STHAULYA (OBESITY) A SUCCESS STORY - A CASE STUDY

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ABSTRACT

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. Obesity increases the likelihood of various diseases and conditions, particularly Cardiovascular diseases, Respiratory Diseases, Type 2 diabetes, obstructive sleep apnea, certain types of cancer, osteoarthritis and depression. Obesity is a leading preventable cause of death worldwide, with increasing rates in adults and children. In 2015, 600 million adults (12%) and 100 million children were obese. Obesity is more common in women than men. Authorities view it as one of the most serious public health problems of the 21st century. Obesity is stigmatized in much of the modern world (particularly in the Western world), though it was seen as a symbol of wealth and fertility at other times in history and still is in some parts of the world. In 2013, the American Medical Association classified obesity as a disease. In India, the prevalence of overweight increased from 9.7% near the turn of the century to nearly 20% in studies reported after 2010. For children and adolescents, these studies show that obesity and overweight are rapidly increasing, not just in the higher income groups but also in the rural poor, where under nutrition and underweight remain major health concerns. In present research article a case of obesity taken. Patient was suffering from obesity since 8 years, overweight causing hindrance in day today life activities, Ayurvedic treatment employed by us has shown superior result comprising Shodhana, Oushadha, Vyayama & Restricted Diet.

Keywords: Sthaulya, Obesity Treatment, Ayurvedic, Shodhana, Vyayama

INTRODUCTION

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. Obesity increases the likelihood of various diseases and conditions, particularly Cardiovascular diseases, Respiratory Diseases, Type 2 diabetes, obstructive sleep apnea, certain types of cancer, osteoarthritis and depression. Obesity is a leading preventable cause of death worldwide, with increasing rates in adults and children. In 2015, 600 million adults (12%) and 100 million children were obese. Obesity is more common in women than men. Authorities view it as one of the most serious public health problems of the
21st century. Obesity is stigmatized in much of the modern world (particularly in the Western world), though it was seen as a symbol of wealth and fertility at other times in history and still is in some parts of the world. In 2013, the American Medical Association classified obesity as a disease [1]. In India, the prevalence of overweight increased from 9.7% near the turn of the century to nearly 20% in studies reported after 2010. For children and adolescents, these studies show that obesity and overweight are rapidly increasing, not just in the higher income groups but also in the rural poor, where undernutrition and underweight remain major health concerns [2].

However, India has also seen a surge in obesity. It had 0.4 million obese men, or 1.3% of the global obese population in 1975, but in 2014, it zoomed into the fifth position with 9.8 million obese men, or 3.7% of the global population. Among women, India has jumped to the third rank with 20 million obese women (5.3% of global population) [3]. Obesity has been described as Sthaulya or Medoroga in Ayurvedic texts. It is described under Santarpanotthavikar [4] (diseased caused by over nourishment). Medodhatu (adipose tissue) is the site of metabolic disturbance in an obese individual.

MATERIALS AND METHODS

1) ETYMOLOGY

- The term Sthaulya is derived from the Atmanepadi Sthoolayate Dhatu having meaning to grow, increase [5]
- The word Obesity is derived from the Latin ‘obesitas’, which means "stout, fat, or plump" [6]

2) CLINICAL FEATURES OF STHAULYA (OBESITY)

Medomamsaativruddhatvat Chala Sphig
Udara Stanaha |
Ayathopachayotsaho Naroatisthool
Uchyate ‖ [7]

The person is called over obese who, due to excessive increase of fat and muscles, has pendulous buttocks, abdomen and breasts, and suffers from deficient metabolism and energy.

The etiology of obesity is far more complex than simply an imbalance between energy intake and energy output. Obesity is far more than simply the result of eating too much or exercising too little. Factors responsible for the development of obesity include – Race, sex, and age factors, Ethnic and cultural factors, Socioeconomic status, Dietary habits, Pregnancy and menopause, Psychological factors, Lactation history in mothers, Endocrine factors, Metabolic factors, Genetic factors, Daily activity level.

