Exploring the Meda Dhatu(Adipose Tissue)Sankalpana(Concept)in Ayurved

Dr. Ruchiben Ashvinbhai Hedapara, Second Year PG Scholar, PG & PhD Department of Roga Nidana Evum Vikriti Vigyan, Parul Institute of Ayurved, Parul University, Limda, Vadodara, Gujarat - 391760, India

Dr. Sandeep Kumar, Second Year PG Scholar, PG & PhD Department of Roga Nidana Evum Vikriti Vigyan, Parul Institute of Ayurved, Parul University, Limda, Vadodara, Gujarat - 391760, India

Dr. Sunil Khandare, Professor& HOD, PG & PhD Department of Roga Nidana Evum Vikriti Vigyan, Parul Institute of Ayurved, Parul University, Limda, Vadodara, Gujarat - 391760, India

Abstract- Ayurved is the traditional system of medicine; Tri Dosha (Three bodily humors), SaptaDhatu (Seven tissue elements) and Tri Mala (Three bodily waste products) are mentioned as the main factors for the foundation and maintenance of the body. The Sarira (Body), Manas (Mind) and Prana (Life force) are all supported by Dhatus. All seven Dhatus supports and nourishes the body throughout the life. MedaDhatu(Adipose Tissue) is the 4th Dhatu out of seven Dhatus, which provide the necessary Snehana(lubrication and unctuousness) to the body. In the formation of Dhatu, Upadhatu and Mala; respective Dhatvagni plays a major role in this process. The MedaDhatu thus formed by the action of MedoDhatvagni. During this process ofMedaDhatugenesisPoshyaand Poshakatwo types ofMedaDhatuare formed. PoshyaMedaDhatunourishes theMedaDhatu&PoshakaMedaDhatuinvolves in the formation ofsubsequent AsthiDhatu(Bone tissue). If theMedovahaSrotas (Channels responsible for carrying MedoDhatu) get vitiated there will be defective formation of MedaDhatu and this will eventually lead to the MedaPradoshajVikaras (Diseases related to fat). The present review critically examines the available literatures to evaluate the MedaDhatuSankalpanain Ayurved

Key Words: MedaDhatu, Medodhara Kala, MedovahaSrotas, MedaDhatuSarata, MedaPradoshajVikaras, MedoDhatvagni, Adipose Tissue.

I. INTRODUCTION

The word *Dhatu* (Tissue elements) means *Dharana* (holding together), so all *Dhatus* make and hold body together. In Ayurved there are seven Dhatui.eRasa (Essence part soon after digestion/blood plasma/lymph), Rakta(blood tissue), Mamsa (Muscle tissue), Meda (Adipose tissue), Asthi (Bone tissue), Majja (Bone Marrow), Shukra (Reproductive system) explained, which form the Sarira (Body). Each previous Dhatu is responsible for the synthesis of subsequent Dhatu in sequence in the body. Each Dhatu in the body has particular functions & properties and Meda is one of the important Dhatu among seven Dhatus. It gets nourished from the MamsaDhatu. Its increase and decrease is influenced by KaphaDosha according to AshrayaAshrayiBhaya (Relationship between Tissue and Doshas).² It's main function is the Snehana (lubrication) of body along with Swedotpatti (Formation of sweat) and Asthiposhana (Provide the nourishment to the Bone tissue). In the formation of the MedaDhatu, MedovahaSrotas are involved. MedovahaSrotas are the AbhyantaraSrotas (Inward opening channels), which carries the substances which nourishes the Meda Dhatu.3Kala is important structure mentioned by Sushruta which act as a separator. Sushruta mentioned seven types of Kala named as Mamsadhara Kala, Raktadhara Kala, MedodharaKala "Shleshmadhara Kala, Purishdhara Kala, Pittadhara Kala and ShukradharaKalapresent in the body &these are the limiting membranes in between different Dhatus. MedaDhatu has two formed in the the body i.eAbaddhaMeda(Circulating lipids) &BaddhaMeda(Adipose tissue)

Aims and Objectives

To explore the *MedaDhatuSankalpana*in *Ayurved*.

