WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 7, 130-138. Review Article ISSN 2277–7105

A CONCEPTUAL REVIEW ON RELATIONSHIP BETWEEN OBESITY AND SCIATICA THROUGH AYURVEDIC PERSPECTIVE

Akhila K. S.[1]* and Shrilatha Kamath T.[2]

[1]First Year P G Scholar, Dept. of Kayachikitsa and Manasaroga, Sri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi, Karnataka, India.

[2]Professor and HOD, Dept. of Kayachikitsa and Manasaroga, Sri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi, Karnataka, India.

Article Received on
09 February 2024,

Revised on 29 Feb. 2024,
Accepted on 20 March 2024

DOI: 10.20959/wjpr20247-31724

***Corresponding Author**
Akhila K. S.
First Year P G Scholar, Dept. of Kayachikitsa and Manasaroga, Sri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi, Karnataka, India.

ABSTRACT

Aims and Objectives- Several recent studies have proposed that obesity is a risk factor for certain Low back pain, which is major cause of morbidity throughout the world. Management of such diseases in an obese patient is still challenging indicating a strong contrary association between obesity and Intervertebral disc prolapse. The study is aimed to find the correlation between obesity and intervertebral disc prolapse through a critical review in Ayurveda. **Methods-** The material for this conceptual study is collected from various Ayurvedic texts, articles, online journals, etc. **Discussion & Conclusion-** Sciatica is a pathology condition which has symptom of lumbago, caused due to strenuous activities. It starts from severe low back pain, which may be localized then radiates and progresses. When seen through the eyes of Ayurveda, healthy formation of each dhatu depends on the status of the preceding one. According to this concept, *Asthidhatu* forms from *medodhatu* and *Majjadhatu* forms from *Asthidhatu*. If there is a *Medodhatu* derangement, proper formation of *Asthidhatu* will not take place like wise *asthi* and *Majjadhatu*. *Dhatus* like *Asthi* and *Majja* in *Prakruthavastha* does *Dharana* and *Poorana* to body and in *Vikruthavastha* produce *Asthi shoola*, *Asthi kshaya*, *Asthi shoonyata* etc.

KEYWORDS: *Sthoulya, Gridrasi, Medo dhatu, Asthi dhatu* and *Majja dhatu.*

INTRODUCTION

It is a universally accepted fact that good health plays an important role in human development. According to the concepts of Ayurveda, good health is based on the equilibrium state of Dosha, Agni, Dhatu, and Mala. The World Health Organization (WHO) defines good health as a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity, which is in close proximity to the definition of good health mentioned in Ayurvedic classics. Modernization, affluence, science and technological development lead to still more sedentary life styles. By exposing oneself to all these factors human beings unknowingly invited a number of diseases, out of which *Sthoulya* is one which disturbs physical, mental as well as social health of an individual. *Sthoulya* is the abnormal & excess accumulation of *Medo Dhatu*.[1]

All the above factors create another common issue is pressure to the spinal cord and play an important role in producing low backache. Among the various causes of low back pain, the Sciatica is the most common. In Ayurvedic science, the disease Sciatica can be compared with *Gridhrasi*.[2] Excess body weight contributes to the spinal changes that trigger sciatica.

Sthoulya

In Ayurveda Obesity is described as '*Medoroga'* or '*Sthoulya Roga'*.

Medo mamsa ati vrudhatvat chala sphik udara

***stanaayathopachayautsaho naro atisthula uchyate*[3]**

The increase of the *Meda* & *Mamsa Dhatu* causes flabbiness and pendulous appearance, thus movement of the abdomen, buttocks and breasts. This improperly formed *Medodhatu* causes *Utsahahani* in the individual, such person is called *Atisthula*. In the body of too much obese person there is excessive accumulation of medas thus life span is shortened, due to *Saithilyatha*, *Soukumaryatha* and *Gurutva* of medas the body movement is obstructed.[4]

- ***Nidana* of *sthoulya*[4]**

Aharaja	***Viharika***	***Manasika***	***Anya***
Atisampoorna *Guru* *Sheeta* *Snigdha* *Madhura*	*Avyayama* *Avyavaya* *Divaswapna*	*Achintata* *Harshita*	*Beeja* *Dosha*

Purvaroopa

None of the Ayurvedic texts has described the *Purvaroopa* of *Sthoulya*. Pathogenesis of *Prameha* and *Sthoulya* are similar, the reason being that in both there is vitiation of *Kapha* and *Meda*. Therefore, *Purvaroopa* of *Prameha* and *Medovaha Strotodushti Lakshana* can be considered as *Purvaroopa* of *Sthoulya*. These are as follows

- *Atinidra*
- *Tandra*
- *Alasya*
- *Visra Sharira Gandha*
- *Anga Gaurava*
- *Anga Shaithilyata* etc.

