

Concept of Reproductive Seed and Sukravahasrotas

Abhishek Kumar Kesharwani¹, Namrata Tiwari²

¹Research Scholar, Department of Rachnasharir, Shri N. P. A. Government Ayurved College, Raipur, India

²Assistant Professor, Department of Rachnasharir, Shri N. P. A. Government Ayurved College, Raipur, India

Abstract: *Shukra* (semen) is considered one among the *Sapta Dhātu* (seven entities of body) and Final formed *Dhātu*, which is considered to be vital. Its main function is reproduction and maintain the health. The *Srotas* (channels) which carries and helps in transformation of *Shukra* can be considered as *SukravahSrotas*, *Moolasthana* (site of origin) is told as 'Vrishana'(testis) and 'Shepha'(penis) by *Acharya Charaka*, as 'Stan' (breast) and 'Vrishana' by *Acharya Sushruta*. *Vrishana* and *Shepha* act as the site of formation and path of ejaculation respectively, can be considered as *Moolasthana* with respect to *Sthula Shukra* (semen). And in case of Stan, it is an organ which is highly sensitive to its hormonal environment and Site as ribcage can provoke the sexual act and ultimately its effect will be there on the production and secretion of *Shukra*, by this the role of *Sukshma Shukra* (invisible form of *Shukra*) becomes evident, and the function of *Sukshma Shukra* can be understood by the hormonal functions.

Keywords: Breast, Reproduction, *Sukravahasrotamoola*, Stan, *Vrishana*.

1. Introduction

Dhatus are the structural and functional unit of body, which are responsible for the *Dharana*₁ and *Poshana* (sustainance) of *Sharir*, *Shukra* is one among the *Sapta Dhatus*. *Shukra* is the last *Dhātu* which is formed from *Prasada Bhaga* (essence) of *Majja Dhātu*₂ and also considered to be the essence (*Sara*) of all the *Dhātu* and hence called as one among the *Dashapranayatana*₃ (ten vitals entity of the body). One of the prime function of *Shukra* is *Gharbotpadana*₄ (reproduction) and name given as *Retas*, *Pumbija*, *Veerya* etc and other functions are it provides *Dhairya* (courage), *Chyavana* (ejaculation), *Preeti* (lust), *Dehabala* (strength of body), *Harsha* (pleasure)₅. *Shukradhara kala* is considered to be *Sarvashareera Vyapi*₆ (spread all over the body), which tells about the *Sukshma Shukra*. So the *Shukra* can be classified as *Sthoola Shukra* and *Sukshma Shukra*. The *Srotas* that carries *Shukra* is considered as *Shukravaha Srotas*. *Acharya Sushruta* explains Stan and *Vrishana*₇ as *Shukravaha Sroto Moola* and *Acharya Charaka* explains *Vrishana* and *Shepha*₈ as the *Moolasthana* (site of origin) of *Shukravaha Srotas*.

2. Aims and objectives

To analyze the *Moola* of *SukravahaSrotas* as Stan, and *Vrishana* as per *Sushruth Samhita Sharirasthan*. To understand

Sthoola Shukra and *Sukshma shukra*, and its various functions in the body to critically analyze the reason behind considering, *Vrishana*, *Shepha* and Stan as *Moola Sthana* of *ShukravahaSrotas* with respect to the embryonic development.

To analyze the *Moola* of *SukravahaSrotas* as Stan, and *Vrishana* as per *Sushruth Samhita Sharirasthan*. To understand *Sthoola Shukra* and *Sukshma shukra*, and its various functions in the body to critically analyze the reason behind considering, *Vrishana*, *Shepha* and Stan as *Moola Sthana* of *ShukravahaSrotas* with respect to the embryonic development.

3. Material and methods

Textual materials are consulted for present study and from which the relevant references have been collected. Basic Ayurvedic texts referred in this study are *Caraka Samhita*, *Sushrut Samhita*, *Sarangadhara Samhita* and available commentaries on them, modern books such as Human Embryology, Anatomy, Physiology and related websites have also been searched. *Shukravahasroto Moolasthana* are the *prabhavasthana*'s₉, i.e. the particular *Srotases* will develop from its *Moola Sthana* and few opines that the *Moolasthana*'s are the governing sites of that particular *Srotas* for the proper maintenance of the *Dhatus* after the formation of them or, it can also be considered that the main effect over *Srotas* is first observed in *Moolasthana* Here, *Vrishana* is explained as 'Veeryavahi'₁₀ i.e. the *Ashrayasthana* for the *Sira*'s which carry *Veerya* or *Shukra*. *Vrishana* can be taken as testis in males, which are paired oval glands suspended in scrotum by spermatic cord and in females ovary which is glandular organs produce and release the Ovum (female reproductive seed). Another *Moolasthana* is *Shepha*, which act as the *Path(Marg)* through which urine and sperm comes out in males and it can be considered as penis and in female fallopian tube, vagina which is an organ of copulation and fertilization. In embryonic development, the gonads either testes in males or ovaries in female contain respective primordial germ cells and these germ cells develop from undifferentiated genital ridge during 5th week and the gonadal differentiation occurs in 7th week of embryonic life and similarly the sex ducts remain undifferentiated in early part of development. Both gonads and sex ducts becomes apparent during 3rd month of foetal life. Sex differentiation happens when the primordial germ cells