II. MATERIALS AND METHODS

Available *Ayurved* texts like *CharakSamhita, SushrutaSamhita, Ashtang* etc., reviewed research articles, research papers, authenticated internet sources.

Basic Rachana (Anatomy) and Kriya of (Physiology) of MedaDhatu

Dhatu which lubricates the body is called as Meda Dhatu⁴ &it is unctuous like Ghee.In AyurvedicliteratureMedaDhatuis known by the different synonyms⁵i.eMamsaja, Mamsateja, Asthikrit, Vapa, Vasa. MedaDhatu is formed from Ahara Rasa after MamsaDhatu hence it is called as Mamsaja and Mamsateja.AsthiDhatu is formed after MedaDhatu hence it is also called as Asthikrit.Fat in the omentum and peritoneum is called as Vapa while fat in the MamsaDhatu is called as Vasa. During pregnancy, MedaDhatu is derived from the Matrij (Maternal) Garbhkarbhava.⁶

Prithvi and JalaMahabhuta are involved in the genesis of Meda Dhatu.⁷ It is present in two Anjali Pramana⁸ in the body. Guru (Heavy), Snigdha (Unctuous), Sthira (stable), Mrudu (soft) etc. are the Gunas of MedaDhatu. According to Gunas of MedaDhatu, consumption of the Aahara similar to that Gunas of MedaDhatuperform the Function of Vruddhi of SarirasthaMedaDhatu due to Yoga (same quality) of SimilarGunas. If Purush (Person) takes ViparitaGunayuktaAahara (Opposite quality) i.e. Laghu (Light in nature), Ruksha (Dry in nature), Sara (Movable in nature), Tikshna (Sharp in nature) etc. are perform the Hrasa (diminish) of SarirasthaMeda Dhatu.⁹ According to this concept consumption of MedavruddhikaraAahara leads to Vruddhi (increase) of MedaDhatu&over consumption of MedavruddhikaraAahara increases the Meda in Sphik (Buttocks/Hips), Stan (Breasts) and Udar (Abdomen) &Shwas (Increase respiration rate) after some physical exertion.¹⁰Kati Svapan (Loss of sensation over waist), PlihaVruddhi (Splenomegaly), Krush Anga (Body becomes lean & thin) are all develop due to the Kshaya (Decrease in quantity) of MedaDhatu.¹¹

MedaDhatu formation12

When the *MamsaDhatwagni* (Tissue fire of muscle tissue) acts on the *PoshakaMamsa* (Nutrients of muscle tissue which form the fat tissue). The *MedaDhatu* thus formed is further subjected to metabolism by *MedaDhatwagni*. This leads to the formation of *PoshyaMedaDhatu* which nourishes the local fat tissue. The other part becomes *PoshakaMedoDhatu* which further forms *AsthiDhatu*. During this process *Mala* is also generated i.e*Sveda*(Sweat).

TridhaPoshana of Meda Dhatu¹³

Dalhana has explained three level metabolism (*TridhaPoshana*) of *MedaDhatu*; *MedaDhatuagni* acts on nutrients of *MedaDhatu* and following 3 constituents are synthesized in the process of *TridhaPoshana* are: 1. *SthulaMedaDhatu* 2. *Meda Mala - Sweda* 3. Precursor of *Asthi - SukshmaBhaga* of *Asthi*.

Updhatu and Mala formation of MedaDhatu

AcharyaSushruta mentioned that *MedaDhatu* is formed in 15 days. Firstly *MamsaDhatu* is nourished then *Aahara Rasa* nourishes *MedaDhatu* with the help of *MedaDhatwagni* and *MedovahaSrotas*. This leads to the formation of *PoshyaMeda*, *Poshak Asthi*¹² and *Updhatu* as *Snayu*¹⁴ &*Sira*¹⁵ and *Mala* as *Sweda*. ¹⁶

Formation of Sira¹⁷

Vayu combines with *Pitta* and getting into *Mamsa*, divides it into *Pesis* (Muscles) and along with the *Sneha* of *Medas* converts the same into *Sira* and *Snayu*. The *Paka* is mild in the formation of *Siras* while the same is strong for *Snayus*.

