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A REVIEW ARTICLE ON OLIGOSPERMIA WITH SPECIAL REFERENCE TO KSHINA SUKRA

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ABSTRACT

Oligospermia or Oligozoospermia is a male fertility issue characterized by low sperm count. The World Health Organization (WHO) defines sperm count below 15 million sperm per milliliter of semen as Oligospermia.

In Ayurveda classics, mainly two pathological conditions for *Sukra* are explained such as *Sukra Kshaya* and *Sukra Dushti*. Oligospermia is a condition that can be correlated with one of the *Sukra Dusti* namely *Kshina Sukra* where there is quantitative and qualitative vitiation of *Sukra Dhatu* with symptoms like *Daurbalya*, *Bhrama*, *Panduta*, *Sadana*, *Srama*, *Mukha Sosha*, *Klaibya*, and *Sukra Avisarga* are noted.

Kshina Sukra is a *Vatapaittika Vyadhi*, presented along with a Quantitative decrease of *Sukra Dhatu* hence *Sukra Vriddhikara Chikitsa* can be adopted. From the discussions, it can be concluded that *Vrishya* drugs, which are having *Sukra Vriddhikara*, *Sukra Sruthikara*, and *Sukra Vriddhisruthikara* properties can be used for treatment.

Keywords: Oligospermia, Kshina Sukra

INTRODUCTION

Infertility is defined as the inability to conceive after 1 year of unprotected intercourse of reasonable frequency. It affects psychological harmony, sexual life, and social function due to the social stigma which

prevails in society¹. This severity of abandonment is mentioned in classics by the terms *Aprathista* (not established), *Nagna* (naked), *Shunya* (naked), *Ekendriya* (having only one sense organ), and *Nishkriya*²(devoid of any useful activity). Here comes the importance of *Vajikarana Tantra* and the *Dravya* (Drug) for procreating the progeny.

Oligospermia or Oligozoospermia is one of the common causes of male infertility characterized by a low sperm count. The WHO classifies sperm count at or above 15million sperm per milliliter of semen as average and anything below that is considered low and is diagnosed as Oligospermia³.

Kshina Sukra is one type of *Ashtavidha Sukra Dushti*⁴ which is a *Vatapaittika Vyadhi*⁵ (disease due to vitiation of *Vata* and *Pitta*), in which *Sukra Dhatu* (Semen) is quantitatively and qualitatively affected. Based on the available references, *Kshina Sukra* can be correlated to oligospermia in which the sperm count is less than 15 million / ml which affects the quality of *Sukra* and cause infertility.

NIDANA:

Kshina Sukra is one among the Astavidha Sukra Dusti, whose direct correlation as well as the description regarding Nidana panchaka are not available. But in different contexts many references are available. Hence, Sarvadosha Prakopa Ahara⁶ and Vihara (food and activities that vitiates Tridosha), Samanya Dhatukshayakara Nidana⁷ (causes that diminishes all Dhatu) can be considered as Samanya Nidana of Kshina Sukra, and the factors that lead to Sukravaha Srotodushti⁸, Suktradhatu Dushti⁹, usage of Dravva¹⁰ like Kulattha (Dolichos biflorus), Kshara (Alkali) and Maricha (Piper nigrum), Abhighata (External injury) in Marma Pradesha (Vital spots) and Vyadhi (Disease) that affects Sexual organs and Kshaya of Dhatus and can be considered as Vishesha Nidana (Specific causes).

SAMPRAPTI:

Samprapti (pathogenesis) of Kshina Sukra can be explained as: A healthy individual may flinch to disease from the consumption of Nidana which results in the vitiation of Vata and Pitta. From this stage, Samprapti can manifest into a disease in two different ways.

