 102 kg, height of 159 cm, and BMI of 40.32 kg/m², consistent with Class III (morbid) obesity. Based on these clinical, biochemical, and anthropometric findings, a diagnosis of metabolic syndrome with Class III (morbid) obesity was established.

THERAPEUTIC INTERVENTIONS:

During the inpatient department (IPD) stay, the patient was administered

Phalatrikadi Kvatha at a dose of 40 mL twice daily before breakfast and dinner, and *Triphala Guggulu* 250 mg tablets, three tablets thrice daily after breakfast, lunch and dinner with lukewarm water. External therapies included *Udvartana* (therapeutic dry powder massage) using *Kolakulaththadi Churna* and *Sarvanga Abhyanga* (whole-body therapeutic oil massage) with *Triphala Taila*, followed by *Sarvanga Bashpa Swedana* (whole-body steam sudation therapy), which were continued for 45 days. *Lekhana Basti* (fat-reducing medicated enema therapy) was administered for 15 days, commencing on the fifth day of treatment, wherein *Niruha Basti* (decoction-based enema) and *Anuvasana Basti* (oil-based enema) were given alternately. The detailed description of the Ayurvedic procedures employed in this case is provided in Table 2.

Lifestyle and Dietary Advice

The patient was advised to consume old and red varieties of rice, barley, chickpea, and horse gram, and to take meals only after complete digestion of the previous meal (*Jirna Ahara*). She was also advised to include ginger-infused water, lukewarm water, *Takra* (buttermilk), and honey in appropriate

quantities as part of her dietary regimen.^[6] She was instructed to avoid curd, sweets, deep-fried foods such as puri, samosa, kachori, and other fried snacks, paneer, cheese, cream, butter, processed foods, freshly harvested rice, unboiled milk, and alcohol. She was also advised to avoid daytime sleeping and a sedentary lifestyle. Regular brisk walking for 30 minutes daily and *Suryanamaskara* for approximately 10–20 minutes once daily, preferably in the morning on an empty stomach, were recommended throughout the treatment and follow-up period.

Follow up and Outcome

Following treatment, the patient showed significant anthropometric improvement, with body weight decreasing from 102 kg to 95 kg and BMI from 40.32 to 37.5 kg/m², along with reductions in waist and other body circumferences (Table 3). Biochemical parameters, including fasting blood sugar, total cholesterol, triglycerides, and LDL cholesterol, also improved (Table 4), while subjective symptoms showed marked improvement (Table 5). During the one-month follow-up, the patient remained clinically stable with sustained symptomatic improvement.

Table- 1: Timeline of the events

Date	Clinical events	Intervention/ Procedure
Jan 2015 to March 2025	Progressive weight gain of 45 kg; diagnosed with diabetes mellitus and hyperlipidemia; managed with conventional pharmacological agents with only temporary relief.	Metformin 500mg twice daily Atorvastatin 20mg once a day Telmisartan 40mg once a day Rabeprazole 20 mg once a day

March 25, 2025 -March 30, 2025	The patient, weighing 102 kg at presentation, had generalized body ache, exertional dyspnea, bilateral knee pain, and associated metabolic derangements. admitted for further Ayurvedic management.	1. <i>Phalatrikadi Kvatha</i> (40 mL) twice a day empty stomach 2. <i>Triphala Guggulu</i> (3 Vati) thrice a day with lukewarm water, after food 3. <i>Udvartana</i> with <i>Kolakulattadi churna</i> 4. <i>Pathya ahara</i> and <i>Vihara</i>
March 31 2025 – April 14 2025	Weight reduced to 100 kg Complete avoidance of day sleep Reduction in exertional dyspnea	1,2,3,4 <i>Sarvanga abhyanga</i> (therapeutic massage) with <i>Triphala Taila</i> and <i>Sarvanga Baspa Swedana</i> (sudation therapy) <i>Lekhana Basti</i> (<i>Niruh</i> and <i>Anuvaasan Basti</i> were given alternatively for duration of 15 days)
April 15 2025 - May 7 2025	Weight reduced to 96 kg Marked reduction in <i>Cala Sphik-Udara-Stana</i> (pendulous buttocks, abdomen, breasts) Improvement in dyspnea on exertion Reduction in excess appetite	1,2,3,4
May 8, 2025	Discharged from hospital	1,2
May 15,2025	Follow up 01 Weight reduced to 95 kg Further Improvement in above symptoms	Treatment stopped
May 22, 2025	Follow up 02 Weight reduction was sustained	No treatment given
May 29, 2025	Follow up 03 Weight reduction was sustained	No treatment given

