

## A Study on Formation of *MANĪ* (Semen and Sperms)

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### ABSTRACT

**Background and Objectives:** The ancient philosophers and physicians like Hippocrates, Aristotle, Galen, Haly Abbas etc, were aware of gradual changes brought in the gonads during genesis of sperm and ovum. Their crucial observations and findings have the great importance still today. This study addresses the issues like what is *Manī* or semen actually? What are the primordial constituents of *Manī* (sperms)? How is it formed in the gonads of males and females? This study gives the basic knowledge and philosophical reasoning about the complex phenomena regarding the formation of sperms and semen.

**Method:** Literature related to formation of *Manī*, its constituents, was surveyed from various classical Unani books, journals, periodicals, manuscripts, and online citations from the subject specific websites. Collected material was then analyzed and systematized in comprehensive manner.

**Interpretation and Conclusion:** Unani system of medicine or *Tibb* has much information regarding the genetic material that is *Manī* (sperms and semen) of males. This study furnishes more comprehensive view of the mechanism involved in the process of spermatogenesis and spermiogenesis. The significance of this study is that it reveals comprehensive work of earlier physicians on the topic of formation of *Manī*.

**Key words:** Mani; Semen; Testicles; Unani Medicine.

### INTRODUCTION

*Manī* is an Arabic word which refers to semen or sperm. It also includes the genetic matter of female gonads that is ovum. It is the matter for generation of animals including the human beings. It is necessary for continuation and preservation of species of animals. In ancient era, philosophers were believed that male and female are the first principle of generation. While, Aristotle raises the query about those animals which don't have sexual difference

i.e. male and female but still their generation is continued. That's why, it is better to believe that *Manī* is the first principle of generation.

#### **What is *Manī*?**

According to Rabban Tabri (810-895A.D.); *Manī* is the concocted form of blood. <sup>[1]</sup>

Hkm Kabiruddin mentions that *Manī* is the specific fluid white in colour, which is formed in the *Khusyatayn* (Gonads) of males and females. It has a particular odour

same as the odour found in the *Khurmā* (dates). [2]

According to Hippocrates (460-370B.C); though *Manī* seems as similar contents or *Mutashābihul Ajzā'* (homogenous) but it is not actually. [2] The constituents of *Manī* are different in their matter and *Khwāṣ* (peculiarities), means *Manī* is composed of different kinds of contents having different characteristics. So philosopher called the *Manī* as *Mutashābih-ul-Imtizāj*, meaning *Manī* is such a mixture of numerous different things which looks homogenous as whole.

According to Aristotle; *Manī* must be either a waste product or a secretion or excretion. He describes the *Manī* as wet and watery. [3, 4]

The fundamentals of spermatogenesis and oogenesis are based on logical and philosophical reasoning by ancient philosophers and physicians. According to philosophers; *Manī* is a kind of waste product which is formed in the gonads. It is waste for the body but useful for continuation of species. According to Greek physicians; two kinds of waste matter are formed in our body. First kind of waste matter is that which is formed due to decomposition or by means of end dietary products like, faeces, urine, sweats. These matters are absolutely needless and can be harmful, if not excreted out from the body. They are known as useless or morbid waste matter. Second kind of waste matter is that which is formed by utilising the essential nutriment from the blood and their formation is necessary for the preservation of individuals and species. For example, mother's milk is essential for the growth and nutrition of her newborn baby but it is useless or worthless for her. Thus, the milk is a waste matter for feeding mother but useful for the baby. Similarly *Manī* is also a kind of waste matter for the individuals but it is useful for continuation of the species.

Thus, *Manī* must be a secretion or excretion. No place has been set apart by nature for useless waste products but these matters flow wherever they can find an easy

place in the body but a place has been set apart for all natural secretions. Thus, the lower intestine serves for the excretion of the solid wastes, the bladder serves for excretion of liquid waste, while for the useful part of nutriment *Tabiyat* or phusis uses the upper part of the intestine and for the spermatogenic secretions *Tabiyat* uses the both gonads. Thus, it is not a useless waste thing.