3) SAMPRAPTI

Vayu gets vitiated due to obstruction caused by Meda Dhatu in the Srotas which stimulates digestion and absorbs food. Hence the digestion increases and the person desires more for the intake of food. In case of delayed eating he may get afflicted with some severe disorders. The two factors i.e. Agni and Vayu particularly complicates the problem of person many folds like conflagration burns the forest. In the event of excessive increase of fat, Vayu etc (Doshas) suddenly give rise to severe disorders and thus destroy life shortly [8].

Factors involved in Samprapti of Sthaulya

- Doshas : Vata, Kapha
- Dushyas : Rasa, Mam-sa,Meda
- Srotas : Rasavaha, Medavaha
- Srotodushti : Sanga
- Agni : Teeksha Jatharaagni
- Aam : Dhatwaagni-
Maandya-Janya
- UdbhavaSthana : Aumashaya
- Vyakta Sthana : Sarva Shareera
- Adhishthana : Meda Dhatu
- Rogamarga : Bahya Rogamarga
CASE REPORT

A case report as follow:

A 38 year old male patient occupationally electrician residing in Kolhapur region approached in my clinic for Ayurvedic treatment, with Chief complaint of increased body weight since 8 years, associated complaints were Dyspnoea on exertion, Constipation, decreased digestive capacity, chest heaviness Low backache, decreased sexual pleasure due to Pre-Mature ejaculation since six months.

History of Present illness:
Patient was apparently alright before 8 years. Due to consumption of high protein diet, non vegetarian substances, milk products, over eating, no exercise and occasionally liquor consumption etc factors tend to gain weight of patient. Since last six months intricate to live day today life for patient. Petite work causes dyspnoea, sweating, weakness. For these complaints patient took treatment from different doctors, underwent numerous investigations but didn’t have relief and then he came to our clinic Maauli Ayurved Clinic, Kolhapur, for further management.

History of Past illness:
History of Past illness doesn’t reveal any major deficit. Fortunately patient was not suffering from High Blood pressure, Diabetes mellitus, Cardiac, Respiratory or Neurological disease.

Laboratory Investigation

- All hematological, Urine, investigations were within normal limits, dated 16/07/2015
- C.B.C.-
  - HB 13.3 g/dl, WBC 7.3 (10 E³/µL), RBC 4.15 (10E⁶/µL), HCT 40%, MCV 67, MCHC 34, Platelet count 254000 /µL, Neutrophils- 58%, Lymphocytes-32%, Monocytes 5%, Eosinophils 5%, Basophils 0%, ESR – 19 mm/hr
- URINE ROUTINE & MICROSCOPIC
  - VOLUME - 40 ml, Color - Pale Yellow, Appearance – Clear, Specific Gravity - 1.010, pH - 6.9, Protein - Trace, Sugar - Absent, Urine Ketone – Absent, Bile Salt – Absent, Bile Pigment – Absent, Pus Cell - 1-2/hpf, RBC-NIL, Epithelial Cells – 1-2/hpf,
  - Random Blood Sugar 80 mg/dl, Blood Urea 37.2 mg/dl, Serum Creatinine-1.09 mg/dl, Serum Uric Acid 4.83 mg/dl, Total Bilirubin 0.8 mg/dl, Direct Bilirubin 0.3 mg/dl, Indirect Bilirubin 0.5 mg/dl
  - Serum Cholesterol 224 mg/dl, LDL 140 mg/dl, HDL 58mg/dl, Serum Triglycerides 146 mg/dl, Serum Sodium 136 µmol/lit, Potassium 4.2 µmol/lit
  - HIV, HbsAg Negative

