

A CONCEPTUAL ANALYSIS OF MEDOROGA (STHAULYA) AND ITS
UPASHAYATMAK MANAGEMENT THROUGH AYURVEDADr. Rashmi Shriwas*¹, Dr. Sanjay Shukla², Dr. Rupendra Kumar Chandrakar³ and Dr. Shivangee Jain⁴¹MD Scholar, Dept. of Roga Nidan Evum Vikriti Vigyan Govt Ayurvedic College Raipur (C.G).²Lecturer, Department of Rog Nidan Evum Vikriti Vikriti, Govt Ayurvedic College (C.G).³Reader, Department of Maulik Siddhant, Govt Ayurvedic College Raipur (C.G).⁴MD Scholar, Dept. of Roga Nidan evum Vikriti Vigyan Govt Ayurvedic College Raipur (C.G).

*Corresponding Author: Dr. Rashmi Shriwas

MD Scholar, Dept. of Roga Nidan Evum Vikriti Vigyan Govt Ayurvedic College Raipur (C.G).

Article Received on 16/06/2018

Article Revised on 06/07/2018

Article Accepted on 27/07/2018

ABSTRACT

Obesity is one of the noncommunicable disease. The etiopathogenesis management and consequences of obesity are not very clear and still evolving in biomedical science it is a multi-factorial metabolic disorder and in ayurveda it is similar to Sthaulyata or Medoroga. In this disease *jatharagni* and *Dhatwagni* especially *Medodhatwagni* are vitiated. Due to this *Dhatuparinama* is affected so that *Medo Dhatu* is not formed properly. *Ama Dosha* is formed at various levels and it interacts with different *Dhatu*s. In nutshell due to *Medodhatwagnimandyata* excessive production of *Sama Meda Dhatu* is resulted which causes the *Medo Roga*. This *Sama Meda* is accumulated in the body and deposits in various *Srotases* leading to *srotorodha* resulting in various complications. On the basis of their clinical manifestations *Sthaulya* may be correlated with the term *Medo roga*. *Medodhatu (Medas)* is the fourth *Dhatu* of the body and found in almost every place. It is predominately seen as a thick layer underneath the *twak* (Skin), Inside the *udara* (Abdomen) attached to its *Kalas*. The *Vrikka* and *Vapavahan* are described as the mula of this system. *Sthaulya* or obesity is an excessive increase in weight and girth the body due to accumulation of excess quantity of fat slight obesity is common after the age of forty and in women after childbirth and during menopause. Accumulation of excessive fat is attributed to disturbance of appetite contro mechanism of the body which makes over eating abnormal mechanism, abnormal hormonal function of the body.

KEYWORDS: Medoroga (Sthaulya), Obesity, Nidan Panchak, Upashaya.

INTRODUCTION

Obesity is the condition in which the natural energy reserve is increased to a point where it is associated with certain health condition or increased mortality. It has been estimated affects 20 – 40% of adults and 10- 20% of children and adolescents in developed countries. According to WHO the world wide latest report of prevalence of obesity states that around 250 million cases of obesity are reported every year afflicting about 7% of adult population. India is following a trend of other developing countries having tendencies of steadily more obese. Globally, there has been an increased intake of energy-dense foods that are high in fat and an increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization. Obesity occurs more in female than male and specially increases after use of IUCD, contraceptive pills, post delivery and in menopausal period.

Concept of Meda

Two types of *Meda* (Fat) are described in *Ayurveda*^[4]

1. *Baddha* (bounded/unmovable) *Meda*- The fat which is not mobile and is stored in the form of fat at various places (fat depots/ omentum/muscles in the body).
2. *Abaddha Meda* (unbounded/movable) - The fat which is mobile and circulates in the body along with blood in the form of lipids (Cholesterol, Triglycerides, LDL, HDL & VLDL etc.)

Karma of Medo Dhatu: As states by *Acharya Sushruta*, *Snehana* (oiliness/ luster of skin, hairs and eyes etc.), *Sweda* (sweat), *Dridhatva* (strength), *Asthipusti* (strengthening of bones) and *Netra- Gatra Snigdhatva* (oiliness of eyes and body) are the main functions of *Medo Dhatu*.