Now it is evident that *Manī* cannot be useless material, because the useless material is most abundant in persons of the worst condition of the body through age or sickness. Moreover, useless waste matters (*Mawād-i-Raddiyah*) are always morbid, but the removal of the secretion is useful, now *Manī* participates in both characteristics because it takes up some of the non useful nutriment. But if *Manī* were a useless waste product it would be always harmful; as *Manī* is, it is not so. However, Aristotle described that *Manī* is a secretion of useful nutriment. [3]

According to modern science; semen is a fluid ejaculated during the copulation, at the time of orgasm. [5]

The semen which is ejaculated during the male sexual act is composed of different fluids and sperm from the vas deference (about 10% of the total), fluid from the seminal vesicles (60%), fluid from prostate gland (30%), and small amounts from the mucous glands, especially the bulbourethral glands (Cowper's gland). [6]

The semen not only provides bulk to sperms, but also, supplies nutrients, hormones and capacitation factors. The pH of the sperm is alkaline (7.7 to 7.9) which is due to prostatic secretions and buffers. The buffers in the semen are bicarbonates and phosphates, which help to neutralise the vaginal acidity. [5]

*Manī* is a moist matter deposited by the male in the female genital tract. It is the vehicle for carrying sperms and ovum in males and females respectively, so that *Manī* of the male (sperm) can unite with the female (an ovum), if it is available.

According to Hippocrates and Galen (129-200 AD); *Manī* is the *Mādda* (matter) for the formation of *Janīn* (foetus).<sup>[7,8]</sup>

According to Asclepiades; *Manī* is the form of *Akhlāt* (humour) ejaculated during sexual intercourse.<sup>[9]</sup>

According to Ibn-i-Qayyim Al-Jawziyyah; both male and female seeds or *Manī* have generative power. *Manī* is composed from a representative part of male and female bodies, and this explained the similarity between parents and child. He argued like Hippocrates, that since one felt sexual pleasure in every part of the body, then this is evidence that the seed come from every part of the body.<sup>[10]</sup>

**Primordial constituent (Ajzā'-i-Awwaliyah) of the Manī:**

According to Unani philosophers, *Arkān* are the basic constituents of all substance in varying proportion and amounts.<sup>[11,12]</sup> The cosmos or *Mawālīd-i-Thalātha* are composed of four primordial constituents i.e Soil (*Arḍ*), Water (*Mā'*), Air (*Hawā'*), and Fire (*Nār*) known as *Arkān-i-Arba'a*. Since creation and genesis of everything in this universe are not possible without the harmonized combination of *Arkān-i-Arba'a*, so *Manī* is also composed of these four primordial constituents. According to Galen; the humans are originated from *Manī* and blood. *Manī* is the actual producer and it is based on *Arkān Arba'a*. *Jawhar-i-Nār* and *Jawhar-i-Hawā'* are the dominant *Arkān* in *Manī*.<sup>[13,14]</sup> Aristotle has given the explanation of primordial constituents of the *Manī*. He mentions that when *Manī* comes out from the animal, it is thick and white, while on cooling it becomes liquid as water or *Rukn-i-Mā'* and its colour is that of water. This would appear strange, because water is not thickened by *Harārat* (heat), whereas *Manī* is thick when it comes out from the animal's body which is hot, and becomes liquid on cooling. All the watery fluids freezes, if exposed in frosts to the open air, yet the *Manī* does not freeze but liquefies.<sup>[3]</sup> So, *Tabiyat* provides special characteristics to the *Manī* by utilising the appropriate and varying amount of water

and earthy content, through which *Manī* becomes thick by heat and liquefies on cooling. It is the substances having a predominance of earth in its composition that coagulate and thicken on boiling, e.g. milk, and on cooling the whole of it goes like water. Aristotle further states that *Manī* is not only the liquid composed of water and earthy matter that thicken, but also it is composed of air; foam, e.g. it becomes thicker and white, and since it has the smaller, less visible form of bubbles in it, so the whiter and firmer mass appears.<sup>[3]</sup> The same phenomenon also happens with oil, when it is mixed with air. The watery portion being separated off due to heat and turning to air, and the portion which is thickens being as white. Another evidence of the presence of *Rukn-i-Hawā'* (airy content) in the *Manī* is that it floats on the surface of the water, because air contained in it makes it float, being the cause of its lightness. However, the *Manī* has a quantity of hot air in it because of the internal heat and when it flows out of the body, the heat evaporates and the air cools down, then it turns liquid and dark, because the water and any small quantity of earthy matter remain in the *Manī* as it dries, as they do in phlegm.<sup>[3]</sup> *Manī* is a compound of fire or *Rukn-i-Nār* also. Since *Rukn-i-Nār* is responsible for the dryness and thickness of the things which are moist (*Ratab*) in nature, and *Manī* is also a moist matter and it is thick, when it is within the animal's body, so it means that the thickness of the *Manī* is due to its contents of fire or *Ajzā'-i-Nāriyah*. The properties of *Rukn-i-Nār* are to move or to flow and dissolve the things which are freeze by cold. As *Manī* has the tendency to flow out of the body at the time of copulation due to its innate heat (*Harārat-i-Gharīziyah*), so it is clear that the *Ajzā'-i-Nāriyah* are also found in the *Manī* through which flow of the *Manī* is make possible easily.

