

A CONCEPTUAL STUDY OF MAMSA SARA PURUSHA WITH SPECIAL REFERENCE
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ABSTRACT

Charaka has described evaluation of *Sara* under ten-fold examinations regarding the patient to assess the *Bala* [biological strength] of the patient. In *Ayurveda* the term *Sara* has been described to denote the essence of *Dhatu* with an excellent quality. According to *Chakrapani* it is the purest form of *Dhatu*. Various *scientist* defined *Sara* in different ways to prove it as the central governing force responsible for biological strength of the body tissue. The term *Sara* has a comprehensive meaning and purpose in *Ayurveda*. In *Ayurveda* various features have been described in context of 6 *Garbhakar Bhava*. *Mamsa Dhatu* is a *Matrija* (maternal) feature according to this concept. So the relation between *Mamsa Dhatu*, *Mamsa Sara Purusha* and its relation with gene will be explored in this study by literary means. *Mamsa Sara* individuals can be defined as persons having the pre dominance of essence of *Mamsa Dhatu* in respect to both good quality and quantity. These people are identified through the characteristic features present in them. These features are elucidated in different *Ayurvedic* compendia. The characteristics are depicted in *Charaka*, *Shushruta* and *Vagbhata Samhitas*. So an effort will be made to understand this concept in the light of Modern science.

KEYWORDS: *Sara*, *Mamsa sara*, *Garbhakar bhava*, *Mamsa dhatu*, Genes.

INTRODUCTION

Ayurveda is science of life. It derived from two words 'Ayu' means life and 'Veda' means knowledge, so the knowledge of life is Ayurveda. The two main aims of Ayurveda are, first to maintain the health of a healthy person and second is to completely care the illness of the person suffering from any diseases. Health is the one and only way to achieve every desired *purushartha* i.e. *Dharma*, *Artha*, *Kama*, *Moksha*. One who desire a long healthy life such person should definitely follow the instructions given in Ayurveda. Whenever the body suffers from disease due to the impairment of *Dhatu* inside the body.

Vikaro dhatu vaishampayan samyam prakritir uchyate | (Ch.Su. 9/4).

It tries to balance the unbalanced *Dhatu* in the body. Even at the diseased condition of the patient, there is some degree of normal health restored in the body.

To cure that disease, we have nothing to do; we only establish equilibrium by giving various diet, drugs and life style. Whenever the normal health supersedes the power of disease, then the state of health prevails. So, for

adequate management it is essential to evaluate the exact strength (*Bala*) of the patient as well as his disease.

According to Ayurvedic theory muscle tissue is derived from mother which is quit near to modern science theory that is features is derived from mitochondrial genome.

There are various factors to be considered in assessing the strength of an individual which primarily can be considered under the ten folds of *Rogipariksa* among these nine considered for normal state of the body except *Vikrti*.

1. *Prakrti*
2. *Vikrti*
3. *Sara*
4. *Samhanana*
5. *Pramana*
6. *Satmya*
7. *Sattva*
8. *Aharasakti or Agni*
9. *Vyayamasakti*
10. *Vayas*

Broadly, there are nine types of *Sara* according to *Kasyapa* and eight types according to *Charak*, *Sushruta* and *Vagbhata*.

This work has been done to see the relation between *mamsa dhatu* and genes with the help of *mamsa sara purusha*, literature available on the same.

AIMS AND OBJECTIVES

- 1) To understand the concept of *Mamsa dhatu* and *Mamsa sara purusha* as described in Ayurveda.
- 2) To collect and explore the information regarding *Mamsa Dhatu*, *Mamsa Sara Purusha* and its relation with genetic predisposition from various sources like Literature and net etc and compare it with *Ayurvedic* concept of *Matrija Bhava*.

MATERIALS AND METHODS

- A. This being a literary research the materials were used –
- 1) *Brihattarayee* and their commentaries.
 - 2) Other texts of *Ayurveda*.
 - 3) Research journals and magazines from internet sources.
- B. Methodology adopted for this work is collection, exploration and interpretation of subject matter from different resources.

