



Case Study

ROLE OF AYURVEDA, LIFESTYLE MODIFICATION, AND PANCHAKARMA THERAPY ON STABILIZATION OF ATHEROSCLEROTIC PLAQUE IN KNOWN CORONARY ARTERY DISEASE PATIENT

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ABSTRACT

Atherosclerosis is a major health concern in India and imposes a significant burden on the population. The prevalence of risk factors such as hypertension, obesity, smoking and high cholesterol levels contribute to the rising incidence of atherosclerosis in the country. A 57-year-old male presented with primary complaints of chest pain and heaviness, left arm pain, upper back pain, jaw pain, dyspnea on exertion grade I, flatulence, gaseous distension, cervical pain, scapular region pain, shoulder pain, constipation, and insomnia. He also complained of postprandial angina New York Heart Association (NYHA) Class III. The patient was a photographer by profession and had a history of hypertension, diabetes mellitus, and coronary artery disease. On 29th February 2020, he underwent computed tomography (CT) coronary angiography at another clinic which revealed stenosis of the 3 main coronary arteries – more than 90% stenosis in mid left anterior descending artery (LAD), 80–90% stenosis in proximal left circumflex artery (LCx), and 80–90% stenosis in proximal right coronary artery (RCA). The patient was advised an Ayurveda-based low-carbohydrate high antioxidant diet of 1,000 calories daily for the first 12 weeks. This case report supports the relationship between an Ayurveda-based low-carbohydrate high antioxidant diet and atheroma regression in a high-risk coronary artery disease patient.

INTRODUCTION

Atherosclerosis affects individuals worldwide and is responsible for a significant burden of disease. It contributes to the high mortality and morbidity rates associated with cardiovascular events and thus is a major health concern. Atherosclerosis occurs due to endothelial dysfunction arising due to prolonged exposure to pathogenic factors such as diabetes mellitus, hypertension, smoking, and stress. Atherosclerotic plaque progression has been evidenced to precede cardiovascular events and has thus prompted several studies to investigate changes in plaque characteristics in response to several treatments.

The goal is to identify treatments that afford plaque regression with the understanding that future cardiovascular events will be mitigated.^[1] In this case study, we studied the effect of a low-carbohydrate high antioxidant diet on a patient diagnosed with triple-vessel coronary artery disease.

Case Report

A 57-year-old male had primary complaints of chest pain and heaviness, left arm pain, upper back pain, jaw pain, dyspnea on exertion grade I, flatulence, gaseous distension, cervical pain, scapular region pain, shoulder pain, constipation, and insomnia. He also complained of postprandial angina New York Heart Association (NYHA) Class III. The patient was a photographer by profession and had a history of hypertension, diabetes mellitus, and coronary artery disease. On 29th February 2020, he underwent computed tomography (CT) coronary angiography at another clinic which revealed stenosis of the 3 main coronary arteries – more than 90% stenosis in mid left anterior descending artery (LAD), 80–90% stenosis in

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proximal left circumflex artery (LCx), and 80–90% stenosis in proximal right coronary artery (RCA). The patients baseline characteristics are shown in **Table 1**.

Table 1: Comparison of anthropometric and laboratory findings before and after treatment

| Variable | Baseline | Follow-up |
|---------------------------------|----------|-----------|
| Heart rate, bpm | 78 | 74 |
| Weight, kg | 54.9 | 51.9 |
| Body mass index | 21.45 | 20.27 |
| Abdomen girth, cm | 89 | 80 |
| Systolic blood pressure, mmHg | 149 | 139 |
| Diastolic blood pressure, mmHg | 76 | 61 |
| Total cholesterol, mg/dl | 222 | 169.5 |
| Triglycerides, mg/dl | 188 | 156 |
| High-density lipoprotein, mg/dl | 43 | 42 |
| Low-density lipoprotein, mg/dl | 160 | 96 |

The patient was advised an Ayurveda-based low-carbohydrate high antioxidant diet of 1,000 calories daily for the first 12 weeks. He was also advised 21 sessions of 3-step *panchakarma* – *Snehana*, *Swedana*, and *Basti*. *Snehana* was external oleation with neem oil massaged on hands, legs, shoulders, thorax, abdomen and the back in a centripetal manner. The duration of this massage was 15–25 mins as 15–30 strokes were applied on each aforementioned body part. *Swedana* was passive heat therapy with *Dashmoola* decoction with the patient in supine position in a wooden box. The patient’s neck was allowed to protrude outside the box. The duration of this therapy was 10–15 mins followed by a relaxation period of 3–4 mins after the therapy. *Basti* was medicated enema of 100ml *Gokshur*, *Haridra*, and *Amalki*. Administration was rectal with the drug to remain inside the body for >15 mins to enable maximum absorption.