Sthana and Swarupa of Medo Dhatu

There are 2 types of *Medo Dhatu*. One is *Poshaka* (nourishing) and second is *Poshya* (which get nourishment). Among these two, *Poshaka Medo Dhatu* is mobile in nature, which is circulated, in the whole body

along with the *Rasa- Rakta Dhatu*, to give nutrition to *Poshya Medo Dhatu*. Through different imaging techniques it can be visualized that lipids along with the cholesterol are being circulated with the blood.⁵ Second, *Poshya Medo Dhatu* is having immobile nature, which is stored in *Medodharakala*. The site of *Medodharakala* is *Udara* (abdomen) and *Anuasthi* (bones). *Udara*, *Sphika* (buttocks), *Stana* (breast tissue) are also depots of *Poshya Meda*.⁶ *Medo Dhatu* is also considered as a *Sneha* dominant *Drava Dhatu* which is having *Guru* (heavy), *Snigdha* (oiliness) properties and dominance of *Prithvi* (earth), *Apa* (water) and *Teja* (fire) *Mahabhoota*. As a result of *Mamsagnipaka*, it can be distinguished in the

form of *Sukshmabhaga* (minute or nano portion), which is responsible for the further transformation of the *Medo Dhatu*.

Definition: *Sthaulya* is described as excessive and abnormal increase of *meda dhatu* along with *mamsa dhatu* resulting in pendulous appearance of buttocks, belly and breasts; however increased bulk is not matched by corresponding increase in energy^[1]. The obesity as described as '*Medoroga*' in ayurveda^[2] and said that comparatively it is easy to help an underweight person rather than overweight.

Aetio-pathogenesis of *Sthaulya*^[3,4,5,6,7,8]

All the *Nidana* described by various *Acharyas* for *Medoroga* can be classified under four broad categories as follows:

<i>Aharatmaka Nidana</i>	<i>Viharatmaka Nidana</i>	<i>Manasika Nidan</i>	<i>Anyā Nidana</i>
<i>Santarpana, Adhyashana,</i>	<i>Avyayama</i>	<i>Harshnityatvata</i>	<i>Bijadoshaswabhaba</i>
<i>Guru Aharasevana</i>	<i>Avyavaya</i>	<i>Priyadarshana</i>	<i>Snigdha Madhur Basti Sevana</i>
<i>Madhura Aharasevana</i>	<i>Diwaswaap</i>	<i>Saukhyena</i>	<i>Snigdha Udvartana</i>
<i>Madhura Aharasevana</i>	<i>Swapnaprasangat</i>	<i>Achintanat</i>	<i>Amarasa</i>
<i>Snigdha Aharasevana</i>	<i>Asana Sukham</i>	<i>Manasonivritti</i>	Hormonal changes
<i>Navanna sevanaa</i> <i>Atisampuraad, pistanna sevan</i>	<i>Gandhamalyanusevana</i>		Removal of <i>Bijakosha</i> (ovary) and other surgical operation in women
<i>Mamsa Sevana,</i>	<i>Gandhamalyanusevana</i>		
<i>Dadhi Sevana,</i>	<i>Bhojanottar snaana</i>		
<i>Ikshu Vikara Sevana</i>	<i>Atinidra</i>		
<i>Ikshu Vikara Sevana</i>			

Another classification of the causative factors of *Sthaulya* can be done on the basis of *Asamanya-Vishesh siddhanta* given by *Acharya Charak*,^[9] according to which the increase or decrease in *Dhatu* is based on the quality and quantity of nutrition provided to them.

Excessive consumption of substances similar to *Meda* (*Guna samanya*) and the action that have similar action of *Meda* (*Karma samanya*) leads to an increment of *Meda* in the body. Thus based on this concept, the *Nidanas* of *Medoroga* can be classified as:

- **Dravya Samanya:** Consumption of animal & vegetable fats (*Ghee, taila, vasa, majja*)
- **Guna Samanya:** Consumption of food with *Snigdha, Guru guna* e.g. milk, masha, *sheeta veerya dravya*, substances with *madhura rasa & vipaka*.
- **Karma Samanya:** *Divaswapna, Avyayama, Avyavaya, Sukhasana, Taila abhyanga, Snigdha udvartana*, etc. The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended.
- **RUPA (Clinicalfeature)^[10,11]:** Due to over weight patient suffers from mild dyspnea, thirst, drowsiness, excess sleep due to over weight, body pains, excess appetite, offensive smell the body, incapability to work and incapability to participate in sexual intercourse. *meda* is situated in all the living organism in the abdominal wall and that's why they also suffer enlarged central part of the body.