originate in human embryos from endoderm of yolk sac and allantois. These cells migrate and reach genital ridge bilaterally in the later part of 5th week, usually gonads are indifferent/ ambisexual & consists of outer cortex & inner medulla. When germ cells appear in medulla of indifferent gonad, medulla differentiate to form testes (7th wk) and cortex regress, resulting in the formation of spermatogonia. On the other hand, appearance of germ cells in the cortex induces the development of ovary in 8th or 9th week and germ cells are transformed to oogonia. After differentiation of gonads, the foetal testis secretes two hormones such as protein hormone and Anti Mullerian hormone (AMH) and these are responsible for the phenotypic development in males and females. The steroid hormones secreted by Leydig's cells of foetal testes are testosterone and dihydrotestosterone (DHT), where the testosterone does the retention of mesonephric duct (primitive sex duct) and promoting its differentiation into duct system of testes and the DHT is responsible for male pattern of development before birth i.e. enlargement of male sex organs and expression of male secondary sex characteristics. Spermatogonia develop from primordial germ cells that arise from yolk sac and enter testes during 5th week of development. Once spermatozoon is formed it is released in seminiferous tubules and the fluid for the sperm transport is produced by Sertoli cells present in seminiferous tubules, the fluid pressure pushes sperm along the lumen of seminiferous tubules which reaches the rete testis via straight tubules and from there to coiled efferent ducts in epididymis, then vas deferens reaching to the ejaculatory duct and through urethra is ejaculated out¹¹. From this it is clear about the site of formation and path of ejaculation of *Shukra* hence the *Vrishana* and *Shepha* is considered as *Moolasthana* with respect to the *Sthoola Shukra*. *Sthana* (breast) is also considered as *Moola Sthana* by *Acharya Sushruta*, the appropriate reason for considering *Sthana* as *Moola Sthana* has not been explained. So the probable reason may be the organs concerned with the function of *Santhanothpatti* and centralize the presence of bone marrow at Ribcage, sternum and vertebrae at the age of 15-25 year when the Reproductive need is much higher, even current scientific study shows the formation of sperm cells is possible from bone marrow and the concept need further study to generalize the concept for scholars, either in males and females should be considered under *Sukravaha Srotas*, as there is an opinion that the *Sthana* in both the sexes have main role in the sexual act as sensitive areas, where these areas can provoke the sexual act and ultimately its effect will be there on the secretion of *Shukra*¹² and during early stages of embryonic development they are independent of sex steroid hormones and then the presence of testosterone hormone and its binding to mesodermal receptors helps in normal involution of male mammary gland. But, in the later part the mammary gland become extremely responsive to their hormonal environment. Here comes the role of *Sukshma Shukra*.

4. Discussion

Maharshi Caraka explains *Vrishan* and *Medra* are *Moolas* where as *Maharshi Sushrut* explained *Vrishan* and *Stan* and *Acharya Vagbhatta* said *Vrishan*, *Stan*, and *Majja Dhatus* are the *Moola* of *Sukravaha Srotas*. *Vrishan Medra Stana* and *Majja Dhatus* are the *Moola* of *Sukravaha Srotas*, this can be justified by following explanations.

(A) '*Vrishan* is considered as *Moola* because their spermatogenesis occurs' '*Medra* because it helps in the *Vahana* of *Sukra*'

(B) '*Majja Dhatu* because in *Dhatu Parinama* it is stated that from *Snehamsha* of *Majja* the *Sukra Dhatu utpatti* take place'

Majja Dhatu is considered as bone marrow, red bone marrow is found throughout the skeleton in the fetus and during the 1st year of life. After about the 5th year the red marrow which represents actively haemopoietic tissue, which gradually replaced in the long bones by yellow marrow. The replacement starts earlier, and is generally more advanced, in the more distal bone. At 20-30 years of age, bone marrow persists only in the vertebrae, sternum, ribs, clavicals, scapulae, pelvis bone, cranial bones and in the proximal ends of femur and humerus.