After treatment, grade of angina reduced to NYHA Class 1 revealing symptomatic improvement within the first 12 weeks. A 12-week follow-up CT

coronary angiography revealed no change in percentage stenosis in the stenosed coronary arteries. However, plaque volume increased despite the clinically stable condition of the patient. The patient was also able to reduce his weight by 3kg presumable due to the advised diet. After these 12 weeks, the diet of the patient was changed from 1,000 calories daily to 1,200–1,500 daily by adding protein and fats. We added approximately 30g Balya Protex powder to increase the weight of the patient without adding any carbohydrates. The ingredients of the Balya Protex Powder include emmer wheat, barley, roasted chickpea, ginger and cardamom. We continued with high ORAC and low-carbohydrate diet throughout the 24 months. In between the 12 weeks and 24-month duration, the patient underwent one session of *Panchakarma* each month. A 24-month follow-up CT coronary angiography revealed reduction in plaque volume. Moreover, LAD stenosis also decreased from 90% to 60–65% stenosis as shown in Figure 1.

Total Atheroma Volume (mm³)

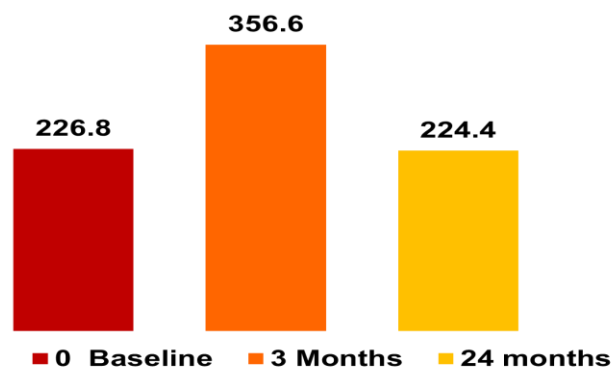


Figure 1: Comparison of Change in Total Atheroma Volume Before and After Treatment

The treatment timeline is shown in Table 2.

Table 2: Timeline of Panchakarma treatment

| Time point | Panchakarma date | Change in weight (kg) | Change in blood pressure (mmHg) | Change in heart rate (beats/min) |
|------------|------------------|-----------------------|---------------------------------|----------------------------------|
| Day 1 | 12-03-2020 | 54.9 | 149/76 | 78 |
| Day 30 | 11-04-2020 | 51.0 | 130/70 | 78 |
| Day 60 | 17-05-2020 | 50.4 | 127/69 | 75 |
| Day 90 | 15-06-2020 | 47.3 | 123/59 | 74 |
| 6 Months | 08-09-2020 | 49.0 | 130/70 | 74 |
| 12 Months | 05-04-2021 | 51.4 | 120/68 | 78 |
| 18 Months | 03-09-2021 | 51.7 | 132/76 | 76 |
| 24 Months | 02-03-2022 | 51.9 | 139/61 | 74 |

DISCUSSION

The present case documents a case of an elderly man who had complained of angina NYHA class III on presentation. The patient was diagnosed with triple-vessel coronary artery disease. He was advised a low-carbohydrate diet comprising 1,000 calories daily along with 21 sessions of Panchakarma for the 12-week duration. At the 12-week follow-up, although the grade of angina improved to NYHA Class I, it was observed that the degree of stenosis did not improve and at this stage the diet regime of the patient was adjusted to include more calories daily without having to include carbohydrates. Some of the lifestyle changes adopted by the patient were reduced simple carbohydrate rich diet, resistance training at least 3 times a week, and minimum 8 hrs of sleep. Thereafter, at the 24-month follow-up, improvement of the degree of stenosis in the 3 main coronary arteries as observed.