Table 1: Details of Physical Examination

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<thead>
<tr>
<th>VITALS</th>
<th>SYSTEMIC EXAMINATION</th>
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<tbody>
<tr>
<td>Temperature</td>
<td>98.6°F, Respiratory System Normal</td>
</tr>
<tr>
<td>Pulse</td>
<td>74/min Cardio Vascular System Normal</td>
</tr>
<tr>
<td>R.R.</td>
<td>20/min Central Nervous System Normal</td>
</tr>
<tr>
<td>B.P</td>
<td>130/80 mm of Hg Per Abdomen Normal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER FACTORS</th>
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<tbody>
<tr>
<td>Height</td>
<td>171 cms</td>
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<tr>
<td>Weight</td>
<td>90kg</td>
</tr>
<tr>
<td>Aahara</td>
<td>Mix Vegetarian Vihara Sedentary lifestyle</td>
</tr>
<tr>
<td>Appetite</td>
<td>Bad Koshtha Vibandha</td>
</tr>
<tr>
<td>Sleep</td>
<td>Good Micturation Normal</td>
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**Table 2:** showing treatment given to Patient and its duration

<table>
<thead>
<tr>
<th>Sr</th>
<th>Treatment Given</th>
<th>Duration</th>
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<tbody>
<tr>
<td>1</td>
<td>Aam Pachan and Agni Deepan</td>
<td>7 Days</td>
</tr>
<tr>
<td>2</td>
<td>Virechana Karma (Snehapana, Vamana, Sansarjana Krama)</td>
<td>23 Day</td>
</tr>
<tr>
<td>3</td>
<td>Virechana Karma (Snehapana, Virechana, Sansarjana Krama)</td>
<td>15 Day</td>
</tr>
<tr>
<td>4</td>
<td>Abhyantara Oushadha, Vyayam, Diet plan</td>
<td>45 Days</td>
</tr>
</tbody>
</table>

**MATERIALS & METHODS:**

**TREATMENT**

*Shastamullekhanam Tatra Virekorakta-mokshanam |
Vyayamshchopavaasashchdhoomashch Swedanani Cha || [9]

In Ayurveda Classics for diseases like Sthaulya Vamana, Virechana, Raktamoksha, Exercise, Fasting, Smoking, Sweat etc are described as line of management.

**TREATMENT GIVEN**

Considering therapeutic guideline and deep seated nature of disease of prolonged duration treatment planned after proper counseling and written consent as,

1. **Aam Pachan and Agni Deepan - Duration 7 Days**

Prabhoota Aam Laxana found on Jeevha and digestive capacity was diminished, improper hunger sensation present in patient, to combat this Aam Pachan and Agni Deepan processed with employing Langa-hana, only Peya (Rice water) and Laja (Pop corns) etc. light food given at meals on excessive hunger. *Sutshekhara Vati* [10] 4 Tablets of 250 mg twice daily in morning & evening, *Chitrakadi Vati* [11] 4 Tablets of 250 mg twice daily before Meal given with Koshna Jala as Anupana, for 7 days. This procedure got completed in 7 Days.

2. **Vamana Karma**

a) **Abhayantara Snehapana with Mahatiktaka Ghrita - Duration 7 Days**

After Aam Pachana, Abhayantara Snehapana conducted with Mahatiktaka Ghrita [12] prior to Vamana and Virechana Karma. For Abhayantara Snehapana, Hrasiyasi Matra [13] (Progressively increased Dose) taken. Dose started with 40 ml *Aachha Pana of Ghrita* [14] in liquid state of lukewarm temperature administered. *Koshna Jala* only provided to drink intermittently on *Utklesh Avastha*. On completion of Sneh Pachana, light food given to patient. This Abhayantara Snehapana conducted as per guidelines given in classics.
b) **Vamana Karma - Duration 1 Day**