- *i.* The vitiation in *Vata* and *Pitta* affects the *Agni* (digestive fire) due to the change in the qualities of respective *Dosha*, which directly results in *Jataragni Vaishamya* and produces *Dushita Rasa* (Vitiated *Rasa Dhatu*) along with increased *Mala Roopa Kapha* (vitiated *Kapha Dosha*). Thus formed *Dushita Rasa* hinders and deranges the formation of *Uttarottara Dhatu*. Due to the *Samanya Guna* of *Kapha* with *Medas* (fat tissue), *Dushti* of *Medas* may occur causing further *Srotorodha* (blockage of channels) and deranges metabolism which results in the manifestation of *Kshina Sukra*.
- *ii.* By the direct indulgence of *Sukravaha Srotodushti Nidana, Khavaigunya* in *Sukravaha Srotas* may occur, which results in the *Sthanasamsraya* of vitiated *Dosha* in *Khavaigunya Pradesha* and due to the *Doshadushya Sammurchana* the condition *Kshina Sukra* may manifest with:
- *Sarvasariragata Lakshana* (whole body manifestations)
- Maithunagata Lakshana (sexual manifestations)
- Sthanika Lakshana (Local manifestations)
- Sukragata Lakshana (Seminal manifestations)
- Apathyagata Lakshana

Samprapti Ghatakas of Kshina Sukra:Dosha: Vata and PittaDushya: SukraAgni: VishamagniSrotas: Sukravaha SrotasSrotodushti Lakshana: SangaUdbhavasthana: KoshtaAdhishtana: Sukravaha SrotomulaSanchara sthana: Sarva SariraRogamarga:BahyaandAbhyanthara

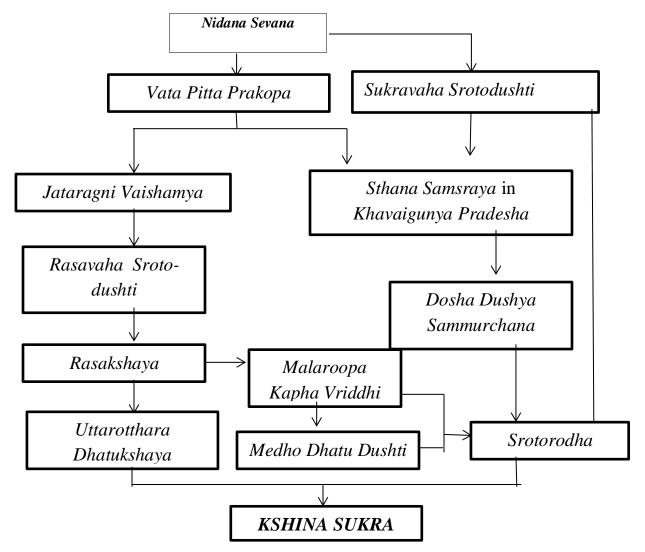


Chart 1: Samprapti of Kshina Sukra

POORVARUPA:

Kshina Sukra is a Vatapittaja Vyadhi hence some of the Dosha Lakshana that occurs before the full manifestation of the disease can be considered as Poorva Rupa. Hence, generalised Dourbalya (Weakness),
Manda Ruk (mild pain) over Kati (hip), Medra (Penis) or even Angamarda (body pain) can be considered as Poorvarupa. In Pittaprakopa Avastha, Santapa (burning sensation), Daha in Linga, Ati Trishna
(excessive thrist) and Putigandha (foul smell)can be considered as Poorvarupa

RUPA:

Rupa is the specific signs and symptoms of a disease that act as the indicators that explain the nature of a disease.

By considering the views of different *Acharya*, based on the severity or mode of manifestation *Rupa* of *Kshina Sukra* can be divided as:

- Sarvadaihika Lakshana: Dourbalya, Bhrama (vertigo), Panduta (paleness), Sadana (fatigue), Srama (exertional dyspnoea), Sosha (diminution)
- Sthanika Lakshana: Medra Vrishana Vedana (pain in penis and scrotum), Medra Vrishana Dhumayana (burning sensation in penis and scrotum), Mukha Sosha (oral dryness), which are manifested locally.
- Manasika Lakshana¹¹: In Haritha

Samhitha, Acharya specifies Stridvesha (aversion towards female) as one of the Lakshana that may manifest due to Kshina Sukra.