Medodhara Kala

Medodhara Kala is the third prime Kala among seven Kalas. ¹⁸Medodhara Kala is present in Udara (abdomen), Vapavahan (Greater omentum), AnuAsthi (Small bones). ¹⁹Medodhara Kala as Vasais present as SaraktaMeda(RaktayuktaMeda) in AnuAsthi , which is the Sneha of Shuddha Mamsa. ²⁰ In the Bhavaprakashalocation of MedaDhatu is Udar (abdomen) & AnuAsthi (Small bones), so excess fat deposited over abdomen of a fatty person ²¹. Organs formed from MedaDhatu are Vrkkauorginatefrom Prasad Bhag of Rakta, Meda and Vrushana that develop from Prasad Bhag of Mamsa, Asruka, Kapha and Meda. ²²

MedovahaSrotas

Minute channels which carries substances that nourishes MedaDhatu are called MedovahaSrotas. According to AcharayaCharak, Vrkkau (Kidneys) and Vapavahana (Greater omentum) are the Mula (root) of MedovahaSrotas²³ but AcharyaSushruta says that the Mula of MedovahaSrotas areKati (waist) and Vrkkau (kidneys)²⁴. MedovahaSrotodushti may occur due to Avyayama (Lack of physical exercise), Divasvapna (Day time sleep), MedaAtibhakshana (Excessive intake of fatty food substances), VaruniAtisevana (Excess drinking of wine)²⁵. Whenever *MedovahaSrotas* vitiated by above said *Nidanas* (Causes) there may develop *Purvarupas* (Prodromal Symptoms) of *Prameha* (Diabetes Mellitus) that are also included in *SamaMeda*lakshanas that are JatilibhavamKeshesu (Matting of hairs), MadhuryamAsyasya (Sweetness in mouth), Kara padaSuptataDaha (Numbness and burning sensation in hands and feet), MukhTaluKanthSosha (Dryness in mouth palate and throat), Pipasa (Thirst), Alasya (Lazyness), Malam Kaye (Excess accumulation of waste over the body especially in palate, throat, tongue & teeth), KayahChhidresuUpadeham (Adherence of excreta in body (Burning sensation and , ParidahaSuptata cha Angesu numbness ShatpadpipilikabhischaSariramutrabhisaranam (Accumulation of bees and ants over body and urine), Mutre cha Mutradoshan (Abnormality in urine), VistraSariraGandh (Fleshy smell from body), Nindra cha Tandra (Excess sleep and drowsiness) ^{26,27}. There also includes the symptoms of Atisthaulya (Obesity) ²⁸ that are AyushoHraso (Reduced life span), Javoprodha(Limited movement), Krucchravayata (Reduced sexual activities), Daurbalayam(Debility), Daurgandhya (Bad smell), Svedaabadham (Profuse sweating), Kshudatimatram (Excessive hunger), Pipasati(Excessive thirst). According to Acharaya Sushruta Viddha on MedovahaSrotas leads to the symptoms like SwedaAgamanam (Excessive perspiration), *Snigdhangata* (Unctousnessof body parts). TaluSosha (Dryness Palate), SthulaShophataMarked swelling), Pipasa (Profuse thirst)29.

MedaDhatuSarata

MedaDhatu Sara Purushwill have featureslike SnigdhaSvara (Clear, sweet and soft voice), Snigdha Varna (Glowing complexion), SnigdhaNetra (Glowing eyes), SnigdhaKesha&Loma (Soft and silky hair), SnigdhaNakha (Glowing nails), SnigdhaDanta (Luster teeth), SnigdhaOstha (Lustered lips), SnigdhaMutra (Unobstructed urine stream), SnigdhaPurisha (Soft stool with regular bowel habits). Sol. Such person will have wealth, power, happiness, enjoyment, charity. AcharayaCharaka mentioned that this types person are Sukumar (can't perform the hard work).