After completion of Abhayantara Snehapana on 8<sup>th</sup> day Kapha Utkleshaka Aahara was given and Bahya Snehana with Tila Talila and Swevana with Dashamoola Kwatha Bashpa [15] employed. On 9<sup>th</sup> Day Vamana Karma took place. For this, initially Milk 250 ml given orally. Then Yashtimadhu Fanta [16] has been given as Aakanthapana approximately 1800 ml, after that Madanaphala 3 grams + Vacha 2 Grams + Saindhava 1 gram + Madhu semisolid paste given [17]. Vamana Vega started after 1 hour. Kapha Dosha was clearly visible in vomits. Patient had 9 Vega total and ceased with Pittadarshana. Whole procedure was carried out as per guidelines given in classics. Sudden after Vamana Karma symptoms like chest tightness, heaviness of body relieved.

c) **Sansarjana Krama of 1 weak and 1 weak Normal Diet - Duration 15 Days**

After completion of Vamana, Sansarjana Krama [18] adopted. On 1<sup>st</sup> day in evening Peya given, on 2<sup>nd</sup> day Peya for 2 times, on 3<sup>rd</sup> day Vilepi given for two times, on 4<sup>th</sup> day in Morning Vilepi and in evening Akruta Yusha given, on 5<sup>th</sup> day Kruta Yusha for 2 times, on 6<sup>th</sup> day Akruta Mamsarasra (Mutton soup) given considering increased intensity of Digestive fire, and in evening Kruta Mamsarasra given same repeated on 7<sup>th</sup> day Morning and in evening Normal diet given to patient. After 1 week of Sansarjana Krama again 1 week normal diet was given no medicine given during that period. Whole procedure carried out as per guidelines given in Ayurved classics.

c) **Sansarjana Krama - Duration 7 Days**

On successful completion of Virechana Karma, Sansarjana Krama adopted for Jatharagni Vardhana as after Vamana for enhancement of digestive capacity. After completion of Sansarjana Krama considerable reduction in Waist size, body weight, mid arm circumference, mid thigh circumference etc noted.

5) **Abhyantara Oushadha, Vyayam, Diet plan - Duration 60 Days**

After completion of Shodhan Karma, Abhyantara Oushadha, Vyayam, Diet plan given for 60 days,

a) **Abhyantara Oushadha**

- Sutshekharar Vati - 1 Tablet of 250 mg Twice Daily Before Meal
Pranit Hanumantrao Patil And Al: Sthaulya (Obesity) A Success Story- A Case Study

- **Aarogyavardhini Vati** [20] - 1 Tablet of 250 mg Before Dinner
- **Anupana - Koshna Jala**
- **Lekhaniya Mahakashaya** [21] - 2 Gram Powder +1 Cup water, boil it & reduced till it remains half from original volume, then filtered water was administered twice daily

**b) Vyayam (exercise)**

Patient was advised to do walking exercise, climbing stairs daily. Exercise started with daily 1.5 Kilometer walking gradually increased to 3 Kms in Second weak, 4 kms in 3rd, 6 kms in 4th weak, same distance maintained in 2nd month. Patient advised to climb stairs 3-4 times twice daily.

c) **Diet**

Patient’s diet habits completely changed, overeating, and non-vegetarian food eating was banished. In morning breakfast light food as Poha, Upit with tea, in lunch and dinner only one Chapati, Dal, curry, 1 bowl rice maintained. It was utmost difficult to maintain, but family members specially patients wife took charge and initiated patient to follow it.

**RESULTS:**

On admission day dated 17.07.2015 patient’s weight was 91 kg, which got reduced to 72 kg at the time of completion of treatment on 16.09.2015. The results showed that there were significant changes in reduction of weight by 19 Kgs in 90 days. Patient was advised to continue restricted diet, avoid day sleep, plenty of water to drink and exercises for next 4 months. On completion of treatment patient got rid of dyspnoea, weakness, constipation and important cheerful sexual intercourse. Details of body weight changes etc enumerated in Table no.5.

**DISCUSSION**

In present Case study I utilized Aam Pachana, Vamana, Virechana Abhyantara Oushadha, Vyayam, Diet plan Chikitsa for management of disease.