- *Maithunagata Lakshana: Klaibya* (impotence), *Maithuna Ashakti* (reduced virility), and *Alpa Cheshta* (reduced sexual performance)
- Sukragata Lakshana: Sukra Avisarga (no ejaculation), Chirat Praseka (prolonged ejaculation), Alparaktayukta Sukra Pravritti (presence of RBCs in semen)
- *Apathyagata Lakshana:* If a baby is born out of this condition the former child would be *Vikalpa* or *Virupa*.

Kshina Sukra Lakshana	C.S	S.S	A.S	A.H	B.P	H.S
Sarvadehagata						
Dourbalya	+	-	+	-	-	-
Bhrama	+	-	+	-	-	+
Panduta	+	-	+	-	-	-
Sadana	+	-	+	-	-	+
Sosha	-	-	-	-	•	+
Srama	+	-	+	-	-	-
Sthanika						
Mukha Sosha	+	-	-	-	-	-
Timira Darshana	-	-	+	-	-	-
Medra Vedana	-	+	+	+	+	-
Vrishana Vedana	-	+	+	+	+	-
Medra Dhumayana	-	-	+	+	•	•
Vrishana Dhumayana	-	+	-	-	-	-
Manasika						
Stridvesha	-	-	+	-	-	+
Maithunagata						
Klaibya	+	-	+	-	•	•
Alpachesta	-	-	-	-	•	+
Maithuna Ashakti	-	+	-	-	+	-
Sukragata						
Sukra Avisarga	+	-	-	-	-	-
Chirat Praseka	-	+	+	+	+	-
Alpa – Rakta Yukta	-	+	+	+	-	+
Apatyagata						
Vaikalya	-	-	-	-	-	+
Virupata	-	-	-	-	-	+

Table 1: Signs and Symptoms of Kshina Sukra

UPASHAYA AND ANUPASHAYA: Upashaya:

Sukra is Soumya Guna Bhuyishta (having qualities of moon and water; pleasing in nature) hence the

Aushada or Ahara which is of Soma Guna promotes Sukra and helps to maintain homeostasis. Based on Samanya Vishesha Siddhantha, below mentioned Rasaadhi Panchaka alleviate may the condition.

• Rasa – Madhura Rasa	• Vipaka – Madhura		
• Guna – Snigdha, Sita, Sthira	• Prabhava – Sukrala, Vrishya		
• Virya – Sita			
AHARA	AUSHADA	VIHARA	
Kshira (Milk)	Ardraka (Ginger)	Abhyanga (oil massage)	
Dadhi (Curd)	Asvagandha (Withania Somniferum)	Snana (bath)	
Ghrita (Ghee)	Satavari (Asperagus Racemosa)	Utsadana (ointments)	
<i>Tila Taila</i> (Sesame Oil)	Vidari (Pueraria tuberosa)	Padatra Dharana (foot wear)	
Vasa (Fat)	Musali (Chlorophytum borivilianum)	Gandhamalya Dharana (Garlands)	
Majja (Marrow)	Rasona (Allium Sativum)		
Mamsa (Meat)	Bala (Sida cordifolia)		
Mamsarasa (Meat soup)	Gokshura (Tribulus terrestris)		
Ikshu (Sugarcane)	Sringataka (Trapa natans)		
Guda (Jaggery)	Jivanti (Leptadinia reticulate)		
Sarkara (Sugar)	Atmagupta (Mucuna Pruriens)		
Madhu (Honey)	Saindhava (Rocksalt)		
Masha (Bengal gram)	Lavana (Salt)		
Godhuma (wheat)	Ajamoda (Tachyspermum ammi)		

Table 2 : Upashaya of Kshina Sukra

Anupashaya:

All the Nidana that wanes the quality of Sukra can be considered as Anupashaya and the Rasaadhi Panchaka acts against the qualities of Sukra are as follows:

Rasa- Ati Amla, Lavana, Tikta, Ushna

Virya – Ushna

Guna – Ruksha, Tikshna, Ushna

Vipaka – Katu

Upashaya and Anupashaya are the two tools that help to get clinch on to the pertinent diagnosis when the Doshas involved puzzle the mind.