Bone marrow consists of a network of loose connective tissue, the stroma, which supports clusters of haemopoietic cells (haemopoietic cords or islands) and a rich vascular supply in which large, thin-walled sinusoids are main feature. The vascular supply is derived from the nutrient artery to the bone, which ramifies in the bone marrow, and terminates in thin-walled arterioles from which the sinusoids arise, which drain into disproportionately large veins. Lymphatic vessels are absent from bone marrow. The stroma contains a variable amount of fat, depending on age, site and the haematological status of body, and small patches of lymphoid tissue are also present. Marrow thus consist of vascular and extravascular compartments, both enclosed within a bony framework from which they are separated by a thin layer of endosteal cells. The bone marrow produces many types of white blood cells, which are necessary for a healthy immune system. These cells both prevent and fight infections. These are five main types of white blood cells, or leukocytes.

(C) '*Stan*' because at the age of 16-25 year when he/she reaches on reproductive age and at the same time the bone marrow is getting converted into yellow bone marrow and mainly found more in vertebrae, ribs and sternum, less in other long bone compare to previous. Thoracic cage is bounded by ribs and vertebrae, which is a place where all the immune cells (WBCs) are getting produced, this might be a reason *Maharshi Sushrut* consider *Stan* as *MoolaSthan* for *Sukravahasrotas* which is *Sarvasharir* and when an individual reach 16-25-year reproductive need is more compare to previous. the word *Shukra* cannot be taken or considered as mere semen or the *Murtharupa* of *Shukra* which is ejaculated during the sexual act either from male or female, but is the factor which is present in each and every cell body in the form of *Sukshma Shukra* and the *Shukradarakala* is believed to be

Sarvashareera Vyapi which again emphasizes over the presence of *Sukshma shukra* all over the body. *Sarvashareeragata Sukra* can be understood by the action of various hormones and involvement of multiple systems. Both male and female hormones are present in both the sexes' alike, but in vastly different amounts. One of the karma of *Shukra* is, it provides *Bala*(Strength) to the *Shareera*, which mainly indicates as the *Karma* of *Sukshma Shukra* and hence disturbance or abnormal functioning of it will hamper the healthy state of body. Aging is related to loss of sex hormones in both male and female, estrogen as a pro-hormone; has got main function in growth and development, stimulating the fat cells to grow and is a key component in reproduction. Progesterone with estrogen works to strengthen bones, sustain cholesterol levels, support libido and the Testosterone stimulates the development and maintenance of male secondary characters, haemopoiesis, growth of healthy muscle mass, supports libido- bone density- memory and well-being. Low level of prednisolone leads to anxiety, mood imbalances and poor cognitive functions. The hormone DHEA (dehydroepiandrosterone) helps in stimulating protein synthesis, decrease visceral fat, support bone health and maintain cardiovascular health. The sex hormones such as pheromones, responsible for close proximity smells also play a big role in sociosexual behaviors'. Endorphins are neurotransmitters and when the body gets stimuli, hypothalamus calls for endorphins and these have the ability to make feel good. Other than hormones, hypothalamus and limbic system also plays important role in producing external manifestation of emotions, which has got endocrine components such as adrenaline secretion, autonomic components such as increased heart rate, increased blood pressure, piloerection, salivation and dilation of pupil etc. So the role of *Sukshma shukra* can be understood in terms of function of various hormones. As *Ghrta* (ghee) is hidden in milk, similarly *Sukshma shukra* is hidden in the body which shows its presence by the expulsion of *Sthula shukra* by sexual drives.

5. Conclusion

With the above description we come to conclusion that in *Sushrut Samhita Sukra Dhatu* formation and store take place in

Sukravahasrotomoola which is consider as *Stan* and *Vrishan*, *Shukra* can be classified as *Sthula* and *Sukshma Shukra* and is present in both sexes, which is Sara of all the respected *Dhatus* and consider as immune cells in modern medical science which is getting transform as reproductive seeds after puberty due to reproductive need, which have potency to form a new life, this might be a reason *Maharshi Sushrut* has mentioned *Sukra* as *Sarvasharingata* so that it can maintain the life throughout. *Sukshma shukra* is present all over the body which can be understood by various hormonal functions, *Sthana* is an organ which highly responds to sex hormones in both the sexes and here comes the role of *Sukshma shukra*, where the Hypothalamo-Pituitary-Gonadal axis gets stimulated due to hormones and in turn leads to ejaculation of *Sthula* (visible) *shukra*.

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