REVIEW OF LITERATURE

Mamsa Dhatu is the third important structural entity in constitution of human body. It also considered as one of the important criteria for defining immunity of an individual as in *Charaka Samhita*.

**Samamamsapramanastu samasahanano nara |
Dridendriyo vikaranam na balenabhibhuyate || (Ch.
Su. 21/18)^[1]**

Persons having proportionate musculature and compactness of the body no doubt possess very strong sensory and motor organs and as such they are not overcome by the onslaught of diseases. This indicates the physical & sensorial immunity of a person.

The concept of Sara: In context of *Dashvidh Pariksha* to know the *rogi bala* (strength of Patient.) different *Saras* (essence) has been described among which *Mamsa Sara* is also very important *Sara* to analyse the compactness of body.

Types of Sara

It is quite evident from the *Chakrapani* view that *Sara* concept is related with the *Dhatu*. Although body of every individual is composed of seven *Dhatu*s (elementary tissues), but it is found that persons differs very much from each other at the level of *Dhatu*s, because all the seven *Dhatu*s of the body go through the certain changes during - *Paka* (metabolism) by which the *Sarabhaga* (useful part) and *Kittabhaga* (waste part) are produced. The *Kittabhaga* is excreted through the excretory system and the *Sarabhaga* remains in the body for its utilization and performs different functions including body building. The ratio of this *Paka* and its products are not same in every person, thus the body which is composed of seven *Dhatu*s in different quomem, differs from one another at the level of *Dhatu Sara*.

Hence, individuals on the basis of *Sara*, have been classified into various categories depending upon the predominance of particular *Dhatu* in the body, except the *Sattva Sara* which is based on the preponderance of *Sattva* (psychic factor) in the body.

The *Saras* sequence can be enumerated as follows.

<i>Charaka Samhita</i> ^[2]	<i>Sushruta Samhita</i> ^[3]	<i>Astanga Hridaya</i> ^[4]
1. <i>Tvak Sara</i>	<i>Sattva Sara</i>	<i>Tvak Sara</i>
2. <i>Rakta Sara</i>	<i>Sukra Sara</i>	<i>Rakta Sara</i>
3. <i>Mamsa Sara</i>	<i>Majja Sara</i>	<i>Mamsa Sara</i>
4. <i>Medas Sara</i>	<i>Asthi</i>	<i>Medas Sara</i>
5. <i>Asthi Sara</i>	<i>Medas Sara</i>	<i>Asthi Sara</i>
6. <i>Majja Sara</i>	<i>Mamsa Sara</i>	<i>Majja Sara</i>
7. <i>Sukra Sara</i>	<i>Rakta Sara</i>	<i>Sukra Sara</i>
8. <i>Sattva Sara</i>	<i>Tvak Sara</i>	<i>Sattva Sara</i>

General consideration with elucidation of *Mamsa Sara Purusha* (individual)

The term *Mamsa Sara* is constituted by two components i.e. *Mamsa* and *Sara*.

Sara literally means *Visuddhataro Dhatu* or essence of *Dhatu*s (tissues), which signifies the good quality of *Dhatu* (in respect of structure, function and property), with its presence in good quantity.

Mamsa is the third *Dhatu* (tissue) in the sequence of seven *Dhatu*s in the body. Hence, *Mamsa Sara* persons

possess good quality and quantity of *Mamsa Dhatu* in predominance.

So far as the concept of classification of individuals on the basis of *Dhatu Sara* is concerned, the qualities as well as quantity of the *Dhatu* are the most essential factors, which are very much interdependent. A *Dhatu Sara* concept will probably never be completed if one of them is taken in account. Therefore in *Mamsa Sara* individuals not only the quality of muscle will be predominant but the presence of normal quantity will also be needed.

Finally, the *Sara* can be defined as the *Dhatu* (tissue) based *Deha Prakrti* (Biophysical constitution) depending upon the predominance of essence of particular *Dhatu* in respect of good quality and quantity.

