MEDA DHATU (BODY FAT): A REVIEW

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Abstract: Medadhatu (body fat) is formed from mamsadhatu (muscles). The nutrients required to form medhadhatu are present in mamsadhatu. These nutrients get metabolized with water and form medhadhatu. Medhadhatu is snigdha (oily) and soft. Medasdhatu refers to the fatty tissues of the body. While the term can literally be translated to mean fat, conceptually it means the concentrated waters of the body. In the physical body, in addition to body fat the medasdhatu relates to sebum (skin oil) and the greater and lesser omentum which are its upadhatus. These tissues are the primary storage sites for excess body fat in the abdomen. Medasdhatu is formed as posakamamsadhatu flows into the medodharakala and is digested by the medagni. The waste products produced by the formation of medasdhatu are the skin secretions of sweat and sebum (oil). In this article derivation of meda, formation of medadhatu, sthana and swarupa of medadhatu, difference between medas, vasa, majja, vapa and sneha, quantity and qualities, function of medadhatu, ashrayashrayeebhava of medadhatu, medovahasrotas will be described.

Key Words: Medadhatu, Body fat, Ashrayashrayeebhava, Medovahasrotas.

Introduction: Meda is Dhatu in sequence of Sapta Dhatu and is heavier than previous Dhatu like Rasa, Rakta, Mamsa (Ch.Su.27/337) [¹]

Derivation of Medas Dhatu: Literally, the word Meda is derived from root “JhimidaSnehana”. Which stands for Sneha, Fat, Oil etc. (Vachaspatyam—) [²] with the help of suffix ‘Asun’, some has directed ‘Ach’ suffix. It means the substance, which has Snigdhatva property, is called Meda. There are many oily substnaces in the body like Vasa, Majja etc.

Definition of Meda: In Shabdakalpdrum [³], it is mentioned that Meda is the fourth Dhatu, which performs the DharanKarm—support the body, mind and life.

According to Charak
Meda: Fourth Dhatu-heavier than Rasa, Rakta and Mamsa (Ch.Su 27/337) [⁴].

According to Sushruta
Meda: Fourth Sneha which derives from Jangama origin. (Su.Su 45/131) [⁵]

Synonyms of Meda
Mamsaj, Mamseteja Asthi Kruta
Vasa, Vapa, Goda, Gautama

Fat cells have an important physiological role in maintaining triglyceride and free fatty acid levels, as well as determining insulin resistance. Abdominal fat has a different metabolic profile—being more prone to induce insulin resistance. This explains to a large degree why central obesity is a marker of impaired glucose tolerance and is an independent risk factor for cardiovascular disease (even in the absence of diabetes mellitus and hypertension). [⁶]

Materials and Methods

The Literary material related to obesity has been collected from Several Ayurvedic texts like Charakasamhita, Sushrutsamhita, Ashtang Sangraham, etc.

Formation of Meda Dhatu: According to Charaka, the RaktaDhatu is combined with Teja, Jala and Vayu made solid by the Agni so that it gets converted into Mamsa, that again being digested by its own Agni, “Medodhatvagni” and stirred up by the Agni and getting combined with the quality of A stalled and unctuous substances and finally gets converted into the Medodhatu. Further, Meda is a combination of Jala, Prithvi and Teja Mahabhuja (Ch.Chi. 15/29-30) [⁷].

Meda is also considered as a Sneha dominant Drava Dhatu. The Sthira Dhatu Mamsa converts in to Drava Dhatu Meda with the help of MamsaDhatvagni, while Drava & Snigdha Dhatu Meda converts in to further Dhatu Asthi with the help of Medodhatvagni.
According to Charaka Samhita (Chi. 15/21-22) [8], Dhatu Parinamana Kala is mentioned as 7 days. So, formation of Meda in sequential process takes days. While other texts have considered Dhatu Parinamana Kala of one month and in this consequence formation of Meda takes place after 15 days and 108 minutes (Sa. Pu.6/10) [9]. According to another principle, its formation takes place in Medovaha Srotas with the help of Vrka, Vapavahana and Kati as these are considered as the root of Medovaha Srotas (Ch.Vi. 5/8) [10]. Other opines that formation of Meda takes place in Medodhara Kala i.e. adipose tissue itself (Su. Sa. 4/13) [11], which is now supported by modern physiology too.

Sthana and Swararof of Meda Dhatu: The third Kala is called Medodhara Kala. Most of MedasDhatu resides here. This Medodhara Kala is seated all over body below the skin and above Mamshadhara Kala except scrotum, eyelids and few other places. Udara, Spik, Stana, Gala etc. are the specific depots of Meda (Ch. Su. 21/8) [12]. In Yauvanavastha its accumulation accentuates more in Spik and Stana region of females. Excessive accumulation of Meda in this regions cause different symptoms of Sthaulya like Calatva, Sathithlya etc. The other site of its deposition is small bones. Since the origin of Medovahasrotasas are Vrka and Vapavahan, so most of Medas is deposited in Vapavahan, abdomen and skin underneath.

According to VaidyaRanjeetRaiDesai, in body MedasDhatu is found in micro form irregular pieces called Medanu i.e. fat cells. The diameter of Medanu is between 1/500 to 1/400 inches. They are full with Medas. In living condition the Medas found in form of liquid, which becomes concentrated after death. According to modern view Medas is derived from digested fat, carbohydrate and non-nitrogenous protein. So Medas is that fatty content of body, which can not be taken from out side and which is originated after digestion and metabolism of different diet materials.