There are a few noteworthy observations and findings that deserve to be highlighted:

- Blood pressure was maintained throughout the treatment of the patient without the support of allopathic medication.
- Patient adherence to medication before and after treatment was significantly reduced. He was able to completely cease intake of 3 drugs and was dependant on only a single drug, the dose of which was reduced as shown in Table 3.
- The patient had angina NYHA Class III on presentation. He adhered to a low-carbohydrate diet of 1,000 calories after which his anginal status improved to Class I. Although his diet was modified after 12 weeks, he remained clinically stable throughout the 24 months.
- At the 12-week follow-up, presumably due to the low-carbohydrate diet of 1,000 calories daily, the patient was able to reduce his weight by 3kg. However, this did not reduce the degree of plaque in the diseased coronary vessels. We hypothesize, sudden weight loss could have prompted vascular inflammation.

Table 3: Comparison of patient adherence to medication before and after treatment

| Medication | Baseline | Follow-up |
|-----------------|-------------|-----------|
| Zyrova 20mg | Once daily | Stopped |
| Angiospan 2.5mg | Twice daily | Stopped |
| Nicorandil 5mg | Twice daily | Stopped |
| Vasoglor 90mg | Twice daily | Reduced |

One of the observations of this study was patient weight loss without plaque regression. Older adults who lose weight, loose mostly lean mass which can play a role in increased risk of cardiovascular disease events despite weight loss. As the body's composition of fat and muscle mass becomes altered with age, contributions of body mass index and change in body mass index on coronary heart disease among middle-aged and elderly adults may differ from those among young adults.^[2] This may serve as a possible

justification to the observation in our study. Moreover, although scarce, there are a few studies that have evidenced an association between weight loss and cardiovascular risk. In as early as 1997, the Cardiovascular Health Study,^[3] and the NHANES Study in 2005^[4] found weight loss was associated with increased cardiovascular risk. In 2005, Sorenson ^[5] found that intentional weight loss in a cohort of overweight men and women was associated with an increased risk of total mortality. In 2006 Corrada et

al.^[6] found higher mortality rates in individuals with long-term weight loss, regardless of the initial body mass index. In 2007, Bowman et al.^[7] found a declining BMI was associated with an increased risk of CVD independent of current BMI. A possible explanation for their finding was underlying subclinical disease, causing weight loss and increased cardiovascular disease

CONCLUSION

The case study describes the case of an elderly male with triple-vessel coronary artery disease who adopted a low-carbohydrate diet. Despite weight loss, plaque regression did not occur. We believe sudden weight loss could have led to vascular inflammation. Moreover, although plaque regression was not observed, anginal status improved from NYHA Class III to I in just 12 weeks. It was only after his diet was adjusted to include more calories of the plaque regress.

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REFERENCES

1. Luke P Dawson, Mark Lum, Nitesh Nerleker, Stephen J Nicholls, Jamie Layland. Coronary Atherosclerotic Plaque Regression: JACC State-of-the-Art Review. *J Am Coll Cardiol.* 2022 Jan 4; 79(1): 66-82.
2. Seulggie Choi, Kyuwoong Kim, Sung Min Kim, Gyeongsil Lee, Su-Min Jeong, Seong Yong Park, Yeon-Yong Kim, Juong Sik Son, Jae-Monn Yun, Snag Min Park. Association of Obesity or Weight Change
3. Tamara B Harris, Peter J Savage, Grethe S Tell, Mary Haan, Shiriki Kumanyika, James C Lynch. Carrying the burden of cardiovascular risk in old age: associations of weight and weight change with prevalent cardiovascular disease, risk factors, and health status in the Cardiovascular Health Study. *Am J Clin Nutr.* 1997 Oct; 66(4): 837-44.
4. Vanessa A Diaz, Arch G Mainous 3rd, Charles J Everett. The association between weight fluctuation and mortality: results from a population-based cohort study. *J Community Health.* 2005 Jun; 30(3): 153-65.
5. Thorkild I A Sørensen, Aila Rissanen, Maarit Korkeila, Jaakko Kaprio. Intention to lose weight, weight changes, and 18-y mortality in overweight individuals without co-morbidities. *PLoS Med.* 2005 Jun; 2(6): e171.
6. María M Corrada, Claudia H Kawas, Farah Mozaffar, Anllia Paganini-Hill. Association of body mass index and weight change with all-cause mortality in the elderly. *Am J Epidemiol.* 2006 May 15; 163(10): 938-49.
7. Thomas S Bowman 1, Tobias Kurth, Howard D Sesso, Joann E Manson, J Michael Gaziano. Eight-year change in body mass index and subsequent risk of cardiovascular disease among healthy non-smoking men. *Prev Med.* 2007 Dec; 45(6): 436-41.

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