The physical and physio-psychological characteristics of different *Sara*, described in various texts are the reflections of status of *Dhatu Sara* in the form of structure and functions. Thus the *Sara* concept provides an idea about the condition of *Dhatu* in the body. Hence examination of *Mamsa Sara* gives an idea of status of *Mamsa Dhatu* in the body.

In this respect, it is also evident that the texts of Ayurveda have mentioned *Sara* for the assessment of *Bala* and *Ayu* of the patient. *Bala* means strength of the body or power of resistance against the disease, which can be correlated with immunity, thus it can be assessed by assessing the *Sara* of that person.

So keeping the above view in mind, one can assess the part of immunity shared by *Mamsa Dhatu* through examining the *Mamsa Sara*.

As *Sara* is predominant essence of particular *Dhatu*, the number of *Dhatu Sara* present in the body of individual will be directly proportionate to the power of resistance of that individual. That is why *Sarva Sara* individuals

have relatively higher resistance in comparison to *Madhya* or *Asara* individuals.

"In nutshell, it can be said that greater the *Dhatu Sara*, greater the power of resistance".....

This view also indicates that persons possessing all the *Saras* but predominated in one will be subjected to possess the resistance against the disease which may arise due to its decrease.

It is evident from the *Kasyapa's* thought that the persons of particular *Sara* resist more against the diseases of that particular *Dhatu*. According to him the *Tvak Sara* children have disease free *Tvak* (skin) and their skin is capable of rapid healing of wound.

Characteristics Of *Mamsa Sara Purusha*

The *Mamsa Sara* individuals can be defined as persons having the predominance of essence of *Mamsa Dhatu* in respect to both good quality and quantity.

These persons are identified through the characteristic features present in them. These features are elucidated in different *Ayurvedic Samhitas*. The characteristics are depicted in *Charaka* and *Sushruta*. But in *Kasyap Samhita* the characteristic features are not available now-a-days.

Different Characteristics of *Mamsa Sara Purusha* as described in various *Samhitas*:

Physical characteristics

Body parts	<i>Charak Samhita</i> ^[5]	<i>Sushruta Samhita</i> ^[6]
<i>Sankha</i> (Temporal region)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Lalata</i> (Fore head)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Krkatika</i> (Nape)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Aksi/Netra</i> (Eyes)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Ganda</i> (cheeks)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Hanu</i> (Jaws)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Griva</i> (Neck)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Skanddha</i> (Shoulder)	<i>Guru evam mamsopachita</i> (Heavy and fleshy) bounded by muscles	-
<i>Udara</i> (Abdomen)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Kaksa</i> (Axillae)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Vaksha</i> (Chest)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Sandhi</i> (Joints)	<i>Guru evam mamsopachita</i> (Heavy and corved with flesh)	<i>Mamsopachita</i> (corved with flesh)
<i>Pani</i>	<i>Guru evam mamsopachita</i>	-

(Upper Limb)	(Heavy and fleshy)	
<i>Pada</i> (Lower limb)	<i>Guru evam mamsopachita</i> (Heavy and fleshy)	-
<i>Sharira</i> (Body)	-	<i>Acchndra Gatra</i> (Lack of depression of the body i.e. compactness of body)
<i>Asthi</i> (Bones)	-	<i>Mamsopachita</i> (Heavy & fleshy)
<i>Rupa</i> (Complexion)	-	-

Physio-Psychological characteristics

Physio-Psychological characteristics	<i>Charak Samhita</i>	<i>Sushruta Samhita</i>
<i>Khsama</i> (forgiveness)	+	-
<i>Dhrti</i> (Patience)	+	-
<i>Alaulya</i> (Non-greediness)	+	-
<i>Vitta</i> (Wealth)	+	-
<i>Vidya</i> (Knowledge)	+	-
<i>Shukha</i> (Happiness)	+	-
<i>Arjava</i> (Simplicity)	+	-
<i>Arogya</i> (Healthy)	+	-
<i>Bala</i> (Strengthy)	+	-
<i>Dirghayu</i> (Longevity)	+	-
<i>Vidvan</i> (Wise)	+	-
<i>Dhani</i> (Wealthy)	+	-

Mamsa Sara individuals and related disease

As far as second aspect of *Sara* i.e., *Bala* is concerned, according to *Gangadhara's* view they (*Mamsa Sara* persons) are having *Balam Dirgham* or very strengthly and more resistance against diseases. So these persons are less liable to the *Mamsaja vyadhies*, than the persons of other *sara*. If by chance they are suffer from *Mamsaja vyadhies* (muscle disorders) are cured easily.