Difference between Medas, Vasa, Majja, Vapa and Sneha

- Medas is fourth Dhatu of body, originated and carried by Medovahasrotas and deposited in Medodhara Kala and small bones. The Medas residing in bones is called ‘Sarakta Medas’.
- Majja is sixth Dhatu which resides in long bones only. It does not have any Kala for its deposition. It is originated from Asthi Dhatu. When Vayu makes bone hollow, that hollow part is filled by Sneha. Which is called Majja. According to modern medicine bone have two types of marrow i.e. red and yellow, The Ayurveda, thus accepts the red marrow as Sarakta Medas and yellow marrow as majjadhatu.
- Vasa is the Sneha or lubricant of pure MamsaDhatu. It is Updhatu of Mamsa Dhatu. It is stored form of fat. When it deports in abdomen, it is termed as Vapa, while MastakaSneha or Mastalungra is known as Goda. The terms Vapa is used at the place of Medas but it is more often used as literary than a conceding Ayurvedic term, where it is clearly started for a body organ “Vapa”, Probably this nomenclature has similarity of meanings, came by similarity of function of Vapa as to be a prominent site and origin of Medovahasrotasas.

This term is also used as a type of Sneha viz. 1. Ghrita, 2.Taila, 3.Vasa 4.Majja. This all can be taken by mouth but Medas and SaraktaMedas can not be taken by mouth. This division clearly differentiate the MedasDhatu from Snehas.

Quantity of Medas Dhatu: The total quantity of MedaDhatu is two Anjali, the Vasa (Muscle's fat) is three and the Majja is one Anjali total Meda content of body is enumerated as 6 Anjali and total measurable body elements are counted as 56. 5 Anjali From this proportion, it is evident that total Meda content of body is 11% approximately. Modern physiology also mentioned the same amount of fat. This quantity may vary from peson to person. In Padmapurani’s quantity is given in the term of Adhaka. Probably other compendia are silent on this topic.

Qualities of Meda Dhatu
Snigdh (unctuous) Slaksna (smooth)
Guru (heavy) Mruda (soft)
Sandra-Drava (thick liquid) Pitu (yellowish colour)

Apya and Parthiva properties

Function of Meda Dhatu: According to Sushruta (Su.Su. 15/5) [13], Sneha, Sweadautpatti, Druhadhava and Asthipusthi are the functions of Medadhatu. Again Netra and Gatrasnigdhata are the additional functions of Meda mentioned by Astang Samgraha (A.S.Su. 19/4) [14]. Snehana is the main function of Meda Dhatu and with Sneha property it helps to keep luster of skin, hair, eye, etc. Snigdha Gatruta symptom of Sthaulya may arise through increased Snehana function of Meda.

Another function of Meda is nourishment of further Dhatu Asthi and Updhatu.
Kapha

Snayu and Sandhi. Snayu and Sandhi both are directly related with the AsthiDhatu. In Charaka Samhita Snayu and Sandhi are mentioned as Upadhatus of Meda (Ch.15/17) [15]. Snayu provides support to the Asthi and Sandhi helps in joint formation.

Vataghna and Bala-Pitta-Kapha Kara properties of Vasa, Majjah, Mamsa and Meda are mentioned (AS.Su.6/112) [16] and Meda is included under Madhura Skanda (As.Su.18/20) [16]. In Kashyapa Samhita, Madhura Rasa & Madhura Vipaka, Vata-Pitta Hara and Kapha Kara action of Meda&S Vasa is considered as omentum, where the maximum.

The channels which supply nutritive material travel to their respective places in the body. According to three Acharyas root may be enumerated as under:

- Charaka-Vrikka and Vapavahana
- Sushruta-Vrikka and Kati
- Vagbhata-Vrikkaand Mamsa

Vrikka: Vrikka, one of the Kosthanga formed by the Sara of Rakta and Meda Dhatu. There are two Vrikka, situated in both side of the midvertibro line inside the abdominal cavity. Sharangadhara says that they nourish the Meda Dhatu inside the stomach area of the abdominal cavity (Sha. Pu. 5/84) [19] while Charaka has considered as “Moola” so these structures must be directly related with fat metabolism. But, there is no such exact evidence in Modern science as well as Ayurvedic Science. If we take into the consideration of two structures situated above the two kidneys i.e. Supra-renal glands as Vrikka that fulfils the all aspects of fat metabolism.

Vapavahan: Vapavahan is also a Kosthanga and second root of MedovahaSrotas. Chakrapani has interpreted it as Tailavartika while Dr. Ghanekar has considered as omentum, where the maximum Meda is stored.

Kati: AcharyaSushruta has clearly pointed out the exact site of the Kati but normally the Kati is the place where the fat accumulates.

Mamsa: Vagbhata has considered Mamsa as the Moola of Medovaha Srotas. It is not easy to explain correctly. But we might have consider the Vasa (Mamsagata Sneha) below the skin and as such the entire skin may be considered as the Moola of Medovaha Srotas.

Discussion and Conclusion: In order to produce healthy medas dhatu, adequate earth and water must be consumed through the diet. Consumption alone does not guarantee that healthy medas will be formed. The two elements must be properly digested so that their qualities can be used to build body fat. Thus, jatharagni (main digestive fire) must be healthy. If it is not healthy, rather than forming healthy medasdhatu, these same foods will produce ama and toxify the body and mind. Finally it can be conclude that

References

Meda Dhatu (Body Fat) - A Review

Snayu of Meda: A review

Kapha Dosa (Vomiting)

Sandhi Dhathu

Mamsa

R. K. and Bhagwan

Sthaulya Medovaha

Vrikka Medovaha

In Moola" Kashyapa Samhita, Madhura Rasa

Kapha - Srotas and Meda

1, Vapavahana Dosa of Meda

(Kushan. Su.6/112) while Dr.

3, Vapavahana

and vice versa. Matrja -

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