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A REVIEW OF *SUKRAKSHAYA* AND *KSHEENASUKRA LAKSHANAS'* CLINICAL APPLICATIONS WITH RESPECT TO ANDROGEN DEFICIENCY

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ABSTRACT

Sukra (sperm) is the fundamental component of all *Dhatus* and is in charge of the functions of the *Prakruta* (natural) and *Vikruta* (deformed) on the body in physiological and pathological circumstances, respectively. The male gonadal hormones known as androgens support the male reproductive system. Sukradhara kala is deemed valid by Acharya Sushruta is found throughout the body and in all living things, much as the blood's circulating androgens. The dysfunction of Sukra Dhatu will affect all over the body by means of many causative factors (Nidanas) or Secondary affection as a result of many systemic disorders. Bruhatrayi and Laghutrayee explained Ksheena sukra lakshana and Sukrakshaya (loss of sperm) lakshan . Sukra (sperm) here refers to sperm plus androgen. Hyper andhypo androgenic action cause many diseases and itself will get affected by the influence of many systemic disorders so one should meticulously be evaluated in most of the diseases even other than infertility cases for Sukrakshaya (loss of sperm) and androgen deficiency.

Keywords: Ksheena Sukra, Sukrakshaya (loss of sperm), Androgen deficiency, Sarvadaihika lakshana, Sthanika Lakshana.

INTRODUCTION

Sukra (sperm) is the *Sapta Dhatu* which is the essence portion of all the *Dhatus* specifically from

Majja dhatu⁽¹⁾ which is penetrated all over the body like the existence of an invisible form of *Ghrita* in

Dadhi, Tila in *Taila*⁽²⁾. *Retas* (sperm) or *Roopadravya, Veerya* (semen) or *Beeja* (sperm and ovum), or *Sukra* (sperm) are all synonyms for ejaculate, virility, spermatozoa, and semen plus androgens in males respectively. ⁽³⁾ After puberty, the *Sukra* (sperm) becomes active and expressed. This aids in the development of secondary sexual characteristics, masculinity, and the beginning of the sexual act. ⁽⁴⁾

Puberty is a term used to describe the maturation of the reproductive axis, growth hormone, and reproductive end organs. The male reproductive system's endocrine symphony controls puberty's hormonal changes. virilization. sex and differentiation, which turn in promotes spermatogenesis and fertility. (5) Sukrakshaya (loss of sperm) is the term for a decrease, abnormal functioning, or loss of Sukradhatu physiological function. Ksheenasukra is the term for the loss of virility and the qualitative and quantitative diminution of Sukra (sperm). Shukrakshava (6) Sarvadaihika and Sthanika lakshanas (Tables 1 and 2) have both been discussed by acharvas. Sexual dysfunctions are caused by abnormal endocrine control, androgen insufficiency, and abnormalities in the hypothalamothyrogonadal (HTG) axis. Here, an effort is made to grasp the Ksheena Sukra and Sukrakshaya Lakshanas clinically using specific references. In this article, an effort is made to understand the Ksheena Sukra and Sukrakshaya Lakshanas clinically, with a focus on androgen deficit. refers to a lack of androgen.

Concept of Sukra and Androgen

The seventh *dhatu*, *Sukra*,(sperm) originates from the *Poshakabhaga* of the *Majja dhatu* and serves several physiological purposes in our bodies, including *Dhairya* (Courage), *Chyavana* (Proper physical conduct), and *Preeti* (Attraction to the opposite sex can be either physical or psychological; both depend on the pulsatile regulation of androgen hormone levels), *Dehabala* (Personal strength resulting from plasma protein anabolism), *Harsha*⁽⁷⁾ (Some psychological functions are also caused by the pulsatile action of androgen). *Sukradhatu* is in charge