Besides these cardinal symptoms, eight *Doshas* (disability) of *Medoroga* have been mentioned along with their elaborated pathogenesis which is as follows:

- **Ayushohrasa (Diminution of lifespan):** Life expectancy decreased because of over production of *Medo Dhatu* at expense of other *Dhatu*s therefore, other *Dhatu*s could not be nourished properly.
- **Javoparodha (Lack of enthusiasm)** - The *Shaitihilya* (flabbiness), *Saukumarya* (delicacy) and *Guruta* properties of *Meda Dhatu* causes *Javoparodha*. Thus these persons are slow to initiate the work.
- **Kricchavyavaya (Difficulty in sexual act)** - Due to obstruction in genital passage by *Meda Dhatu* and less production of semen.
- **Daurbalya (Debility)** This result because of the deranged metabolism owing to malnourishment of the *Dhatu*s.
- **Daugandhya (Foul smelling of body)** Bad smell results due to excessive sweating, innate quality of *Meda Dhatu* and morbid nature of vitiated *Meda*.
- **Swedabadha (Distressful sweating)** On account of the admixture of *Kapha* with *Meda*, *Vishyandi*, *Bahutva* and *Guru* properties of *Meda*.
- **Kshudhatimatrata (Excessive hunger)** Because of increased *Agni* in *Koshtha* and vitiation of *Vata* by obstruction of *Meda*.

Samprapti(pathogenesis)^[12,13]: If an individual indulge in frequent consumption of *Shleshmala* diet (*Madhura*,

Guru, Sheeta,) without undertaking adequate physical activity and rather sleeps for a long time or in other way. *Amarasa* containing etiological factors leads to *kapha* predominant *Dosha* increase in the body, which due to its very nature produces *Agni* disturbance causing the production of *Ama*. This *Ama* goes directly to *Meda Dhatu* & leads to increase and accumulation of *Meda* by creating *Medodhatwagni-mandya*. Vitiated *Kapha* & *Meda* causes *Medovaha Sroto Sanga*, leading to *Margavrodha* of *Vata*. This vitiated *Vata* circulates in whole body especially in the *Kostha*, later on causing digestive fire increase (*Jathragni Sandhukshana*) which results in stimulate of *Kshudhaadhikya* & *Shighra Jarana* of *Ahara*. *Medodhatwagni Mandhya* takes place due to which the capacity to digest *Medamsa* by the *Medodhatwagni* is hampered, leading to the formation of *Apakwa* (undigest) *Meda* which is incapable of nourishing the further *Mamsa Dhatu*. The *Ama Meda* gets accumulated in *Sarvanga* especially in the *Sphig-Udar-Stana* regions resulting in *Sthaulya*.

Samprapthi Ghataka

Dosha- Though *Medoroga* is a *Kapha* predominant *Vyadhi* yet the involvement of *Vata* and *Pitta* cannot be neglected. So, all the three *Doshas* are involved in the pathogenesis of *Medoroga*.

Udbhava Sthana- Amashaya

Vyakta Sthana -Sarva Shareera

Adhistana- Medo Dhatu.

Roga Marga- Bahya

Dhatwangni -Mandha

Dushya -Rasa, Mamsa and Medo Dathu

Sroto Dusti- Sanga

Sadhya Asadhyata- Krichha Sadhya

Dushya: Acharya Sushruta has mentioned *Medoroga* as a *Dushya* dominant disorder and in this disease the excessive production of abnormal *Meda Dhatu* is clearly visualized. *Kapha* is seated in *Rasa, Mamsa, Meda, Majja* and *Shukra Dhatus*. On the basis of *Ashrayashrayeebhava* vitiation of *Kapha* also leads to vitiation of above *Dushyas*. Also *Kapha* and *Meda* have similar properties. Finally ultimately vitiation of *Meda Dhatu* also occurs.

- **Srotas:-** In *Medoroga*, *Medovah Srotas* is mainly involved along with the *Rasavah* and other *Srotasa*. Basically it is a *Sanga* type of *Srotodusti* leading to *Vimargagamana* of *Meda Dhatu* also. *Atisweda* and *Daurgandhya* indicate the involvement of *Swedavah Srotas*. Presence of *Ati Pipasa* indicates the involvement of *Udakavah Srotasa*. In the pathogenesis of *Medoroga*, increased fat deposition inside the muscle (*Vasa*) indicates the involvement of *Mamsavah Srotasa*. *Vimargagamana* of *Meda Dhatu* also. *Atisweda* and *Daurgandhya* indicate the involvement of *Swedavah Srotas*. Presence of *Ati Pipasa* indicates the involvement of *Udakavah Srotasa*.

