

## Case Report

# Effect of *Triphala Kajjali* tablet - an Ayurvedic herbomineral formulation for the management of metabolic syndrome: a single case study

Jaynika S. Garasia\*, Mandip Goyal

Department of Kayachikitsa, Gujarat Ayurved University, ITRA Jamnagar, Gujarat, India

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### \*Correspondence:

Dr. Jaynika S. Garasia,

E-mail: [jgarasia@gmail.com](mailto:jgarasia@gmail.com)

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### ABSTRACT

Metabolic syndrome (MS) is a group of disorders that includes abdominal obesity, diabetes, hypertension, and elevated cholesterol. Approximately 25% of the adult populations are affected by MS. Gradually this number is increasing because of poor lifestyles, faulty dietary pattern, physical inactivity, stressful life and rapid urbanization. A 50-year-old female patient visited to OPD of Kayachikitsa department ITRA, Jamnagar, with the complaints of gradual weight gain with excess body fat around the abdomen and waist region, numbness and burning sensation at bilateral feet, and breathlessness on exertion. After investigation, she was diagnosed as a case of MS as per National Cholesterol Education Program (NCEP), adult treatment panel III (revised in 2005) guideline. She was treated with *Triphala Kajjali* tablet for 12 weeks along with lifestyle modification. After completion of treatment, investigations revealed reduction in fasting blood sugar from 113 mg/dl to 80 mg/dl, serum cholesterol level was decreased to 148 mg/dl from 216 mg/dl, serum triglycerides level was reduced to 150 mg/dl from 187 mg/dl and serum LDL was reduced to 68.3 mg/dl from 118.7 mg/dl. Her weight reduced to 75 kg from 85 kg, and waist circumference reduced to 92 cm from 100 cm, and blood pressures also reduced up to 122/82 mmHg from 140/90 mmHg. Hence, it can be concluded that *Triphala Kajjali* tablet along with lifestyle modification are effective in the management of MS, as it possesses *Kapha Medohara* properties.

**Keywords:** Metabolic syndrome, *Santarpanjanya Vyadhi*, *Medavaha Sroto Dushti*, *Triphala Kajjali* tablet

### INTRODUCTION

Metabolic syndrome (MS) consists of constellation of metabolic abnormalities that confer an increased risk of cardiovascular diseases and diabetes mellitus. The major feature of metabolic syndrome includes central obesity, hyper-triglyceridemia, low levels of High-density lipoprotein (HDL) cholesterol, hyperglycemia and hypertension.<sup>1</sup> Its prevalence has increased during last couple of decades. Gradually this number is increasing because of poor lifestyles especially regarding dietary patterns, physical inactivity, stressful life and rapid urbanization. Approximately 25% of the world's population is suffering from MS, and it will increase up to

38% by the year 2023.<sup>2</sup> In Ayurveda MS can be correlated with *Medoroga* and *Santarpanjanya Vyadhi* (Disease caused by over nourishment). MS occurs due abnormal metabolism. In Ayurveda Agni is responsible for metabolism. Various causes of metabolic syndromes like, sedentary lifestyle, oily, heavy food, excessive calorie consumption and lack of exercise or physical exertion etc. mainly vitiate Agni especially *Medadhatvagni*. Due to above *Nidana Agni* gets vitiated and produces *Aama*, *Kapha* and *Meda*. The condition of MS like obesity, type 2 diabetes and dyslipidemia also resembles to the presentation of *Santarpanotha Vyadhi* and *Medovaha Sroto Dushti*. In classic, the treatment of *Medovaha Sroto Dushti* includes the principle of treatment of *Sthaulya*,

like; *Kapha- medohara, vatanulomaka anna pana* and *niruha basti* prepared with *ruksha, ushna* and *tikshana aushadha*. There is no well-established therapeutic intervention for the management of MS in contemporary medical science. Patients of MS are treated with anti-diabetic, antihypertensive, anti-hyperlipidemic, anti-obesity drugs and lifestyle modifications. These drugs have several side effects and patients have to take it for long life. Today’s busy hectic work schedule and pressure of juggling demanding job, nobody wants to figure out their daily routine, eating schedule, fitness routine and also not willing to undergo the long processes of treatment and hospital stay schedule like; *Sodhana chikitsa -Vamana* or *Virechana* therapy or *Basti Chikitsa*. The concept of *Sookshma aushadhi kalpana* indicates that when micro fined particles of the herbal drug is triturated with *Kajjali*, it increases the potency of herbal drug and is effective in even low dose. With this concept, *Triphala Kajjali* tablet which is processed powder of *Triphala* with *Kajjali* was prepared and was given in the present case.