of ensuring that the reproductive system operates normally, and since this system is controlled by Apana Vayu, its Vriddhi or Kshaya causes a number of illnesses and renders a person incapable of having children.⁽⁸⁾ The two terms Ksheena and Sukra.(sperm) were combined to form the word Ksheenasukra. Durbala is mentioned by Ksheena, and Sukra,(sperm) is one of the Sapta Dhatus. Dalhana described the "Ksheena Projotpadhanena a Samartha bhavati" rationale as. the ability to reproduce is lost. Ksheena is *Tanu*.(dilute) Daurbalya, Krusha, and Kshama. ⁽⁹⁾ "Karana Visheshair Swamaanad Alpeebutam Reto yasya Ksheena Shukram," states Ayurvedeeya Shabda Kosha Ksheena Sukra. The word Maana relates to quantity or amount, and the *Dalhana* commentary states that the Ksheenasukra is a Durbala Shukra that cannot produce offspring like Lower Shukra because of the low Maana of Sukra. The testes secret several male sex hormones which are special types of fat molecules, called Androgens. And these include Testosterone and Dihydrotestosterone (DHT) are potent androgens, androstenedione more and Dehydroepiandrosterone (DHEA) will occur in small amounts. Testosterone is formed by the interstitial cells of Leydig's which lie in the interstices between the seminiferous tubules.⁽¹⁰⁾

Expression of Sukra and Androgen

Acharya Kashyapa Says that the Sukra Dhatu will become Sampurna paripakwa at the age of 16 years and relative expression of Sukra karma takes place. The wood of Arani contains Agni and, the seeds of Tila contain Taila in unexpressed form but are expressed at a suitable time and depending on methods of expression. (11) The clinical features of patients with Under androgenization such as disorders of testis development, defects of androgen or resistance to testosterone synthesis, and Dihydrotestosterone (DHT) are due to fetal period defective androgen production or action. (12) Any history of systemic illnesses, eating disorders, excessive exercise, social and psychological problems, and abnormal patterns of linear growth during childhood should be verified for delayed

Puberty in boys after the age of 14 years. There are four main categories of androgen deficiency in delayed puberty; Constitutional delay of growth and puberty~60% of cases, Functional Hypogonadotropic Hypogonadism caused by systemic illness or malnutrition ~20% of cases, Hypogonadotropic Hypogonadism caused by Genetic or acquired defects in hypothalamic-pituitary region~10% of cases and Hypergonadotropic Hypogonadism secondary to primary gonadal failure (~15% causes).⁽¹³⁾

Sukra Kshaya Lakshana and Androgen deficiency Bruhatrayi and Laghutrayee explain the Sukra Dhatu dysfunction under the heading of Sukrakshaya (loss of sperm) and Ksheena Sukra; likewise, male sexual dysfunctions should be understood with androgen deficiency with the help of clinical signs and symptoms. The *Sukrakshaya Lakshanas* are listed with clinical meaning as follows *Daurbalya* (General weakness), *Mukha shosha* (Dryness of Mouth), *Pandutva* (Paleness), *Sadana, Shrama* (Dyspnea on exertion), *Klaibya* (Impotence) *Sukra Avisarga* (Unable to ejaculate), *Medra Vrushana Vedana/Toda* (Testicular Pain), *Maithuna Ashakti* (Decreased sexual power), Chirad Praseka (early ejaculation), *Alpa Rakta Sukra Darshane/Shonitameva Sukra* (Hematospermia), and *Medra Vrushana Doomayana* (Episodic or sudden feeling of Hotness over genitalia).⁽¹⁴⁻¹⁶⁾

Table 1: Sarvadaihika Sukrakshaya Lakshana

S.No.	Sarvadaihika Sukrakshaya Lakshana	
1.	Daurbalya (General Weakness)	
2.	Shrama (Dyspnea on Exertion)	
3.	Mukha shosha (Dryness of mouth)	
4.	Angamarda (Whole body pain)	
5.	Panduvtva (Paleness)	
6.	Sadana (Fatigue)	
7.	Bhrama (Giddiness)	

Daurbalya

The word *Daurbalya* can also be understood as *Bala Kshaya*, the *Prakruta Avastha* of *Kapha* is *Bala* and in *Vikruta Avastha* it will be *Dosha* in *Kapha Kshaya Daurbalya*. ⁽¹⁷⁾ In *Oja Kshaya Daurbalya* is the one of symptoms, so *Kapha* and *Oja* are similar properties. *Oja* is the *Updhatu* of the *Sukra Dhatu* so we can understand that due to the *Sukra Dushti*, there will be a loss of physiological function of *Oja* leading to *Daurbalya*. In both *Vata Vriddhi* and *Pitta Vriddhi* we can assess *Daurbalya*. ⁽¹⁸⁾

Shrama

Dyspnea on exertion is due to *Daurbalya*, where patients will get fatigued even with smaller work. In day-to-day activities also, androgenic pulsatile movement makes a person physiologically fatigued. In *Mamsagata Vata* and *Medogata Vata* fatigue can be evaluated due to the presence of Reduced Muscle bulk and strength a key symptom of Androgen deficiency⁽¹⁹⁾ similarly *Shrama* is to be evaluated in *Rasakshaya, Medokshaya, Medovriddhi, Astikshaya,* ⁽²⁰⁾ *Vatarakta Purvaroopa, Pandu* (anemia) *Jwara*(fever) and other presentations.