Need of Sara Examination

Charaka has emphasized that sometimes the physician may take a wrong decision only by looking at the body of the patient such as patient is strong, because of being corpulent, he is weak because of leanness. It is fallacious to consider an individual to be strong or weak either from his plumpy or emaciated body or from the large or small size of his body. Some people having a Small Sized and emaciated body are seen to be strong. They are like ants that have a Small body and looked emaciated but can carry too heavy a Load. In another example, Like elephant having big and corpulent body possess less strength than lean and Short bodied Lion (*Vagbhata*). Thus one should examine the patient, with reference to the excellence of his *Sara*.

So it is quite clear that the inherent power of a person cannot be assessed by bulk of the body, which is only judged by the *Sara* examination.

Concept of Mamsa Dhatu

The structural and functional units of the body are *Dosa*, *Dhatu* and *Mala*. Out of these, *Dhatu* (elementary

tissues) are seven in number. "*Dharnat Dhatva*" they are called *Dhatu*s, because they *Dharana* (support) the body and *Posana* (nourish) to other *Dhatu*s.

Mamsa Dhatu is considered as third *Dhatu* in the sequence of seven *Dhatu*s. It supports the body by covering the bones and nourishes the next *Dhatu* i.e., *Medas*, hence is included under the heading of *Dhatu*s.

Formation of Mamsa Dhatu

When blood is metabolised by its own *agni* and that solidified by the air, then *Mamsa Dhatu* is formed.

Process of Dhatu Formation

The *Sara* (essence) of food, known as *ahara rasa* gets absorbed in the *pakvasaya* (the small and large intestines) and undergoes further transformation and becomes *Rasa Dhatu* - the first *Dhatu*. It contains nutritive materials (*Posaka amsa*) required by all the other *Dhatu*s. It travels to all the tissues through the own internal *srotas* present in the *Dhatu*s and supplies them, their nutrition. These nutritive materials are acted upon by the *Dhatvagni*, present in each *Dhatu*. After this two kinds of materials get formed viz., *Sara* (essence) and *Kitta* (waste). The *Sara* is again of two kinds viz., (1) *Sthula* (gross) which is more in quantity, is made use of by the same *Dhatu* for its own growth. (2) *Suksma* (fine) which is less in quantity, is the moiety required for the formation of the next succeeding *Dhatu*. Thus *Rasa-Dhatu* contributes some materials to *Mamsa* and so on. Hence it is said that one *Dhatu* is the food for the other. Due to its constant circulating characteristics, it is

denoted as *Rasa Dhatu* which carries these materials also from one *Dhatu* to the other. Hence the preceding *Dhatu* gives the birth to its succeeding *Dhatu*.

Genetic Predisposition According to Ayurveda -

Charaka described that there are six factors which are unitely responsible for conception and appropriate development of an embryo. He also described the reason for similarities between offspring and parents. Hereditary factors are known as *Shadbhava samudaya*.

- 1) *Matrija* – Maternal factors
- 2) *Pitrija* – Paternal factor.
- 3) *Atmaja* – Atma (soul).
- 4) *Satmyaja* – wholesomeness.
- 5) *Rasaja* – Nutritional factor.
- 6) *Sattvaja* – Psych / Mind.

Above six factors are collectively responsible for the development of the embryo.

Importance of *Matrija* (maternal) *bhava* in embryogenesis and parts derived from them *Matrija Bhava* (Maternal Features)

Mother, as described by *Acharya Vagbhata* is the route of progeny – means she bears entire responsibility and pain from conception to maturity of progeny (even her own entire life) its delivery, care and maturation. Therefore, carefull attended women keep normal healthy generation. That is why the *grihashthashram* is considered best out of four. The embryo is born from mother. Birth in specific species having placentation (*jarayuja*) is not possible without mother. Stated by *Maharshi Charaka Samhita* 3/6. The body part derived from mother is described by all *Acharyas* with slight differentiation. So it is given in tabular form according to their view.