The first line of treatment of MS is a change in lifestyle as the MS is a complex, lifestyle-dependent illness. The aim of Ayurveda is “*Swasthya Swasthya Rakshanama and Aturasya Vikara Prashamanam*” and concept of *Nidana Parivarjana* deals with prevention of disease. Avoidance of causative factors of diseases is first step while starting any disease targeting therapy. Therefore, lifestyle modification play major role in management of MS,

therefor lifestyle modification was advised to patient in the present case.

**CASE REPORT**

A 50 years old female patient presented with the complaints of gradual increases in body weight since one year with excess body fat around the abdomen and waist region (*Chala Sphika-Udara*), polyuria (*Prabhuta Mutrata*), polyphagia (*Atikshudha*), polydipsia (*Atipipasa*) breathlessness on exertion (*Ayassenashwasa*). She also suffered from numbness and burning sensation (*Kara-Pada Suptata* and *Daha*) at bilateral feet and palms since 8 months. She had reported to institute OPD (*Kaya Chikitsa* department) for Ayurvedic treatment of obesity.

**History of present illness**

The patient was apparently normal before one year. She had gradual onset of weight gain with excess body fat around the abdomen, waist and hip region since 1 year, she had sudden onset of increased frequency of nocturnal urination, polydipsia, polyphagia, breathlessness on exertion and numbness and burning sensation in bilateral feet since 8 months. Her weight was 85 kg, height 153 cm with a BMI of 36.3 kg/m<sup>2</sup> which classified as class II obesity.

**Table 1: Assessment on considering symptoms of Medovaha Srotodusti (metabolic syndrome).**

No.	Signs and Symptoms	Before treatment	After treatment
1	<i>Chala Sphika-Udara-Stana</i>	3	1
2	<i>Atikshudha</i>	2	0
3	<i>Atipipasa</i>	2	0
4	<i>Nindradhikya</i>	2	1
5	<i>Shaiya-Asana Svapana Sukhai Rati</i>	2	0
6	<i>Swedadhikya</i>	2	0
7	<i>Ayassenashwasa</i>	2	0
8	<i>Kara-Pada Daha</i>	2	0
9	<i>Kara-Pada Suptata</i>	2	0
10	<i>Prabhuta Mutrata</i>	2	0

**Table 2: Changes in laboratory values before and after treatment.**

Parameter		B.T.	A.T.	
Haematological	Hb (gm %)	14.6 Gm%	13.2 Gm%	
	RBC	5.42 mill/c.mm	4.83 mill/c.mm	
	TLC	11500/cu.mm	9110/cu mm	
	DLC	Neutrophil	58	63.8
		Lymphocytes	30	23.7
		Eosinophils	05	5.2
		Monocyte	07	5.8
		Basophils	00	00
		Platelet	348000/cu.mm	346000/cu.mm
		ESR	30 mm	30 mm

Continued.

Parameter		B.T.	A.T.	
		PCV	43.8%	37.1%
Bio-chemical	Diabetic profile	FBS	113 mg/dl	80 mg/dl
		Lipid profile	Sr Total Cholesterol	216 mg/dl
	Sr Triglyceride		187 mg/dl	150 mg/dl
	HDL		59.9 mg/dl	47.5 mg/dl
	VLDL		37.4 mg/dl	32.2 mg/dl
	LDL		118.7 mg/dl	68.3 mg/dl
	Hepatic profile	Sr. Bilirubin (T)	0.94 mg/dl	1.0 mg/dl
		Sr. Bilirubin (D)	0.21 mg/dl	0.37 mg/dl
		SGOT	30 U/L	30 U/L
		SGPT	27 U/L	30 U/L
		Alkaline Phosphatase	77 U/L	67 U/L
		Total Proteins	7.74 gms /dl	7.17 gms/dl
		Albumin	4.28 gms /dl	4.03 gms /dl
		Globulin	3.46 gms /dl	3.11 gms /dl
	Renal profile	Sr. Creatinine	0.92 mg/dl	0.98 mg/dl
Sr. Uric acid		4.46 mg/dl	5.67 mg/dl	
Blood Urea		24 mg/dl	19 mg/dl	
Urine	Physical	Colour	Pale yellow	Pale yellow
		Appearance	Clear	Clear
		Reaction	Acidic	Acidic
	Chemical	Sp. Gr	QI	QI
		Albumin	Trace	Absent
	Microscopic	Sugar	Absent	Absent
		Pus cells	2-3 /h.p.f	Absent
		RBC	Absent	Absent
		Epi cells	1-2 /h.p.f	Absent
		Casts	Absent	Absent
Crystals	Absent	Absent		