- **Agni:** *Mandagni* at *Jathragni* or *Dhatvagni* level is considered as root cause of all diseases. Due to *Mandagni*, formation of *Ama* occurs. Some of the disorders like *Ajirna*, *Alasaka*, and *Visuchika* emerge are the result of derangement of *Jathragni* while disorders like *Medoroga* results from derangement of *Dhatvagni*.

- **Measurement of obesity**^[14]

It can be assessed in several ways which are mentioned as follows:

- Weight and Height ratio
- Measurement of skin-fold thickness
- BMI
- Circumference ratio (Waist/Hip ratio).

CLASSIFICATION BMI(KG/M2)^[15]

It can be calculated by dividing person weight in kilograms with persons height in square meter

Normal range 18.50-24.99

Overweight >25.00

Pre-obese 25.00-29.99

Obese >30.00

Obese class 1 30.00-34.99

Obese class 2 35.00-39.99

Obese class 3 >40.00

Sadhyata-Asadhyata-When excessive growth of *medoroga* there is vitiation of *Vatadi Tridosha* and produce dangerous complication even some time patient's in death occurs.

If patient is *kaphaja prakriti*, due to *Endocrinal abnormality* or *Sahaj dosaj/Bijadosaj* then disease is *Krichhasadhya* or *Asadhya*.

When patient is *balvaan* and follow proper role and regulation of *Dincharya Ratricharya Pathya Apathya Palana* then *Vyadhi* is *Sadhya*.

Upadrava^{[16][17]}

Visarpa, Bhagandara, Jvar, Atisaar, Prameha, Arsha, Shleepad, Apachi, Kamla, Prameha Pidika Vidradhi.

RESULT AND DISCUSSION

Excessive indulgence in oily and fatty food, sedentary life style, *Manasika* factors along with genetic predisposition play a major role in aetogenesis of *Sthaulya*. Bad prognosis of *Sthaulya* has been described by Acharya Charaka, because if they are not duly managed, they are prone to death due to excessive hunger (*Davanal*),^[18] thirst and other complications. There is no specific treatment for obesity, only diet and exercise can play important part. The treatment of *sthaulya* is tedious work in comparison with treating *krisha* person^[19] because the over obes and the over lean are constantly indisposed and as such have to be managed constantly with bulk- reducing and bulk-promoting measures respectively so out of the obes and

lean, lean is better. Acharya Charak says always trying for the Sama Sharira like One having balanced proportion of muscle, compactness, firmness in organs does not fall prey to prowess of a disorder, if the person having balanced musculature has got tolerance for hunger, thirst, the sun, cold and exercise, balanced agni and normal metabolism. The aim of treating "Sthaulya" is at reducing vata, agni and meda. It is very hard work because, neither santarpana nor apatarpana mode of treatment is efficacious for correcting sthauya; because samtarpana chikitsa pacifies vayu & agni; but at the same time raises meda dhatu. On the other side aptarpana chikitsa reduces meda on one hand but elevates the status of agni and vayu in the body. Also there is a very limited choice of drugs and diets for Sthula person and there is a greater probability of getting affected by complication. So, Vagbhata has considered Sthauya as dushchikitsya vyadhi.^[20] The life expectancy of obese individual is much shorter than normal weights. Medodhatvagnimandya are main responsible factors in pathogenesis of Sthauya Clinically patient presented with signs and symptoms such as increased body weight, fatigue and joint pains. Importance of pathya sevan *Lekhana Karma Udwarthana, Virechana, Vyayama, Upavasa, Swedana, medonashak Aushadis*. Acharya charaka has described "*Guru cha Apatarpanachesta Sthulanam Karshana prati*"^[7] followings of these therapies, patient should be advised to continue the oral medications for a month and was asked to continue the diet and *Yoga* regularly is very significant.