Bhrama

Is giddiness or dizziness. The Impaired *Prakruta Dhatu Nirmana* and or *Poshana (nutration)* leads to a loss of qualitative and quantitative *Shukra Dhatu*. *Rajas, Vata* and *Pitta Prakopa* lands up in *Bhrama*. It can be evaluated in the many conditions related to *Sukra Dushti* like *Vata Vriddhi, Kapha Kshaya, Raktagata Vata, Medogata Vata, Pittavruta Vata, Pittavruta Prana Vayu*, and *Pittavruta Udana Vayu*. In *Dhatu Vaishamya* like *Rakta Kshaya*. ⁽²¹⁾

Mukha shosha

Dryness of the Mouth During sexual intercourse or after the act or regularly in his routine life due to the *Kaphakshaya* and *Rasakshaya*. The *Mukha shosha* can be better understood with *Parisosha, Rukshata,* and Sushka. Ksheena Shukra and Shukra Kshaya can appreciate with Amashayagata Vata. Pranavrutaudanavayu⁽²²⁾ Mutrakshaya,⁽²³⁾ Tamaka Shwasa, Chinna Shwasa, Urdhva Shwasa⁽²⁴⁾ and Hridavabighata.⁽²⁵⁾ HPG axis which is an endocrinological pathway between the Hypothalamus Pituitary gland and Gonads plays an important role in the maintenance of androgenic hormones so due to dysfunction of this gives an image to evaluate the deficiency androgenic other than testicular dysfunction.

Angamarda

The whole-body pain is due to the *Vata Prakopa* in *Shukra Dhatu* and *Kapha Kshaya*. Can also be evaluated in *Sukravega Avarodha*, chronic *Nidranasha*, *Ahita divaswapna*, *Rajayakshma*, *Kaphaja Krimi*, *Jwara Purvaroopa*, *Pandu*, *Vataja Arsha*, *Rasagata Jwara* and in *Majjavaha Sroto Vikaras* it it like *Vatikamurcha*^{It. It (26)}

Pandutva

Paleness of the Body is due to the improper production of the *Rasa Dhatu which* may lead to a

Table 2: Sthanika Sukrakshaya Lakshana

lack of nourishment of the body, Pitta Prakopa Vata Prakopa, and lack of Prakruta Kapha and present with Pandutva. It is one of the presentations of Rasa Rakta Mamsa Manovaha Srotovikara Hence while evaluating Pandu Lakshana Sukra related clinical assessment is needed. Kaphaadika Sannipata Kopa leads Pandu and gives scope to understand Sukra Kshaya and androgen deficiency. Rasa Kshaya and Sukra Kshava both lead to Pandutva and clinically art to be evaluated for androgen deficiency. Vatika Grahani and Kaphaja Arsha or Sukrashmari and Beejopagataja Klaibya (27) also present with Pandutva and in Meany disorders one should meticulously be evaluated in most of the diseases even other than infertility cases for Sukra Kshaya and androgen deficiency.

Sadana

Feeling like Overall weakness; a feeling of discomfort; a feeling like having illness due to the *Vata Prakopa* and *Kapha Kshaya*.

S. No.	Sthanika Sukrakshaya Lakshana	
1.	Medra Vedana	
2.	Vrushana Vedana	
3.	Maithuna Ashakti	
4.	Chirat Praseka	
5.	Sarakta Shukra Darshanam	
б.	Medra Doomayana	
7.	Klaibya	
8.	Shukra Avisarga	

Medra Vedana: Due to *Lingh Shitilita*, erectile dysfunction, and forceful sexual act may lead to the *Vata Prakopa* in the *Sukravaha Srotomoola* leads to the *Medra Vedana*.