Effect of *MedaSarata* on mind, health and body as mentioned are *Vitaishcharya* (Rich), *Sukhopabhoga*(Enjoyment), *Pradana* (Gives donation, helping nature), *Aarjava* (Polite), *Sukumaropachara* (Tolerates soft and mild medicines and also treatment), *BruhataSarira* (Bulky body), *AayasaAsahishnu* (Cannot withstand physical exercises and strenuous work).^{34,35}

Rogamarga (Pathway) of MedaDhatugataRogas

RaktadiDhatugataRogas (Blood and rest of other tissues) are mentioned under *BahyaRogamarga* (Exterior pathway of diseases)³⁶, but *Sira* which is the *Upadhatu*of *MedaDhatu* and the diseases related to *Sira* comes under *MadhyamaRogamarga* (Middle pathway of diseases).³⁷

BaddhaMeda (Adipose tissue) and AbaddhaMeda (Circulating lipids)38

Two types of Meda are described viz. BaddhaMeda and AbaddaMeda.

- 1. BaddhaMeda: The fat which is not mobile and is stored in the form of aft at various places like fat deposits, omentum and muscles in the body.
- 2. AbaddhaMeda: The fat which is mobile and circulates in the body along with blood in the form of lipids like cholesterol, triglycerides, LDL, HDL and VLDL.

III. CONCLUSION:

MedaDhatu involved in lubrication of the body and also provide strength to the body. MedaDhatu collects the energies and store for the further activity of the body. Due to Ashrya-AshrayiBhav, KaphaDoshaprovide the support to the MedaDhatu. MedaDhatu is essential for the formation or production of the Asthi and MajjaDhatu.Body lubrication and support to the bones are provided by the Adipose tissue. Sira and Snayuwhich are important structures of the body and their formation depends on the proper MedaDhatu. Sweda production is also depends on the MedaDhatu, Sweating is the process which gives the softness to the skin and removes the blemishes from the body through the skin and control the body temperature.

REFERENCES:

- 1. *AstangaHridayam* of *Srimadavagbhata* with Nirmala Hindi commentary by Dr. BrahmanandTripathi, Reprinted 2017, Chaukhamba Sanskrit Pratishthan, Delhi, *Sutra Sthana*, Chapter 1, Verse 13, p 11.
- 2. *AstangaHridayam* of *Srimadavagbhata* with Nirmala Hindi commentary by Dr. BrahmanandTripathi, Reprinted 2019, Chaukhamba Sanskrit Pratishthan, Delhi, *Sutra Sthana*, Chapter 11, Verse 26, p 165.
- 3. *CharakSamhita* of *Agnivesa* with *AyurvedDipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, *VimanSthana*, Chapter 5, 2016, Verse 7, p 630.
- 4. A Textbook of *kriyasharira* of Prof. Dr. SubhashRanade& Prof. Dr. R. R. Deshpande , 2nd Part , Reprint 2014 , Chaukhamba Sanskrit Pratishthan , Delhi , p 183.
- 5. A Textbook of *kriyasharira* of Prof. Dr. SubhashRanade& Prof. Dr. R. R. Deshpande , 2nd Part , Reprint 2014 , Chaukhamba Sanskrit Pratishthan, Delhi , p 183
- 6. *CharakSamhita* of *Agnivesa* with *AyurvedDipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, *SariraSthana*, Chapter 3, 2016, Verse 6, p 770.
- 7. *CharakSamhita* of *Agnivesa* with *AyurvedDipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, *ChikitsaSthana*, Chapter 15, 2018, Verse 30, p 386.
- 8. *CharakSamhita* of *Agnivesa* with *AyurvedDipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, *SariraSthana*, Chapter 7, 2016, Verse 10, p 850.
- 9. *CharakSamhita* of *Agnivesa* with *AyurvedDipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, *SariraSthana*, Chapter 6, 2016, Verse 10, p 829.
- 10. *AstangaHridayam* of *Srimadavagbhata* with Nirmala Hindi commentary by Dr. BrahmanandTripathi, Reprinted 2017, Chaukhamba Sanskrit Pratishthan, Delhi, *Sutra Sthana*, Chapter 11, Verse 10, p 162.
- 11. *AstangaHridayam* of *Srimadavagbhata* with Nirmala Hindi commentary by Dr. BrahmanandTripathi, Reprinted 2017, Chaukhamba Sanskrit Pratishthan, Delhi, *Sutra Sthana*, Chapter 11, Verse 18, p 164.
- 12. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, ChikitsaSthana, Chapter 15, 2018, Verse 15-16, p 382-383-384.
- 13. A Textbook of *kriyasharira* of Prof. Dr. SubhashRanade& Prof. Dr. R. R. Deshpande , 2nd Part , Reprint 2014 , Chaukhamba Sanskrit Pratishthan , Delhi , $\,$ p -191
- 14. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, ChikitsaSthana, Chapter 15, 2018, Verse 17, p 384
- 15. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 4, Verse 29, p 57.
- 16. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, ChikitsaSthana, Chapter 15, 2018, Verse 18, p 385.