Chikitsa Siddhanta^[21,22,23,24]

1. Nidan Parivarjana
2. Karshana, Guru Apatarpana Chikitsa
3. Samshodhana chikitsa
4. Samshaman chikitsa-Sharirika and Manasika Vyayam, Vata kapha nashak Ahara and Vihara Mutra-Purisha Virechaniya Aushadhi Prayoga

Single drug (Ekal aushadha)^[25]

Triphala, Guggulu, Vidanga, Shilajatu, Haritaki, Amalki, Shunthi, Agnimath, Vacha, Guduchi etc.

Obese patient should consider following things^[26]

Use of honey

Use of Species-Fenugreek, turmeric, cumin, mustard, afoetida, curry leaves, ginger, black pepper, clove, cinnamon, Amalaki, Bilva, Agnimanthha.

Avoid sweet, sour, salty and oily food as it aggravates Kapha and Meda (Sweet foods include not only sugar but also rice, wheat, pasta, breads, and sweet milk products.) Cakes, cookies, Pastries, Chocolates Dairy products especially cheese cream, ice cream, yogurt. Meat especially red meat, fried food, grilled food. Avoid packaged foods, processed food and restaurant fried foods - pizza, hot dog, burger.

Avoid incompatible and Tamasic combinations of food^[27]

Milk with fish, meat, curd and sour fruits, bread containing yeast, cherries and yogurt. Yogurt with milk, sour fruits, melons, hot drinks, meat, fish, mangos and with cheese, Eggs with milk, meat, yogurt, melons, cheese, fish and Bananas.

Useful tips

- Maintain a regular daily routine. Wake up before 6.00am Take 2 teaspoon of honey and 2 tea spoon of lemon juice with 1 glass of warm water Exercise at morning at least 40 min/day -4days/week.
- Eat light nourishing breakfast – cooked apple, toast, cooked barley or oatmeal.^[20]
- Boil water with fresh ginger and drink frequently throughout the day.
- Make Lunch as a main meal and Dinner should be as light as possible.
- Do not sleep during day, avoid eating late at night.
- Eat only after digestion of previous meal. Or when feeling hungry.
- Take a walk after meal.

Pathya Ahara Varga^[28]

- Dravya- Takra, Madhu, Ushnodaka Til tail, Sarshap tail, Arishtha Asava, Jirnamadya Dugdha, Ikshu, Navnit, Ghrita Dadhi.
- Shuka Dhanya- Yava, Venuyava, kodrava, N nivar, Jurna Godhuma, Navanna, Skhali.
- Shami Dhanya- Mudga, Rajmasha, K kulattha, Chanak, masur, Adhaki Masha, Tila.
- Shaka Varga- Vrutak, Patrashaka, Patola Madhurshaka, Kanda.
- Phala- Kapitha, Jamun, Amalak Madhuraphala.

Pathya Vihar^{[29][30]}

Sharirika and Mansika Shrama, Chinta, Rartijagarana, Strisevan, Pralepa, Langhan, Dhupasevan Riding on animals and mountains, Walking, Apatarpana Karma, Exercise, Bathing with Hot water.

Asanas	Pranayama
<i>Trikonasana, Ardha Kati Chakrasana, Arda Chakrasana</i>	<i>Kapalabhati,</i>
<i>Vajrasana, Gomukhasana, Ardha Matsyendrasana.</i>	<i>Bhastrika,</i>
<i>Pavana Muktasana.</i>	<i>Surya- Anuloma Viloma</i>
<i>Bhujangasana, Dhanurasana</i>	<i>Surya Bhedana,</i>
<i>Shavasana</i>	<i>Bhramari.</i>

Apathya Ahara and Vihara^[31]

Ahara varga- Naveen Shali Dhanya, Godhuma, Chaval, Urada, Aaluka, Dugdha, Malai, Rabdi, Khir, Dahi, Mansa, Matsya varga, Egg, Navneeta, Ghrita, Guda, Raab, excessive water intake and oilation just after intake of food.

Vihara- Shital jalsnan, Divashayan, sadaiva Aasan such, shital jalasnana for a long time happiness in the mind, Nischintata.