Wherever *Purvarupa* of disease are not mentioned, the weak manifestation of *Rupa* should be considered as *Purvarupa* of the concerned diseases. Keeping these views in mind, *Lakshana* of *Kapha Vriddhi* like *Alasya*, *Angashaithilya*, *Madhurasyata*, *Atinidra*, *Atipipasa* etc. may also be considered as *Purvarupa*.[5]

- ***Bheda*[6]**

Three types of *Sthoulya* for better management

1. *Hina Sthoulya*
2. *Madyama Sthoulya*
3. *Adhika Sthoulya*

- ***Samprapti***

Due to *Avarana* in the *Strotas* by the *Meda*, there is *Vriddhi* of *Koshtasthit Samana Vayu*, which in turn causes *Ati Sandhukshana* of *Jatharagni*. The increase in *Jatharagni* leads to rapid digestion of consumed food and leaves the person craving for more food. If at all due to some reason the person doesn't receive more food the increased *Agni* causes *Dhatu Pachana* which may lead to various complications. But because of the hunger the persons tend to eat more and the cycle continues. In this way it becomes a vicious circle creating excessive improperly formed *Medo Dhatu* with giving rise to various symptoms. Because of such condition of *Strotorodha*, the other *Dhatus* are not nourished properly causing *Shaithilya* (Flabbiness) of *Dhatus* prior to *Meda Dhatu* and depletion of *Dhatus* next to *Medo Dhatus*.[7]

In other hand *Kaphavardhaka Ahara*, *Adhyasana*, *Avyayama*, *Diwaswapna* etc. leads to formation of *Ama Rasa* i.e., *Apachit Adya Rasa Dhatu*. The *Madhura Bhavayukta Ama Rasa* moves within the body, the *Snigdhamsha* of this *Ama Rasa* causes *Srotosanga* which leads to *Sthoulya*.[8]

- ***Ashta mahadosha*[9]**

1. *Ayushohrasa* (Diminution of lifespan)
2. *Javoparodha* (Lack of interest in Physical activity)
3. *Kricchra Vyavaya* (Difficulty in having coitus)
4. *Dourbalya* (Debility)
5. *Dourgandhya* (Unpleasant smell from the body)
6. *Swedaabadha* (Excessive sweating)
7. *Kshudhatimatra* (Excessive hunger)
8. *Pipasatiyoga* (Excessive thirst)

In obese person because of the obstruction in all the *Dhatuvaha Srotas* the nourishment to the other *Dhatus* does not take place and hence there is no sustenance of the remaining dhatu thus the vitality of the person is lost. The individual is prone for disease such as *Prameha Pidaka*, *Jwara*, *Bhagandara*, *Vidradi* and different type of *Vatavyadhis*.[8] *Gridrasi* can be included in *Vatavyadhi* caused by *Sthoulya*. There is a sequential development of dhatus explained by means of *Ksheeradadhi Dhatuparinama Nyaya* (Rule of formation of *Dhatus*). Considering the above, healthy formation of each dhatu depends on the status of the preceding one. According to this concept, *Asthidhatu* forms from *Medodhatu*. If there is a *Medodhatu* derangement, proper formation of *Asthidhatu* will not take place.[10] The same applies to succeeding *Dhatus*.

Nidana leading to *Agnimandya* thereby causing *Ama utpatti* in turn leading to *Kapha medho avaraka dosha* formation causing *Sthoulya*. Due to *Avarana*, *Vata prakopa* occurs later *Sthanasamsraya* occurs in *Spik*, *Kati pradesha* followed by Dosha dushya Sammurchana leading to the manifestation of *Grdhrasi*.