1. **Aam Pachana and Agni Deepan**

Before initiation of Purificatory measures, Aam Pachana and Agni Deepan are important. In Sthaulya bodily Kapha Dosha along with Aam Annarasa circulates all over body [22], loosens Dhatus and causes obesity. In this patient Dhatwagni Mandhya and Bhutagnimandhya was there and accumulation of Aam which causing Strotorodha (blockage of body channels) by its Guru, Abhishyandi, and Picchila properties resulting in Obesity. For its execution Langhana, Koshna Jala Sevana, Sutashekhara Vati, Chitrakadi Vati employed which act on Aam, Agni, Kapha Dosha producing lightness in body, Agnivardhana, removal of Strotorodha, Aam by Laghu, Ushna, Tikshna, Vishada, Sukshma, Khara qualities.

2. **Abhyantara Snehapan with Mahatiktaka Ghrita**

Before employing Panchakarma, Snehana-Swedana is mandatory. Snehana pacifies Vata, brings softness in body parts, stagnated or accumulated Mala, in body part gets loosened, Swedana cause liquefaction of Doshas. Dosha gets Anuloma Gati and brought towards Koshtha [23]. Mahatiktaka Ghrita used in this clinical study for Abhyantara Snehapan having superior properties and Pittahara Guna, so it brings vitiated Doshas to Koshtha, pacifies Vata by Sneha Guna.

3. **Vamana and Virechana Karma**

In Sthaulya there is predominance of Kapha along with Aamrasa causing Dhatushaithilya [24] which is of Guru, Snigdha, Picchila, and Sandra Guna. Appropriate utilization of Vamana, Virechana Karma removes bodily vitiated Kapha, Pitta Dosha, and Aam from body cause Samprapti Bhanga and makes body disease free.

4. **Abhyantara Oushadha**
SutshekharaVati, Aarogyavardhini Vati given for maintenance of bodily Pitta, Vayu and Kapha Dosha normality. Lekhaniya Mahakashaya enumerated by Charakacharya is excellent in Lekhana Karma. In Sthaulya there is accumulation of Kapha all over body along with Meda, Mamsa Ati Vruddhi. Drugs of Lekhaniya Mahakashaya act on augmented Meda, Mamsa, and Kapha causing reeducation of them and to end with reduction in body weight.

5. Vyayama (Exercise)
Vyayama\(^{25}\) (Exercise) is important in Sthaulya Chikitsa. It causes lightness in body, improvises working power, digestive fire, and depletes raised bodily Meda Dhatu. Considering Patients economic condition walking, climbing stairs chosen as exercise which effect in weight loss.

6. Role of Diet
Diet is utmost important in obesity management. The most basic consideration is that the food energy intake should not be greater than what is necessary for energy expenditure. It requires modification of patient’s behavior and strong motivation to lose weight and maintain ideal weight. In present case Restricted modified diet worked and result in loss of body weight was incredibly. Restricted diet doesn’t cause over nutrition so body won’t gain overweight.

**CONCLUSION**

Based on the signs and symptoms, Sthaulya was treated with Shodhana diet, exercise and medicines followed by the Vishista Nidana Parivarjana in the form of Ahara Vihara, Aushadha, Vyayama showed remarkable changes in reducing the weight of the patient.

**ACKNOWLEDGEMENT**

Sincere gratitude to my first patient, who bestowed in my treatment, followed all instructions made me renowned in Society as Successful Ayurved Physician.