Table- 2: Details of Ayurvedic procedures

Procedure	Drug used	Method
<i>Udvartana</i> (therapeutic dry powder massage)	<i>Kolakuttadi Churna</i>	Herbal powders were applied to the skin in a direction opposite to the hair follicles over the body
<i>Sarvanga Abhyanga</i>	<i>Triphala Taila</i>	Luke warm oil was applied over the

(therapeutic massage)		entire body, followed by gentle massage for 20 minutes daily.
<i>Sarvanga Bashpa Swedana</i> (sudation therapy)	-	Sudation therapy was administered using steam for a duration of 10 minutes, or continued as tolerated based on the patient's comfort level.
<i>Lekhana Basti</i> (medicated enema with fat-reducing)	<i>Lekhana Basti</i> <i>Madhu</i> -50gm <i>Saindhava</i> -5gm <i>Triphala Kwatha</i> - 250ml <i>Triphala Taila</i> -50ml <i>Tila Taila</i> -20ml <i>Gomutra Arka</i> -10ml <i>Ushakadi Gana Dravya</i> (<i>Shilajit, Kasisa, Tuttha Bhasma, Hingu, Vacha</i>)-10gm <i>Anuvasan Basti</i> <i>Triphala Taila</i> 30ml <i>Tila Taila</i> 30ml	<i>Lekhana Basti</i> - After preparing the patient with suitable <i>Snehana</i> and <i>Swedana</i> , the medicated decoction was introduced per rectum in the recommended position using a <i>Basti Yantra</i> , preferably on an empty stomach. <i>Anuvasan Basti</i> - After preparing the patient with suitable <i>Snehana</i> and <i>Swedana</i> and confirming that food had been taken, the prescribed medicated oil was administered per rectum using a <i>Basti Yantra</i> , with the patient maintained in the appropriate position.

Table- 3: Quantitative assessment of anthropometric indices

Anthropometric indices	Before intervention (BT)	After 45 Days of Intervention (AT)	4 th week Follow up
Body weight (kg)	102	96	95
BMI (kg/m ²)	40.32	37.94	37.5
Chest circumference (cm)	113	107	106
Waist circumference (cm)	110	106	105
Hip circumference (cm)	140	138	138
Waist-Hip Ratio	0.78	0.77	0.76
Right mid arm circumference (cm)	40	38	38
Left mid arm circumference (cm)	40	38	38
Right mid thigh circumference (cm)	64	62	62
Left mid thigh circumference (cm)	64	62	62

Table- 4: Quantitative assessment of investigations

Blood test	Before intervention (BT)	After 45 Days of Intervention (AT)	4 th week Follow up
FBS (mg/dl)	165	120	100
S. cholesterol (mg/dl)	237	180	163
S. Triglyceride (mg/dl)	184	160	150
S. HDL cholesterol (mg/dl)	46.34	54	50
S. LDL cholesterol (mg/dl)	163.86	143	122
S. VLDL cholesterol (mg/dl)	26.8	20	20

Table- 5: Assessment based on symptoms

Symptoms	BT	AT	4 th week Follow up
<i>Cala Sphik - Udara – Stana (pendulous buttocks, abdomen breast)</i>	4	2	1
<i>Angagandha</i> (bad odour)	1	0	0
<i>Swedadhikya</i> (perspiration)	2	0	0
<i>Kshudha-Adhikya</i> (increased appetite)	4	1	0
<i>Pipasa-Adhikya</i> (increased thirst)	3	0	0
<i>Kshudra Shwasa</i> (exertional dyspnoea)	4	1	0
<i>Nidradhikya</i> (increased sleep)	3	0	0

DISCUSSION:

From an Ayurvedic perspective, this condition can be correlated with *Medovaha Srotodushti*, manifesting as *Sthaulya* and *Prameha*, resulting from *Santarpaka Ahara Vihara*. The pathology involves impaired *Agni*, *Ama* formation, *Meda* accumulation, and *Srotorodha*. Accordingly, treatment aimed at *Agni Deepana*, *Ama Pachana*, *Srotoshodhana*, and normalization of *Kapha* and *Vata*. The intervention resulted in a sustained 7 kg weight loss (BMI 40.32 to 37.5 kg/m²) with reductions in body circumferences and significant improvements in fasting blood glucose (165–100 mg/dL), total cholesterol (237–163 mg/dL), triglycerides (184–

150 mg/dL), and LDL cholesterol (163.86–122 mg/dL), indicating improved metabolic status.

A multimodal treatment strategy comprising *Udvartana*, *Abhyanga*, *Swedana*, *Lekhana Basti*, and *Shamana Chikitsa* was employed to address multiple stages of disease pathogenesis. *Kolakulaththadi Churna Udvartana*, a classical *Lekhana* therapy indicated for *Sthaulya* (obesity), possesses *Katu* (pungent) and *Tikta Rasa* (bitter taste), *Laghu* (light), *Ruksha* (dry), and *Tikshna Guna* (sharp qualities), along with *Ushna Virya* (hot potency), which facilitate *Kapha-Meda Shamana* (pacify), stimulate *Medodhatvagni* (metabolic activity of adipose tissue), promote

Meda Vilayana (breakdown of excess adipose tissue), improve peripheral circulation, and relieve *Srotorodha* (obstruction of the channels). These actions collectively facilitate lipid mobilization and contribute to correction of the metabolic abnormalities underlying metabolic syndrome.^[7]

Triphaladi Taila Abhyanga (therapeutic oil massage), followed by *Swedana* (sudation therapy), enhanced the therapeutic response by improving tissue metabolism and microcirculation through the actions of *Bhrajaka Pitta* (functional component of *Pitta* governing skin metabolism) and *Dhatvagni* (tissue-specific metabolic fire). Their *Ushna* (hot) and *Tikshna* (sharp/penetrating) properties helped reduce *Kapha* and *Meda* (adipose tissue) predominance, while *Swedana* promoted *Srotomukha Vishodhana* (cleansing and opening of body channels), improved tissue perfusion, stimulated metabolism, and facilitated the elimination of metabolic waste through perspiration.^[8]

Among the *Panchakarma* procedures, *Lekhana Basti* constituted the principal therapeutic intervention. By acting through the *Pakvashaya*, it restores the normal function of *Vata*, particularly *Samana Vayu*, thereby improving *Agni*, regulating appetite, promoting *Ama Pachana*, facilitating *Srotoshodhana*, and reducing pathological *Meda* accumulation. The predominance of *Kashaya* (astringent), *Katu* (pungent), and *Tikta Rasa* (bitter taste), together with *Laghu* (light), *Tikshna* (sharp), and *Sukshma Guna* (subtle qualities), and *Ushna Virya* (hot potency), facilitates

correction of *Meda Dhatu Dushti* (vitiation of adipose tissue), interrupts disease progression, and improves metabolic regulation.^[9]

The oral formulations complemented the *Panchakarma* interventions by providing sustained metabolic regulation. *Phalatrikadi Yoga*, indicated for *Sthaulya* (obesity) and *Madhumeha* (diabetes mellitus), possesses *Deepana* (enhancing digestive and metabolic fire), *Pachana* (digesting metabolic toxins), *Lekhana* (scraping excess tissue), and *Medohara* (adipose tissue-reducing) properties. These actions help correct *Agnimandya* (impaired digestive and metabolic fire), digest *Ama* (metabolic toxins), reduce *Kapha-Meda Dushti*, relieve *Avarana of Vata* (obstruction of *Vata*), and promote *Meda Upashoshana* (reduction of excess adipose tissue).^[10] *Triphala Guggulu*, comprising *Haritaki* (*Terminalia chebula*), *Vibhitaki* (*Terminalia bellirica*), and *Amalaki* (*Phyllanthus emblica*) along with *Pippali* (*Piper longum*) and *Guggulu* (*Commiphora wightii*) further supports metabolic correction through its hypoglycemic, hypolipidemic, antioxidant, and anti-inflammatory activities. *Triphala* improves digestion and lipid metabolism, *Pippali* enhances the bioavailability of phytoconstituents through piperine, while *Guggulu* exerts *Lekhana* (scraping) and *Medohara* (adipose tissue-reducing) effects, collectively contributing to improvements in obesity, dyslipidaemia, and impaired glucose metabolism.^[11]