Gridrasi

Gridhrasi, the name itself indicates the way of gait shown by the patient walks like a *Grudhra* (Vulture) due to severe, persistent and migrating pain. The cardinal features of *Gridhrasi* (*Vataja* type) are - *Ruk* (pain), *Toda* (Pricking sensation), *Muhuspandana* (Tingling

sensation), *Stambha* (Stiffness) in the *Sphik*, *Kati*, *Uru*, *Janu*, *Jangha* and *Pada* region[11] and *Sakthikshepanigraha* (i.e., restriction in the upward-lifting of lower limbs).[12] *Tandra* (Drowsiness), *Gaurav* (Heaviness) and *Aruchi* (Anorexia) is seen in *Vata-Kaphaja Gridhrasi*.[11]

Nidana

The particular causative factors of *Gridhrasi* are not mentioned in the classics. The general causes of *Vata Vyadhi* are considered as the causes of *Gridhrasi* because it is considered in 80 *Nanatmaja Vata Vyadhi*.[13]

Purvaroopa

Gridhrasi being a *Vata Vyadhi*, the *samanya Purvaroopa* of *Vata Vyadhi* are the *Purvaroopa* of *Gridhrasi*. In *Samhita Avyakta Lakshana* (Unmanifested symptom) is the *Purvaroopa* of *VataVyadhi*.[14]

Samprapti

There are two main reasons by which Vata gets vitiated. They are *Dhatukshaya* and *Margavarodha*. In *Gridhrasi*, exposure to mild but continuous trauma to *Kati*, *Sphik* region occur because of improper posture, travelling in jerky vehicles, carrying heavy loads, digging etc. or sometimes spinal cord injury, improperly treated pelvic diseases are responsible for producing *Sthanavaigunya* at *Kati*, *Sphik*, *Prishta* etc. They may not be able to produce the disease at the instance, but after acquiring some *Vyanjaka* Hetu (Exciting cause), the disease may be produced. Here, the *Samprapti* takes place either by *Apatarpana* or *Santarpana* or *Agantuja*.[15]

Obesity and Sciatica

Obesity can be defined as an excess of body fat that poses a health risk with the prevalence of nearly 1 in 3 adults (30.7%) are overweight. More than 2 in 5 adults (42.4%) have obesity. About 1 in 11 adults (9.2%) have severe obesity.[16] The term Obesity is normally reserved to describe people who are grossly overweight, while the term overweight is more frequently used to designate mild degree of adiposity. Approximately 20% of excess over desirable weight imparts a health risk. Body weight is a crude indicator of obesity. A more reliable parameter is the BMI. A body mass index (BMI) over 30 is obese. Obesity is evident when there is a sudden cessation of physical activity. Moderate work is associated with optimal food intake whereas both physical inactivity and over exertion lead to overeating,

where over eating a cause for obesity, but endocrine disorders like hypothalamic disorders, Hypothyroidism, Cushing's syndrome etc. can also be the cause of Obesity. Obesity can also be drug induced or due to genetic inheritance.[17] Obesity is associated with different complication like cardiovascular disease, diabetes mellitus, hypertension, atherosclerosis etc. Now a day's obesity is correlated with musculoskeletal problems.[18] Musculoskeletal diseases are very common today and sciatica is one of them.

Sciatica represents a debilitating condition characterized by pain or paresthesia within the sciatic nerve distribution or an associated lumbosacral nerve root. A prevalent misconception often mislabels any low back pain or radicular leg pain as sciatica. Sciatica entails pain directly resulting from sciatic nerve or root pathology. Comprising nerve roots from L4 to S3, the sciatic nerve, with a diameter of up to 2 cm, stands as the body's largest nerve. Pain associated with sciatica is exacerbated by lumbar spine flexion, twisting, bending, or coughing. Any condition structurally impacting or compressing the sciatic nerve may cause sciatica symptoms. The most common cause of sciatica is a herniated or bulging lumbar intervertebral disc. In older patients, lumbar spinal stenosis may cause these symptoms as well. Spondylolisthesis or a relative misalignment of one vertebra relative to another may also result in sciatic symptoms. Additionally, lumbar or pelvic muscular spasms or inflammation may impinge a lumbar or sacral nerve root, causing sciatic symptoms.[19]