- 17. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 4, Verse 29-30, p 57
- 18. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 4, Verse 12, p 54.
- 19. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 4, Verse 12, p 54.
- 20. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 4, Verse 13, p 54.
- 21. BhavprakashPurvakhand, Chapter 3, Verse 15.
- 22. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 4, Verse 32, p 58.
- 23. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, VimanaSthana, Chapter 5, 2016, Verse 8, p 631.
- 24. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 9, Verse 12, p 136-137.
- 25. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, VimanaSthana, Chapter 5, 2016, Verse 16, p 633
- 26. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, NidanaSthana, Chapter 4, 2016, Verse 47, p 553.
- 27. Parameswarappa's *AyurvediyaVikrti Vijnana&RogaVijnana* of Dr. P. S. Byadgi , Volume 2 , Chaukhambha Publications, Chapter 41, 2013, p 359.
- 28. *CharakSamhita* of *Agnivesa* with *AyurvedDipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, *Sutra Sthana*, Chapter 28, 2016, Verse 15, p 475.
- 29. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sarira Sthana, Chapter 9, Verse 12, p 137.
- 30. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, VimanaSthana, Chapter 8, 2016, Verse 106, p 691.
- 31. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sutra Sthana, Chapter 35, Verse 16, p 383.
- 32. A Textbook of *kriyasharira* of Prof. Dr. SubhashRanade& Prof. Dr. R. R. Deshpande, 2nd Part, Reprint 2014, Chaukhamba Sanskrit Pratishthan, Delhi, p -78
- 33. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, VimanaSthana, Chapter 8, 2016, Verse 106, p 691.
- 34. CharakSamhita of Agnivesa with AyurvedDipika Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, VimanaSthana, Chapter 8, 2016, Verse 106, p 691.
- 35. Sushruta Samhita of Maharshi Sushruta with Nibandh Sangraha of Dalhanacharya and Nyayachandrika of Gayadasacharya, by Dr. Keval Krushna Thakaral, 2nd Part, Reprint 2017, Chaukhambha Orientalia, Varanasi, Sutra Sthana, Chapter 35, Verse 16, p 383.
- 36. *AstangaHridayam* of *Srimadavagbhata* with Nirmala Hindi commentary by Dr. BrahmanandTripathi, Reprinted 2017, Chaukhamba Sanskrit Pratishthan, Delhi, *Sutra Sthana*, Chapter 12, Verse 44, p 177.

- 37. *AstangaHridayam* of *Srimadavagbhata* with Nirmala Hindi commentary by Dr. BrahmanandTripathi, Reprinted 2017, Chaukhamba Sanskrit Pratishthan, Delhi, *Sutra Sthana*, Chapter 12, Verse 48, p 178.
- 38. *CharakSamhita* of *Agnivesa* with *AyurvedDipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, ChaukhambhaOrientalia, Varanasi, *NidanaSthana*, Chapter 4, 2016, Verse 7, p 547.