CONCLUSION

Now a days obesity has become a big and burning problem because variety of safe drugs are not available for long term therapy and ones a person suffering from obesity then he need long term treatment .in these disease patients aversion to all unhealthy habits or *Nidan like because* the sedentary life style, lack of physical exercise, faulty dietary habits and urbanization precipitate the disease *Sthaulya*. Acharya Charak has mentioned that Atisthula is always afflicted by disease. He mentioned death as complication of the disease. Sthaulya is a Kaphaj Nanatmaja and dushya (*Meda*) dominant disorder so *Kaphaprakriti* persons are more prone to obesity so they should be advised proper diet regimens and exercise. Patient with middle socioeconomic status are affected more. Sharirika nidan Mansika nidan, Beejdusti are important aetiology of Sthaulya so all Authors says that Nidan Parivarjana is the main Management for These. Along with *Nitya langana* (therapy of lightness) is the treatment principle for *Atisthauya*. Regular practice of *Pranayama* brings balance in the system in terms of Physical and Mental functions. When Medodhatu becomes greatly increased then Vatadi Dosas give rise to may dreadful disease and destroy the life. So always should be trying for the Samsamhananor Samsharira.

REFERENCE

- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014; Varanasi Chaukhambha orientaliya Varanasi, pn-144.
- Upadhayay Shri Yadunandana Virchita Madhavanidanam vol-2 Edition-Reprinted 2070, Varanasi Chaukhambha Prakashan Varanasi, pn-36.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-144.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-212.
- Achita CShree Chakrapanidatta Virchita Charak Samhita Vol-2,1st Edition-2009, Vranasi Chaukhambha Orientalia Varanasi, pn-309.
- Shri Madhavakar Madhav Nidanam vol-2, reprinted edition 2070 Varanasi Chaukhambha Prakashan Varanasi, pn-36.
- Singhal G.D. & Colleagues Susruta SamhitaVol-19 (Sutra and Nidan Sthana) Second Edition-2007; pn 284.
- Singhal G.D. & Colleagues Susruta SamhitaVol-19 (Sutra and Nidan Sthana) Second Edition-2007; pn-287.
- Sharama P.V. Carak Samhita vol-1 (Sutrasthan to Indriya sthana) Edition-2014 Varanasi Chaukhambha orientaliya Varanasi, pn-6.
- Murthy Prof. K. R. Srikantha Astanga Samgraha of Vagbhatta Vol-1 (Sutrasthan) Edition-5th 2002 Varanasi, Chaukhambha Orientalia Vranasi, pn-424.
- Sharama P.V. Carak Samhita vol-1 (Sutrasthan to Indriya sthana) Edition-2014 Varanasi Chaukhambha orientaliya Varanasi, pn-144.
- Shri Madhavakar Madhav Nidanam vol-2, reprinted edition 2070 Varanasi Chaukhambha Prakashan Varanasi, pn-36.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014 Varanasi Chaukhambha orientaliya Varanasi, pn-144.
- Devidson's Principle and Practice of Medicine, 22nd Edition Disorder of Ultered energy Balanced, pn-117.
- Devidson's Principle and Practice of Medicine, 22nd Edition Disorder of Ultered energy Balanced, pn-117.
- Shashtri Vaidy Shri Lakshmiapati Yogratnkr Vidyotani hindi teeka Sanskaran-v.s.2072 Varanasi, Chaukhambha Prakashan Varanasi pn-98.
- Singhal G.D. & Colleagues Susruta Samhita Vol-19 (Sutra and Nidan Sthana) Second Edition-2007; pn-137.
- Tripathi Bramhananda Charak Samhita vol.-1 Sutrasthan edition-2013, Varanasi Chaukhambha Prakashan Varanasi, p.n-401.
- Sharama P.V. Carak Samhita vol-1 (Sutrasthan to Indriya sthana) Edition-2014 Varanasi Chaukhambha orientaliya Varanasi, pn-145.
- Tripathi Bramhananda Charak Samhita vol.-1 Sutrasthan edition-2013, Varanasi Chaukhambha Prakashan Varanasi, p.n-195.
- Tripathi Bramhananda Charak Samhita vol.-1 Sutrasthan edition-2013, Varanasi Chaukhambha Prakashan Varanasi, p.n-196.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-146.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-145.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-146.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-146.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-190.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-146.
- Sharama P.V. Carak Samhita vol-1(Sutrasthan to Indriya sthana) Edition-2014, Varanasi Chaukhambha orientaliya Varanasi, pn-146.

30. Prof. Mishra Sidhadinada Bhaisajya Ratnavali hindi vyakhya Edition-2012, Varanasi Chaukhambha Surbharti Prakashan Varanasi, pn-729.
31. Prof.Mishra Sidhadinada Bhaisajya Ratnavali hindi vyakhya Edition-2012, Varanasi Chaukhambha Surbharti Prakashan Varanasi, pn-729.