Pulse rate was 78 beat/min and BP 140/90 mmHg. In routine investigations serum cholesterol (216 mg/dl), serum triglycerides (187 mg/dl), LDL (118.7 mg/dl) and fasting blood sugar (113 mg/dl) were elevated, this indicated as case of MS according to National Cholesterol Education Program (NCEP), adult treatment panel III (revised in 2005) guideline. She was not taking any kind of medicines. No other systemic illness and surgical history present. There was no any relevant family history.

#### **Therapeutic intervention**

Patient was treated with *Triphala Kajjali* tablet 2 tablet (each 250 mg.) twice daily after meal with lukewarm water for 12 weeks along with lifestyle modification intervention.

#### **Lifestyle modification**

Exercise like brisk walking for 30 min daily in the morning and *Yogasana*. To take food only when previously taken food is properly digested, (*Jirna Ahara*) with symptoms

like good appetite, lightness of body, clear belching, proper evacuation of stool, urine and cheerfulness of mind. And also advised to eat food prepared with wheat and barley.<sup>4</sup> And asked to avoid day sleep, milk and dairy products, sweets and sedentary lifestyles.<sup>5</sup>

#### **Follow up and outcome**

The patient's condition was assessed in every 15 days during the 12 weeks of treatment.

After 12th weeks of assessments, improvement were found in symptom of metabolic syndrome which presented in Table 1, 2.

#### **DISCUSSION**

Components of MS can be compared with *Medavaha Sroto Dushti* (vitiation of micro channels of lipid metabolism and transportation), which manifests as a group of symptoms of *Atisthula* (obesity) and *Purvarupa* of *Prameha* (diabetes) which occurs due to *Santarpaka*

*Ahara-Vihara* (over nutrition and sedentary lifestyle), can be said *Santarpanjanya* diseases. Disturbed metabolism, fat accumulation, production of Ama and obstructed channels for lipid transportation are the key factors in the pathogenesis of the MS. Though various dosage form of medicine are mentioned in the classic, but in present era, people prefer medicine that are palatable, have small dose, cost effective and give immediate effect. *Kajjali* when used properly along with other herbs and metals can cure all the diseases, *Tridoshahara*, *Vrishya*, immediately spreads in the body when consumed, clears the obstructed channels at the diseased organ, and enhances the properties of other herbal medication when taken along with proper *Anupana*.<sup>6</sup> Trituration of *Triphala* powder with *Kajjali* increase the potency of *Triphala* and effective in low doses. *Triphala* has *Kashaya Rasa*, *Ruksha Guna*, *Anushna Virya*, *Madhura Vipaka* and has *Tridoshanashana*, *Medohara* and *Pramehaghna* properties. Owing to these properties, the drug is capable of reducing *Ama*, *Meda* and corrects *Medadhatwagni* and thus reverse the pathogenesis of *Medovaha Sroto Dushti*. *Kajjali* possess *Yogavahi* property. *Yogvhitwa* property has worth in pharmacokinetics of drug as it drags *triphalala* towards the target tissue down in to the deeper and most out of reach parts of the digestive system. The micro particle size of *Triphala Kajjali* coordinates well with the colloidal size and this propose the possibility that these colloidal particles are get connected to the digestive tract and provide a large surface zone subsequently increasing the assimilation of *triphalala*.

During, 12 weeks, she lost about 10 kg of body weight, without any kind of physical weakness or drowsiness. Waist circumference of patient was also reduced up to 8 cm. This indicates that *Triphala Kajjali* tablet has effect on fat metabolism, lipolysis process that results in burning of fat from the abdomen and waist region thus caused reduction in waist circumference. Her BMI was 36.3 Kg/m<sup>2</sup> with class II obesity (as per the international classification of adult underweight, over-weight and obesity by WHO).