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<th><strong>Table 3:</strong> Presentation of Snehapan Procedure prior to Vamana &amp; Virechana Karma</th>
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<tr>
<td><strong>Vamanapurava Snehapana</strong></td>
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**REFERENCES**

1. [https://en.wikipedia.org/wiki/Obesity#Epidemiology](https://en.wikipedia.org/wiki/Obesity#Epidemiology)
2. [https://en.wikipedia.org/wiki/Obesity_in_India](https://en.wikipedia.org/wiki/Obesity_in_India)
4. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G.Joshi Sutrasthana 23rd Adhyaya Shloka no. 6 Published by Vaidyamitra Publication, Pune 2003
5. Sanskrit English Dictionary written by Sir Monier Williams Published by Motilal Banarasidass Publication New Delhi Reprint 1986 Page no.1266
7. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G.Joshi Sutrasthana 21st Adhyaya Shloka no. 9 Published by Vaidyamitra Publication, Pune 2003
8. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G.Joshi Sutrasthana 21st Adhyaya Shloka no.5-8 Published by Vaidyamitra Publication, Pune 2003
9. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G.Joshi Sutrasthana 23rd Adhyaya Shloka no.8 Published by Vaidyamitra Publication, Pune 2003
10. Ayurvedeeya Oushadhigunadharma-shastra written by Vaidya Gangadhara-shastri Gune Published by Choukhamba Sanskrit Pratishthan 2014 Part 2 Page no.110
11. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G.Joshi Chikitsasthana 15th Adhyaya Shloka no.8 Published by Vaidyamitra Publication, Pune 2003
12. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G.Joshi Chikitsasthana 7th Adhyaya Shloka no.150 Published by Vaidyamitra Publication, Pune 2003
15. Astangahridaya by Laghu Vagbhata with Sarvagasundara Sanskrit Commentary of Arunadatta and Ayurvedra-sayan Sanskrit Commentary of Hemadri Sutrasthana 17th Adhyaya Shloka no.9 Edited by Dr.A.M.Kunte Published by Nirmayasarag Press Bombay 1939 Reprint 2000
16. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G. Joshi Kalpasthana 1st Adhyaya Shloka no.13 Published by Vaidyamitra Publication, Pune 2003
17. Ayurvedideeya Panchakarma Vignana written by Vaidya Y.G. Joshi published by Pune Sahitya Vitarana Publication 2005 Chapter 5 Page no.115
18. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G. Joshi Siddhisthana 1st Adhyaya Shloka no.6 Published by Vaidyamitra Publication, Pune 2003 Vaidyamitra Publication 2008 Charaka Samhita Siddhisthana 1/6 Vd.Y.G.Joshi
19. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G. Joshi Siddhisthana 7th Adhyaya Shloka no. 23 Published by Vaidyamitra Publication, Pune 2003
20. Ayurvededeeya Oushadhigunadharma-shastra written by Vaidya Gangadhara-shastri Gune Published by Choukhamba Sanskrit Pratishthan 2014 Part 2 Page no.10
22. Ashtangasangraham by Vruddha Vagh-hata with Shashilekha Sanskrit Commentary of Indhu Sutrasthana Adhyaya 24th Page no.216 Edited by Vaidya Govardhan Sharma Changani Published by Choukhamba Sanskrit Series, Banaras 1945 Reprint 2010
23. Charaka Samhita by Agnivesha, revised by Charaka and Dridhabala with Ayurveda-Dipika commentary of Chakrapani-Datta edited by Vaidya Y.G. Joshi Siddhisthana 1st Adhyaya Shloka no.6 Published by Vaidyamitra Publication, Pune 2003 Vaidyamitra Publication 2008 Charaka Samhita Siddhisthana 1/6 Vd.Y.G.Joshi
24. Ashtangasangraham by Vruddha Vagh-hata with Shashilekha Sanskrit Commentary of Indhu Sutrasthana Adhyaya 24th Page no.216 Edited by Vaidya Govardhan Sharma Changani Published by Choukhamba Sanskrit Series, Banaras 1945 Reprint 2010
25. Ashtangasangraham by Vruddha Vagh-hata with Shashilekha Sanskrit Commentary of Indhu Sutrasthana Adhyaya 3rd Page no.28 Edited by Vaidya Govardhan Sharma Changani Published by Choukhamba Sanskrit Series, Banaras 1945 Reprint 2010

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