All the soft structures are derived from mother as given below.

Body parts	CH.S. ^[7]	Su.S. ^[8]	A.H. ^[9]
(Skin)	+	-	-
(Blood)	+	+	+
(Muscles)	+	+	+
(Fat)	+	+	-
(Umbilicus)	+	+	+
(Heart)	+	+	+
(Pancreas)	+	-	+
(Liver)	+	+	+
(Spleen)	+	+	+
(Kidney)	+	-	-
(Urinary bladder)	+	-	-
(Rectum)	+	-	-
(Stomach)	+	-	+
(Upper part of rectum)	+	+	+
(Lower part of rectum)	+	+	+
(Small intestine)	+	+	-
(Large intestine)	+	+	-
(Bone marrow)	-	+	+

DISCUSSION

Concept of *Sara*

The concept of *Sara* is very important from health and disease point of view. In *Vimana Sthana Chakrapani* comments on term *Sara* as the *Vishuddhatara Dhatu* and is use to asses *Bala Pramana* of an individual at the state of health and disease too.

Sara is said to be the purest form of *Dhatu*, which is expressed as physical and physio-psychological characteristics in the individuals. It is remarkable that *Acharya* made use of this to asses *Bala* and *Ayu* of patient.

Bala means physical and mental strength or power of resistance against the diseases. The person who has particular *Dhatu Sara* is known to have more resistance against the diseases related to the concerned *Dhatu*. That is why *Sarva Sara* individuals have relatively higher

Deha and mano Bala in comparison with *Madhyama* and *Asara Sara* individuals.

1) There are six *bhavas* which are responsible for the creation and development of new life or living being. The six *bhavas* are *Matrija*, *Pitrija*, *Aatmaja*, *Satmyaja*, *Rasaja* and *Satvaja*.

In fetal growth and development the maternal influences are more important and according the *Ayurvedic* concept of *Matrijadi Bhava* (eye, skin, blood, muscles, fat, soft organ like heart, liver, spleen, kidney, and whole G.I. tract etc.) are formed or derived from the mother.

2a) *Matrija bhava* (maternal characters) is one of them which indicate the features said to be develop from the mother in her progeny.

2b) *Matri* (mother) which is one of the major component in embryogenesis out of six *Garbhakarbhavas* (6 components for embryogenesis like mother, father, nutrition, suitable/non suitable, *satva* and *atma*), is very

important as known to everybody in the field of *Ayurveda*.

2c) *Acharya Vagbhatta* says that mother is the root of progeny who bears all the responsibilities and pain since birth to maturity. Out of six *bhavas* four are closely related to the mother such as *Rasa*, *Satmya*, *Satva*, and mother herself.

These entire factor play an important role in the embryogenesis through the mother. *Pitraj* and *Atmaj Bhavas* play individually role in embryogenesis.

According to *Ayurveda* the structural and functional units of the body are *Dosha*, *Dhatu*, and *Mala*. Out of these, *Dhatu* (elementary tissues) are seven in number. They are called *Dhatu* because they support (*Dharana*) the body and nourish (*Posana*) to other *Dhatu*.

Mamsa is considered as third *Dhatu* in the sequence of seven *Dhatu*. It supports the body by covering the bones and nourishes the next *Dhatu* i.e. *Medas*, hence it included under the *Dhatu*.

Mamsa is formed when blood is metabolized by its own *agni* and then solidified by the air.

There are three *Nyaya* (hypothesis) regarding the conversion of *Rasa Dhatu* to *Mamsa Dhatu* viz *Ksheera Dadhi Nyaya*, *Kedari Kulya Nyaya* and *Khalekapota Nyaya*.

According to *Ksheera Dadhi Nyaya* the whole of *Rasa Dhatu* as such becomes *Rakta Dhatu*, *Rakta Dhatu* becomes *Mamsa Dhatu* and so on. Like conversion of milk (*Ksheera*) into curd (*Dadhi*).