AHARA	AUSHADA	VIHARA
Shaka (vegetable)	Dhanyaka (coriander)	Atimaithuna (excessive intercourse)
Sarshapa Taila (Sesame oil)	Kulattha	Sukra Vegadharana
Takra (buttermilk)	Yavani	Ayoni and Akala maithuna (untimely sex)
Mastu (whey)	Maricha	Chinta (stress)
	Satapushpa (Pimpinella anisum)	Atisahasa (exertion)

Table 3: Anupashaya of Kshina Sukra

SADYA ASADYATA OF KSHINA SUKRA¹²: It is a Dvandaja Vyadhi, in which Vata and Pitta involved.

Hence it is a Kricchra Sadya (difficult to cure) condition. In Susrutha Samhitha while mentioning Ashtavidha Sukra Dushti, Acharya considers Kshina Sukra as a Krichra Sadya Vyadhi.

UPADRAVA OF KSHINA SUKRA¹³: If Kshina Sukra is not treated in time, it may lead to Klaibya.

CHIKITSA: The function carried out by *Chatushpada* with proper qualities in *Dhatu Vishama Avastha* for *Dhatu Samya* is known as *Chikitsa*.

The main *Cikitsa Sutra* in *Kshina Sukra* is "*Kshine Sukrakari Kriya*".

In *Caraka Samhitha, Vimana Sthana Acharya* explains that a real physician should follow *Shodana, Samana,* and *Nidana Parivarjana* as principle treatment modalities.

Shodana Chikitsa: In the classics, the references regarding the importance of doing Shodana Chikitsa (purifactory methods) are highlighted before the administration of drugs which is having Vrishya Karma (aphrodiasic). These preparatory procedures are sufficient enough to create *Sroto Shudhi* and make the body devoid of *Dushita Mala* due to which the individual feels *Laghuta* (lightness), *Karma Samarthya*, and *Agni Deepti* to the body. *Ayurveda* considers *Vamana* (emesis), *Virechana* (purgation) and *Vasti Karma* (enema) as this preparatory procedure.¹⁴

Samshamana Chikitsa: In Susruta Sutra Sthana, Acharya considers Upachaya (anabolism) as the main line of treatment, which mainly depicts the treatment that results in Sukra Vriddhi or Unnatikara. Hence as mentioned in Upashaya, the drugs which are Madhura Rasa, Snigdha (unctuousness) and Guru (heavy) Guna that has Jivana, Brimhana (nourishing) and Harshana Karma(pleasure) can be selected.¹⁵ Sukrakara Aushadas can be effectively selected acaording to the condition of the patient from Vaiibara

cording to the condition of the patient from *Vajikara Yogas, Sukra Dushti Chikitsa, Raktapittahara yogas,* and *Yonivyapat Hara Yogas.*

AHARA	VIHARA
Gritha	Stri Seva
Kshira	Abhyanga
Madhura Snigdha Sita Dravya	Snana
Shali (Oriza Sativum)	Utsadana
Yava (Hordeum vulgare)	
Godhuma	

Table 4: Sukrakara Ahara and Vihara

In *Yoni Vyapat Chikitsa*, as a line of treatment, *Acharya* asks to follow certain measures as^{16}

- *Vajikarana Yogas* are pleasant to use and beneficial.
- Raktapittahara Yogas
- Jivaniya grita
- Chyavanaprasa
- Silajathu Prayogas
- Abhayamalaki Rasayana¹⁷.

Apart from medical management, *Acharya* has also notified the importance of *Manasika Chikitsa*. In *Harita Samhitha Vajikarana Adyaya, Acharya* mentions *Manasika Klaibya* and as a treatment, the physician should accept the protocol that improves the mental status of the patient.

Nidana Parivarjana: Acharyas always consider Nidana Parivarjana as the first line of treatment, because to cure a disease completely it must be removed from its root and also to create *Dhatu Samya*. That is what we are achieving through *Nidana Parivarjana*.