Excessive adipose tissue has been highly blamed for damage to the spinal structures. Structural damage and pathological changes in the vertebral body are the most prominent changes. However, as stated in previous studies, we made these measurements with the thought that the relationship between vertebral bone degeneration and adipose tissue might be more illuminating since BMI has a weak relationship with degeneration. Furthermore, the distribution of the body adiposity may play a more important role in lumbar disc herniation. It has been found that obesity leads to an increase in the synthesis of proinflammatory cytokines produced from adipose tissue. These adipose cytokines also increase c-reactive protein synthesis from hepatocytes in obese individuals. These reasons play a role in the association of obesity with disc degeneration. In our study, lumbar vertebrae degeneration was significantly associated with adipose mass parameters, while none of the muscle mass measurements were related to disc degeneration. Failure to find a relationship between paravertebral muscle volume and vertebral degeneration may mean that the amount of

abdominal fat volume may be more effective on vertebral degeneration than the amount of muscle volume, but broader sample size studies are required to advocate this theory.

The fact that vertebral degeneration can also be seen in asymptomatic individuals has led to further investigation of the relationship between disc degeneration and vertebral anatomical differences. Boden et al. performed MRI examination in 67 patients who never had low back pain (LBP), neurogenic claudication, or sciatica, and found that approximately one-third of these patients had significant vertebral pathologies, such as herniated nucleus pulposus, stenosis, degeneration, and bulging.[20]

DISCUSSION

Healthy formation of each *Dhatu* depends on the status of the preceding one. According to this concept, *Asthidhatu* forms from *Medodhatu* and *Majjadhatu* forms from *Asthidhatu*. If there is a *Medodhatu* derangement, proper formation of *Asthidhatu* will not take place like wise *Majjadhatu* also. *Dhatus* like *Asthi* and *Majja* in *Prakruthavastha* does *Dharana* and *Poorana* to body and in *Vikruthavastha* produce *Asthi shoola*, *Asthi kshaya*, *Asthi shoonyata* etc.

Obesity is associated with an array of health problems, but one often overlooked consequence is its impact on the spine. People who are overweight or obese are at a higher risk of experiencing back pain, joint pain, and muscle strains. The added weight can pull the pelvis forward, straining the low back, and put pressure on spinal structures like the discs, leading to conditions like sciatica and herniated discs.

Obesity is one of the factors that can contribute to Sciatica. Also, obesity can interfere with the diagnosis and treatment of spine disease. Sometimes, it can be difficult or impossible to obtain certain imaging tests such as spine MRI due to weight restrictions. And a physical examination can be less helpful for identifying signs of nerve compression in obese condition. These factors may delay your diagnosis. Physical therapy and exercise to help prevent obesity and spinal disc herniation can be especially challenging when obesity and a herniated disc coexist. It makes difficult to move, often causing symptoms like shortness of breath or fatigue with even minimal exercise and pain of a disc herniation can make it hard to participate in the types of cardiovascular exercise that help achieve weight loss.

CONCLUSION

According to the study Obesity is on the rise as a result of lifestyle changes, which can lead to a variety of diseases such as cardiovascular disease, diabetes mellitus, hypertension, atherosclerosis, musculoskeletal diseases etc. and make human life suffer from the lowest living conditions. Low back pain has the highest prevalence globally among musculoskeletal conditions and is the leading cause of disability worldwide. So that this study helps to understand the underlying phenomenon behind the link between *Sthoulya* and *Gridrasi* through Ayurveda.