Kedari Kulya Nyaya explains the phenomena as when *Rasa Dhatu* containing nutritional substance for all the *Dhatu*s, circulating in vessels, comes in contact with *Mamsa Dhatu*, the part homologues to *Mamsa Dhatu* i.e. *Posaka Mamsa* is taken up by the *Posya Mamsa Dhatu* and remaining *Rasa Dhatu* proceed to nourish the other *Dhatu*. From this law it is clear that *Dhatu*s are nourished by *aahara rasa* through specific *dhatuvaha srotas* or canal and with the help of *dhatvagni*, a part of *aahara rasa* or *dhatuposhaka amsha* nourishes the specific *Dhatu*.

This law also indicates that *Rasa Dhatu* is nourished earlier than *Mamsa* as it is nearer to channel and *Mamsa Dhatu* is further away.

According to *Khale Kapota Nyaya* the *Rasa* containing *Asthayi Mamsa Dhatu* purveyed to the *Sthayi Mamsa Dhatu* through the channel specific to the *Sthayi Mamsa Dhatu*. By implication, the *Sthayi Mamsa Dhatu* may have no use for other *Dhatu* and this is not likely to be channeled to *Dhatu*s other than *Sthayi Mamsa Dhatu*.

In this way *Kedari Kulya Nyaya* and *Khale Kapota Nyaya* are more applicable than the other one.

2e) *Ek kaal dhatu poshan* is given by *Arun Dutta* the commentary of *Asthang Hridaya* which seems quit near to modern concept of nourishment of tissue.

Matrija Bhava

Concept of heredity has been thoroughly presented in *Ayurvedic Literature*. *Kula* or *Gotra* of parents, the age of mother and father, health of reproductive organs, time of conception, *bija* of mother, diet taken by the mother during pregnancy, diseases of mother during pregnancy can affect the health and normalcy of the foetus. In *Atulyagotriya Adhyaya* it has been clearly mentioned that marriages in two similar *Gotras* should be avoided, otherwise congenital deformities forms in the offspring. Mendel has stated the law of inheritance by performing several experiments on the plants. He concluded that inheritance depends upon several units, called genes. Different studies show significant impact on phenotype – genotype correlation. Autosomal traits are related with a single gene on an autosome (non – sex chromosome). They are called as “dominant” because a single copy from either parent – is enough to cause this trait to appers. Autosomal recessive trait is another pattern of inheritance in which disease, disorder have passed on through families.

The first and foremost contributor is a mother. Without a mother *Garbha* can not originate. Some of the tissues and organs or attributes of a *Garbha* predominantly come from mother and they are called *Matrija Bhava*. The features inherited from mother are – skin, blood, muscle tissue, fat, umbilicus, heart, pancreas, stomach, duodenum, small intestine, large intestine, omentum, rectum, anal canal and anus etc. according to different *Ayurvedic* classics.

Genetic basis for the expression of features of Mamsa Dhatu

According to Modern Sciences Muscle – tissue development occur due to maternal inheritance. One hypothesis is that the paternal mitochondria and mtDNA are heavily damaged by reactive oxygen species prior to fertilization, and are hence removed to prevent the spread of potentially deleterious mitochondria to the whole population.

Maternal inheritance of mitochondrial is observed in many eukaryotes. Sperm-derived paternal mitochondria and their mtDNA enter the oocyte cytoplasm upon fertilization and then normally disappear during early embryogenesis. However, the mechanism underlying this clearance of paternal mitochondria has remained largely unknown. Recently, it has been that autophagy is required for the elimination of paternal mitochondria in *Caenorhabditis elegans* embryos. Shortly after fertilization, autophagosomes are induced locally around the penetrated sperm components. These autophago-

somes engulf paternal mitochondria, resulting in their lysosomal degradation during early embryogenesis. In autophagy-defective zygotes, paternal mitochondria and their genomes remain in the larval stage. Therefore, maternal inheritance of mtDNA is accomplished by autophagic degradation of paternal mitochondria. It is also found that another kind of sperm-derived structure, called the membranous organelle, is degraded by zygotic autophagy as well. Thus the propose term to this allogeneic (nonself) organelle autophagy is as allophagy.