DISCUSSION

Amsha amsha Vikalpa of Dosha in Semen:

Vata, Pitta, and *Kapha* are the 3 constituents that decide the state of health and illness. The presence *of Tridosha* in the body and its components is inevitable. Semen is a complex substance created by male reproductive organs which consist of water, plasma, and mucus. It is also made up of small amounts of essential nutrients. Likewise, these components can be explained in terms of *Tridosha* also. From a semen analysis, a number of parameters can predict the Amshamsha Vikalpa of Dosha and the chances of conception.

Kapha: Kapha is the reflection of Sukra Dhatu, because of the Samana Guna it is shared mutually. Kapha is responsible for the Snigdhata, Sthirita, and Tarpana for sperm, not only that Kapha shares some of the physical characteristics of Sukra like Snigdha, Picchila (sliminess), Bahu (excessive), and Bahala. Any derangement in Kapha, either Vriddhi or Kshaya is reflected in the semen analysis, for example: In Vriddhi Avastha of Kapha, there might be an increase in the viscosity, delayed liquefaction time and agglutination which affects the Karma of other two Dosha. Pitta: In Suddha Sukra Lakshana, the consistency of Sukra is mentioned as Drava (liquidity) and Sara (fluidity) which may represent the liquified semen. This process of liquefaction may be due to the Snigdha, Tikshna (Sharp), Laghu and Drava Guna of Pitta, hence a conclusion can be made as the enzymes and hormones that facilitate liquefaction and further fertilization are by *Pitta*. *Pitta Bhaga* in *Sukra* also helps to keep the pH of semen alkaline itself and in the case of Pitta Vriddhi, the pH of semen may become acidic and the patient experiences Vidaha, here the increase in Ushna, Tikshna, and Drava Svabhava of Sukra, makes the semen with free dropped viscosity, low liquefaction time and low sperm count.

Vata: A driving force is necessary to have a series of actions from timely ejaculation to fertilization with proper motility and *Vata* can be considered as the strong initiator or controller of the whole successions. Rapid progression of sperm is due to the *Chala* and *Laghu Guna* of *Vata*. When the *Chala* and *Laghu Guna* of *Vata* are affected and superseded by the *Manda* (dullness) and *Guru Guna* of *Kapha*, the motility of sperm gets affected and results in the condition of Asthenozoospermia. *Vakrata* (curved shape) is another ill attribute of *Vata*, whose aggravation may cause abnormal morphological changes and leads to a condition of Teratozoospermia.

When the vitiated *Vata* and *Pitta* combine with deranged *Kapha*, the quality of semen gets hampered and hinders sustenance resulting in improper nourishment, imbalanced hormones, and destruction or decreased production of sperm producing a diseased condition called oligospermia where the sperm count would be less than 15 million sperms/ ml.

KSHINA SUKRA AND OLIGOSPERMIA:

In Susruta Samhitha, while explaining Vajikarana Tantra, Acharya clearly specifies about 4 types of Sukra Dushti Alpa Retas, Vishushka Retas, Kshina Retas, and Dushta Retas. Of these, Kshina Sukra comes under Dushta Retas, where Acharya details 8 types of Sukra Dushti based on the combination of Dosha.

Acharya Susruta portrays about 2 similar terms *Kshina Sukra* and *Kshina Retas* and in *Dalhana* commentary further clarification is also presented for its diagnosis.

Kshina Retas is a type of Sukra Dosha, where the quantitative reduction of Sukra can be seen (स्वमानादल्पीभूतरेतसः). Hence it is an ailment that can be allied with the hypovolemic state of semen whereas; Dushta Retas is a kind of Sukra Dosha which is due to the Vikalpa of Vatadhi Dosha (दुष्टरेतसो वातादिदुष्टरेतसः) and Acharya describes Ashtavidha Sukra Dushti. Among that Kshina Sukra is a condition where the Ruksha (dryness), Laghu, and Chala(motile) Guna of Vata are vitiated along with the Tikshna, Ushna (hot), and Laghu Guna of Pitta, which leads to a condition that can be correlated with the state of oligospermia.