So it can be summarised that *Manī* is a compound of four kinds of primordial constituents which are earthy constituents; because *Manī* becomes thicken by the heat,

watery constituents; because *Manī* is moist in its nature and liquefies on cooling, airy constituents; because *Manī* is of the nature of foam and floats easily on the surface of water, and constituents of fire because *Manī* is the moist matter which is thick and hot by its nature.

#### **Mechanism of semen formation:**

*Manī* is formed in the gonads through the action of *Quwwat-i-Muwallidah* (faculty of procreation), which is potentially act by *Tabiyat* (physis or phusis). According to Galen; the complex structure was created by *Tabiyat* in order to perform the laborious transformation of *Dam* (blood) into semen, and this structure is known as testicles which are a “*lax flesh*” means gland. [9] Abu Sahl Masihi mentions that the humours or *Akhlāt* which are found with blood in the vessels, all those are *Ustuqsāt* (base or root for their constituent) for the body, and participate in making the *Manī*. [15] Since, blood is the one and only source of fluid medium of all four humours or *Akhlāt-i-Arba’a* through which *Mādda-i-Manī* (material for semen) can be acquire in the testes and ovaries, so arteries and veins are supplied to the gonads of male and female. Masihi further states that blood is a mixture of all kinds of body fluids, from which, each part or every organ of the body take up or absorb their *Ghidhā* (nutriments) which is appropriate to their nourishment. [15,16] So procreative faculty acquires the matter of the *Manī* into gonads from *Amshāj-i-Badan* (The basic compounds of the body which carry all the characters of the species as well as the race) through its sub serving faculty known as *Quwwat-i-Moḥaṣṣilah* (faculty of acquisition). Since, the blood is always circulating throughout the body, and it requires some duration of stay for its concoction. Thus, the complex vascular convolutions in the testes cause the *Quwwat-i-Māsikah* (faculty of retention), when blood vessels enter into the testicles. However, blood stays into testicles for a long time, where material for the semen receives some alteration by innate heat or proper heat which is an important tool of

phusis. According to Majusi, in these testicular blood vessels, only little change and variation takes place in the blood towards the *Manī*. When this imperfect *Mādda-i-Manī* from blood enters into the small openings (seminiferous tubules) of glandular mass of the testicles, then it is perfected. [8] The faculty of assimilation (*Quwwat-i-Mushabbihah*) in the mass of testes assimilates concocted blood to the likeness of colour of white fibrous tissues and makes the *Manī* as white as fibrous tissues of testicles. Since every part makes its nourishment like itself, so glandular mass of the testes modify the blood by its faculty of assimilation and give it a colour like its own. Majusi further states that complete concoction and maturation of *Manī* take place when it reaches up to soft and loosely attached part (epididymis) to the testicles. [8] Now, the *Manī* becomes more thick and viscous through the secretion of both seminal vesicles and mucous glands. According to Galen; as the male gonads are porous and cavernous, receive the blood and concoct it, so that they make it perfect for the generation of an animal because they are bigger and hot and because the *Manī* that flows into them has been already elaborated more accurately due to the distance and the strength of the vessels that concoct it. While the female *Manī* is less perfect, because the female gonads are smaller and cooler, and by consequence, they prepare a less accurately concocted *Manī*. [9]

## **RESULTS**

This study reveals that the Unani system of medicine has much information regarding the process of spermatogenesis and spermiogenesis.

This study furnishes the *Manī* is a secretion of useful nutriments which is produced in the gonads of male and female. This study revealed that the primordial constituents of sperm and ovum are fire, air, water, and soil. Gonads are found as receiving organs of these constituents from the blood.

This study revealed that the procreative faculty is responsible for the spermatogenesis and oogenesis.

The expediency of white fibrous mass of gonads is that when change and variation of blood is complete then it should take the colour similar to that organ. The basic principle of this phenomenon is found that the performer makes the object similar to itself in every aspect.

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How to cite this article: Waqas AA, Zulkifile M, Khan TN et.al. A study on formation of *MANĪ* (semen and sperms). Int J Health Sci Res. 2019; 9(3):268-272.

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