BMI has been reduced to 32 kg/m<sup>2</sup> with class I obesity. Gradual lowering of blood pressure was observed from 140/90 mmHg to 128/82 mmHg. *Triphala* having *Lekhana*, *Srotoshodhaka* and *Rakta Pittashodhaka* property might have helped to reduce the blood pressure. FBS was reduced from 113 to 80 mg/dl. *Triphala* lowers fasting blood sugar. *Triphala* possess active ingredient Menthol and Sorbitol which is believed to have hypoglycemic effect.<sup>7</sup> Reduction in total cholesterol 216 mg/dl to 148 mg/dl, serum triglycerides 187 mg/dl to 150 mg/dl and LDL 118.7 mg/dl to 68.3 mg/dl was observed. *Triphala* possess antidiyslipidemic activity which resulted in decrease in serum cholesterol and triglycerides.<sup>8</sup>

Lifestyle modifications such as regular exercise, can improve the condition of MS in several ways. Intensive and regular practice of exercise stimulates adipose tissue to utilize fatty acid for energy production instead of

glucose, which results in the decrement of triglycerides and increment of serum HDL. Owing to regular exercise, increased usage of fatty acids by adipose tissues decreases fat accumulation and obesity, resulting in diminished insulin resistance and prevents the occurrence of type 2 diabetes and co morbidities related to obesity.<sup>9</sup> As per the definition of metabolic syndrome, four components were present in this case study. Significant result was observed in four components i.e. fasting blood sugar, S. Triglycerides with improvement in waist circumference and blood pressure.

## CONCLUSION

Faulty dietary habits and sedentary life-style are the common cause for development of metabolic syndrome. In Ayurveda perspective, metabolic syndrome may be considered as a constant manifestation of *Meda Dhatu Dushti* or *Medo Roga* with vitiated *Kapha Dosha*. The findings of this case apparently suggest competency of Ayurvedic medicines along with lifestyle modification as an effective modality in the management of metabolic syndrome. Further clinical trials over large sample incorporating efficacy markers may create more supporting data for Ayurvedic management of metabolic syndrome.

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## REFERENCES

1. Fauci K, Longo H, Loscalzo J. Harrison's Principle of Internal Medicine, McGraw Hill education, 191th edition. 2015;2449.
2. International Diabetes Federation. Available at: <http://www.idf.org/diabetes-atlas/5e/the-global-burden>. Accessed on 05 May 2019.
3. Charaka A, Dridhbala, Samhita C, Sutrasthan. English Translation by Sharma RK and Bhagwan Dash. Volume 4. Reprint. Chowkhamba Sanskrit Series Office, Varanasi. 2009.
4. Vidyadhar SA, Tripathi RD. Charaka Samhita of Agnivesha, Sutra Sthana. 1st edition. Varanasi: In: Chaukhamba Sanskrit Pratishthan. 2009;319.
5. Shukla AV, Tripathi RD. Charaka Samhita of Agnivesha, Viman Sthana. 1st ed. Varanasi: Chaukhambha Sanskrit Pratishthan. 2009;590.
6. Critical review on the concept of *Kajjali*. The boon of Ayurvedic Herbomineral preparations (Rasaushadhi) Available at: [https://www.researchgate.net/publication/332319228\\_Critical\\_review\\_on\\_the\\_concept\\_of\\_Kajjali\\_The\\_boon\\_of\\_Ayurvedic\\_Herbomineral\\_preparations\\_Rasaushadhi](https://www.researchgate.net/publication/332319228_Critical_review_on_the_concept_of_Kajjali_The_boon_of_Ayurvedic_Herbomineral_preparations_Rasaushadhi).
7. Rajan SS, Antony S. Hypoglycemic effect of triphala on selected non-insulin dependent diabetes mellitus subjects. *Ancient Sci Life*. 2008;27(3):45-9.
8. Sharma A, Shailajan S. Simulataneous Quantitation of Gallic Acid from Fruits of *Phyllanthus emblica* Linn.

Terminalia bellirica (Gaertn.) Roxb and Terminalia chebula Retz. Asian J Chem. 2009;21(9):7111-16.

9. Padhar B, Dave AR. Mandip Goyal Clinical study of Arogyavardhini compound and lifestyle modification in management of metabolic syndrome: A double blind placebo controlled randomized clinical trial. Ayu. 2019;40(3):9.

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