Further conditions told by Acharya Susruta, in light of Sukra Dushti are Alpa Retas and Vishushka Retas. Even though they also affect the quantity and quality of Sukra, Dalhanacharya provides clear delineations regarding its differential diagnosis. Acharya postulates that Alpa Retas is a condition of the congenital defect (प्रकृत्येव स्तोकरेतसः), where the patient suffers from quantitative diminution as part of his Prakriti (Svabhava).

The final type of *Sukra Dosha* is *Vishushka Retas*, which is naturally seen in *Vriddha* (शुष्करेतसो वृद्धाः) and can be considered as sexual issues or *Sukra Kshaya* that occurs in old age. Hence, from all this discrepancy it is possible to correlate oligospermia with *Kshina Sukra*.

Dosha Avastha in oligospermia: Involvement of *Dosha* in *Samprapti* may differ based on the *Prakriti* as well as *Nidana Seva. Kshina Sukra* is a *Vatapittaja Vyadhi* where the gradual involvement of *Kapha* can also be noted in the later stages of *Samprapti*.

Vata and *Pitta: Kshina Sukra* is a *Vatapaittika Vyadhi*, whose derangement would pave the way for whole progressions. The over consumption of *Vata* and *Pittakara Nidana*, cause a disturbance in *Jataragni* and produce a *Vidagdha* or *Vishtabda* type of *Ajirna* which in turn produces *Dushita Rasa*, which leads to further progression and the manifestation of disease due to *Kshaya* in *Uttarotthara Dhatu*. This derangement affects the whole metabolism and produces oxidative stress and results in the manifestation of oligospermia.

Kapha: Agnivaishamya is the prime derangement that is occurring due to the vitiation of Dosha. This affects the Rasavaha Srotas and produces Dushita Rasa and Malaroopa Kapha. This Malaroopa Kapha Vriddhi further vitiates the Dhatu like Medas, Majja, and Sukra due to its Samana Guna that in turn results in increased oxidative stress and heat stress due to low metabolism. This can be considered as a phase of Agni Vaishamya due to increased Mala Roopa Kapha.

Agni in oligospermia: As Kshina Sukra is a Vatapaittika Vyadhi, a Jataragni Vaishamya produces Vidagdha as well as Vishtabda type of Ajirna which contribute to the formation of Dushita Rasa Dhatu along with Mala Roopa Kapha. An increase in the Malaroopa Kapha affects body metabolism and deranges the equilibrium. Hence in the condition of Kshina Sukra, the Vaishamya of Jataragni, Dhatvagni, and Bhootagni can be noted.

Dhatu Dushti in oligospermia: Oligospermia is a condition of *Sukra Dosha*, which authorizes the involvement of *Sukra Dhatu*. *Sukra Dhatu* is the 7th *Dhatu* which is formed from the essence of all the previous *Dhatu*. In *Ayurvedic* concepts preceding *Dhatu* is responsible for the formation of later *Dhatu* with the help of *Agni*; here *Agni Vaishamya* is occurring as the first stage of the disease which hampers the *Dhatu* formation. Hence, the involvement of *Sap*-

ta Dhatu is thinkable in a condition like oligo-spermia.

However, in every subject it is not strictly possible to state the participation of all *Dhatu*, the association with other *Dhatu* will be based on the *Nidana Seva*, *Prakrithi*, and other physical conditions of the individual. Therefore from the *Samprapti*, we can expect the involvement of *Rasa*, *Rakta*, *Medas*, *Majja*, and *Sukra Dhatu* based on the constitution of an individual due to the *Samana Guna* of *Dosha* with *Dhatu*. The vitiation in *Dhatu* may be due to the vitiation of *Srotas* and vice versa. Therefore the respective *Srotas* also get affected.

CONCLUSION

In Ayurveda, the prime function of *Sukra Dhatu* is reproduction. The two major pathological conditions of *Sukra Dhatu* are *Sukra Kshaya* and *Sukra Dusti*. Oligospermia can be well matched with one of the *Ashtavidha Sukra Dusti* namely *Kshina Sukra* which is a *Vatapaittika* condition where there is a quantitative and qualitative defect of *Sukra Dhatu*.

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