REFERENCES

1. Dr. Rozy Sharma, Dr. Manjunatha Adiga. A Review on Sthoulya with special reference to Obesity. J Ayurveda Integr Med Sci, 2021; 2: 195-201.
2. S. G. Iddalagimath, R. B. Hosamani. Ayurvedic management of Gridhrasi with special reference to Sciatica: A Case Study. J Ayurveda Integr Med Sci, 2021; 6: 309-314.
3. Vd Yadavji Trikamaji Acharya, Agnivesha, Charaka Samhita, with Ayurveda Dipika Commentary by Chakrapani, Sutra sthana, Chaukhamba Publication New Delhi, 2020; 117: 21-9.
4. Acharya Vaidya J T, editor, commentary Ayurveda Dipika of Chakrapanidatta on Charak Samhita of Agnivesa, Sutrasthana; Ashtaouninditeeyamadhyam: Varanasi: Chaukhambha Sanskrit santhan, 2018; 1, 619: 21-4.
5. Dr. Rozy Sharma, Dr. Manjunatha Adiga. A Review on Sthoulya with special reference to Obesity. J Ayurveda Integr Med Sci, 2021; 2: 195-201.
6. Dr. Anna Moreshwar Kunte & Krsna Ramachandra Sastri Navre, edited by Pt. Hari Sastri, Astangahrdaya of Vagbhata, with the commentaries: Sarvangasundara of Arunadatta & Ayurvedarasyana of Hemadri, sutra sthana, Chaukhambha Sanskrit Sansthan, Varanasi, 2018; 14, 12, 13: 224-15.
7. Vd Yadavji Trikamaji Acharya, Agnivesha, Charaka Samhita, with Ayurveda Dipika Commentary by Chakrapani, Sutra sthana, Chaukhamba Publication New Delhi, 2020; 116, 21: 5-8.
8. Sushrut, Sushruta Samhita, with Nibandhasangraha of Dalhanachrya & Nyachandrika Panjika of Gayadasachrya edited by Vaidya Yadavji Trikamji Acharya. Sutra sthana, Chaukhamba Surbharati Prakashan Varanasi, 2019; 73: 15-32.

9. Vd Yadavji Trikamaji Acharya, Agnivesha, Charaka Samhita, with Ayurveda Dipika Commentary by Chakrapani, Sutra sthana, Chaukhamba Publication New Delhi, 2020; 116: 21-4.
10. Arya K et al: A Critical Review on Asthi Dhatu Status In Sthoulya With Respect To Bone Metabolism. International Ayurvedic Medical Journal {online publication - 2020 {cited January- 2020} Available from: http://www.iamj.in/posts/images/upload/2149_2153.pdf
11. Acharya JT, editor, Commentary Ayurveda Deepika of Chakrapanidatta on Charaka Samhita of Agnivesha, Chikitsa Sthana; Vatavyadhi Chikitsitam, Varanasi: Chaukhamba orientalia, 2015; 2, 619, 28: 56-57.
12. Sharma PV, editor. Nidanasthana; Vatavyadhi Nidana Adhyaya. Sushruta, Sushruta Samhita. Chapter 1, Verse 74. Varanasi, India: Chaukhambha Visvabharati; 2005. p. 15.
13. Charaka Samhita (Agnivesh) Part 1- charaka chandrika Hindi Commentary by brhmanand tripathii, prabhakar janardan deshpande, Published by Chaukhamba Bharti Academy, Gokul Bhawan, Gopal Mandi Lane, Varanasi, 2009; 391.
14. Charaka Samhita (Agnivesh) Part 2- charaka chandrika Hindi Commentary by brhmanand tripathii, prabhakar janardan deshpande, Published by Chaukhamba Bharti Academy, Gokul Bhawan, Gopal Mandi Lane, Varanasi, 2009; 938.
15. Jitender Kumar Rana: A Critical Review on Gridhrasi (Sciatica). International Ayurvedic Medical Journal {online} 2017 {cited April, 2017} Available from: http://www.iamj.in/posts/images/upload/1165_1172.pdf
16. National Center for Health Statistics, National Health Examination Surveys II (ages 6-11) and III (ages 12-17); and National Heath and Nutrition Examination surveys (NHANES) I-III, and NHANES, 2017, 2018.
17. Dr. Rozy Sharma, Dr. Manjunatha Adiga. A Review on Sthoulya with special reference to Obesity. J Ayurveda Integr Med Sci, 2021; 2: 195-201.
18. Schulte PA, Wagner GR, Ostry A, Blanciforti LA, Cutlip RG, Krajnak KM, et. al. Work, obesity, and occupational safety and health. Am J Public Health, 2007; 97(3): 428-36.
19. Davis D, Maini K, Taqi M, et al. Sciatica. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2024; 4. Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK507908/
20. Kilinc R, Can F The Effect of Intraabdominal Visceral and Subcutaneous Adipose Volume and Muscle Volume on Lumbar Vertebrae Degeneration, 2023; 9, 15(3): e35940. DOI 10.7759/cureus.35940.