The question then is how do autophagosomes specifically recognize paternal mitochondria? In mammals, sperm mitochondria seem to be tagged by ubiquity before fertilization. Involvement of ubiquitination has been also reported in mitophagy in somatic cells. In *C. elegans*, however, no obvious ubiquity signal is detected on sperm mitochondria before or after fertilization. Instead, strong ubiquitin signals are detected on another kind of sperm-originated structure, membranous organelles (MOs), in fertilized embryos. MOs are specialized ER-Golgi- derived vesicles essential for sperm fertility and are the major membrane-bound structure in mature sperm apart from the mitochondria. Ubiquitinated MOs are also engulfed by autophagosomes, suggesting that paternally derived organelles are generally eliminated from embryos by autophagy. Paternal mitochondria can be engulfed by autophagosomes separately from MOs, although some autophago-somes contain both. This observation implies that paternal mitochondria are recognized independent of ubiquitination on MOs. Thus, there is no direct evidence for the involvement of ubiquitination in the clearance of paternal mitochondria in worms. However, it is still possible that low-level ubiquitination, undetectable by immunostaining is involved. We also realized that paternal mitochondria possess characteristic granular morphology that is quite different from that of typical mitochondria, paternal mitochondria also seem to be proliferation- and fusion-inactive, because those inherited in the Igg-1 mutant retain the granular morphology and do not increase in number during embryogenesis. Such qualitative differences may underlie selective recognition of paternal mitochondria. In other words, before fertilization, sperm mitochondria may already be programmed for rapid degradation in embryos.

So the induction of autophagy in zygotes is very local and strongly linked to fertilization, i.e., sperm entry. Moreover, in polyspermic embryos, autophagosomes are induced around each penetrated sperm. These observations imply that recognition of penetrated sperm components leads to localized autophago-some formation. In this regard, zygotic autophagy of paternal organelles is reminiscent of autophagy induced by invading bacteria somatic cells. Autophagosome formation after fertilization is regulated by the canonical Atg pathway including UNC-51 (*C. elegans* Atg1/ULK1

homolog) and ATG-7. How sperm entry signals to this Atg pathway is an interesting point to be addressed.

Another important question is why paternal mitochondria and mtDNA should be eliminated from embryos. One hypothesis is that the paternal mitochondria and/or mtDNA are heavily damaged by reactive oxygen species prior to fertilization, and are hence removed to prevent the spread of potentially deleterious mitochondria the whole population. Alternatively, the heteroplasmic state of mtDNA might have some unfavorable effects on survival. Knockout of Igg-1 causes embryonic or first-stage larval lethality, indicating that autophagic activity is essential for normal development. However, this lethality could be due to other effects of impaired autophagy.

To answer these questions, we need to identify factors specifically involved in paternal mitochondria degradation and characterize the phenotypes of mutants of to such factors.

On the basis of above discussion we can say that, the *Mamsa* is a *Matrij Bhava* so the chromosomes of the mother have an effect on the characteristics of *Mamsa Sara Purusha*.

CONCLUSION

- In *Ayurveda* the term *Sara* has been described to denote the essence of *Dhatu* with an excellent quality.
- *Sara* is the purest form of *Dhatu*. It as the central governing force responsible for biological strength of the body tissue.
- *Mamsa Sara* individuals can be defined as persons having the pre dominance of essence of *Mamsa Dhatu* in respect to both good quality and quantity.
- In *Ayurveda* various features have been described in context of 6 *Grabhakar Bhava*. *Mamsa Dhatu* is a *Matrija* (maternal) feature according to this concept.
- Because the *Mamsa Dhatu* is a *Matrija Bhava*, so the chromosomes of the mother have an effect on the characteristics of *Mamsa sara purusha*.
- According to this concept we can say that if a person has any issue related to *Mamsa Dhatu* (muscles tissue) then that can be genetic.

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