Lifestyle modification, including *Nidana Parivarjana* (avoidance of causative factors), dietary regulation, and regular exercise, complemented the Ayurvedic

interventions by improving insulin sensitivity, lipid metabolism, and reducing adipose tissue accumulation. The favorable clinical outcome suggests that a comprehensive Ayurvedic approach targeting *Agnimandya* (impaired digestive and metabolic fire), *Ama* (metabolic toxins), *Meda Dhatu Dushti* (adipose tissue vitiation), and *Srotorodha* (obstruction of body channels) may provide a holistic strategy for the management of metabolic syndrome.

CONCLUSION:

This case demonstrates that a comprehensive Ayurvedic treatment protocol comprising *Lekhana Basti*, *Udvartana*, *Abhyanga*, *Swedana*, *Shamana Chikitsa* and dietary and lifestyle modifications was associated with improvements in anthropometric measures, glycemic control, and lipid profile in a patient with metabolic syndrome. By targeting *Agnimandya*, *Ama*, *Meda Dhatu Dushti*, and *Srotorodha*, the intervention addressed the underlying pathophysiology.

Limitation of the Study:

The findings are limited by the single-case design. Further randomized controlled trials with larger sample sizes are required to establish efficacy, safety, and long-term outcomes.

Declaration of Patient consent:

The informed written consent has been taken from patient for publication of data without disclosing the identity of patient

Conflict of interest: The author declares that there is no conflict of interest.

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REFERENCES:

1. Swarup S, Ahmed I, Grigorova Y, et al. Metabolic Syndrome : StatPearls Treasure Island.2026
2. Grundy SM, Cleeman JJ, Daniels SR, Donato KA, Eckel RH, Franklin BA, et al. Diagnosis and management of the metabolic syndrome: an American Heart Association/National Heart, Lung, and Blood Institute scientific statement: executive summary. Circulation. 2005;112(17)
3. Noubiap, JJ, Nansseu, JR , Nyaga, UF, et al. Worldwide trends in metabolic syndrome from 2000 to 2023: a systematic review and modelling analysis. Nat Commun 2026;573(17)
4. YT Acharya, Ayurveda Dipika of Chakrapani on Charaka samhita of Charaka, Nidanasthana. Chapter-verse no;22 .7th edition. :2009Chaukambha Krishnadas Academy, Varanasi;;p-228
5. Shubhangi M, Sujata R, Understanding metabolic syndrome through the lens of traditional Indian

- medicine : Int J Health Sci Res. 2025; 15(1)
6. SA Vidyadhar, RD Tripathi, Charaka Samhita of Agnivesha, Sutrasthana. 1st edition. :2009Chaukhamba Sanskrit Pratishthan Varanasi;;p-319.
 7. R Vidyanath, English Translation along with Chakrapani Commentary of Charaka, Sutrasthana 1st edition. :2023Chaukhamba Sanskrit Pratishthan , Varanasi;;p-130
 8. K Nishteswar, R Vidyanath. Sahasrayogam Text with English Translation, Taila Prakarana :2025Chaukhamba Prakashak, Varanasi;;p-134.
 9. KRS Murthy, English Translation of Sarangadhara samhita, Uttara khanda, Chapter 6, verse no; 21. 2016Chaukhambha Orientalia Varanasi;;p-218
 10. R Pandey, Priyasiddhida Hindi Commentary on Yogaratnakara, Medorogadhikara, Chapter-40, verse no;16 :2019 Chaukhamba Vishva Bharati Varanasi;; p-593.
 11. KRS Murthy, English Translation of Sarangadhara samhita, Madhyama khanda, Chapter 7, verse no; 80. 2016Chaukhambha Orientalia Varanasi;;p-109.