Vrushana Vedana: Due to the *Vata Prakopa* in the *Sukravaha Srotomoola* can lead to pain in the scrotal region it may be felt during the sexual act or after the sexual act or in any acute conditions related to the scrotum and kidney.

Maithuna Ashakti

Weaker or reduced sexual orgasm/drive is due to the *Kaphakshaya* and *Sukra Dhatu Kshaya* and it is clearly understood as Androgen deficiency in most cases reduced testosterone level in the circulation and less utilization due to many pathological conditions.

Chirat Praseka

Delayed ejaculation may represent fewer properties of normal *Sukra* (Both qualitative and quantitative) that may be due to *Nidana* causing *Sukra Kshaya* and *Ksheena Sukra* So due to androgen deficiency the *Sukra* becomes *Nishpaltva*.

Sarakta Sukra Darshanam

Hematospermia, also known as hemospermia, is the presence of blood or RBC in the seminal fluid. May result from a variety of etiological factors like Infection Anomalies, tumors, trauma, iatrogenic causes, such as prostate biopsy, and other urological interventions and Systemic diseases.

Medra Doomayanam

Feels sudden or episodic Hotness over the genital organs after the sexual act due to the over-excitement *Pitta Prakopa* along with *Vayu* and May also experiences during his routine work due to the *Sukra Kshayaja Nidanas*. ⁽²⁸⁾

Klaibya

Sukra Kshaya feels erectile dysfunction/impotency and in the case of androgen deficiency, *Klaibya* is one of the important signs for the diagnosis of male sexual dysfunction.

<u>Shukra Avisarga</u>

No ejaculation or Anejaculation is due to any Obstructive type of pathology or sexual inhibition. Lack of *Sukra Dhatu* due many *Nidanas*.

Table 5. Chinical Signs and Symptoms of Androgen denciency				
S. No.	Clinical Signs and Symptoms of Androgen deficiency			
1.	Lethargy and Fatigue			
2.	Gynecomastia			
3.	Depression			
4.	Reduced muscle mass and strength			
5.	Reduced amount of ejaculate			
6.	Hot flushes and sweating			
7.	Weaker erection and orgasm			
8.	Loss of Body hair			
9.	Reduced bone mass, therefore increased the risk of osteoporosis			
10.	Shrinkage of the testicles, penis, and prostate			

Table J. Childa Signs and Symptoms of Androgen dentiency	Table 3:	Clinical Signs and S	ymptoms of Androgen	deficiency
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Lethargy, fatigue, and reduced physical condition are mainly due to the reduced level of Testosterone in the circulating blood and loss of metabolic function of androgen. The level of androgen is also responsible for muscle bulk and strength. DHT is five times more potent than testosterone. DHT is primarily used by the body in the prostate, skin, and hair follicles. The actions of DHT and the sensitivity of hair follicles to DHT are the causes. Hair loss

due to the shrinkage of hair follicles and the resulting impact on the growth cycle. The shrinkage of male sexual organs like testicles, penis, and prostate may reduce the amount of ejaculate as a result of weakness in the penile erection and loss of Sexual Orgasm. The male body also secretes estrogen but lower than testosterone, due to the excess estrogenic activity related to lower testosterone causing increased breast size in males. Clinically they present with loss of libido, Oligozoospermia, and Erectile dysfunction. Serum estradiol and testosterone are inversely related to fracture risk in older men, serumsex-hormone binding.

globulin (SHBG) shows a positive relationship. Low serum estradiol, low serum testosterone, and high SHBG predict clinical vertebral fractures, nonvertebral osteoporosis fractures, and hip fractures.⁽²⁹⁾

DISCUSSION

Ancient Ayurvedic literature has documented Sukra Kshaya and Ksheena Sukra Lakshanas they can be broadly divided into Sarvadaihika and Sthanika Lakshanas for the purpose of clinical examination and intervention. The modern literature on androgen deficiency correlates with Sarvadaihika Sukrakshava (loss of sperm) and even Ksheena Sukra Lakshanas. Patients when clinically presents with Daurbalya (weakness), Bhrama (vertigo), Angamarda, Sadana (fatigue), etc., it is invariable to meticulously think regarding general Kayachikitsa perspective of the symptoms at the same time the analytic mind of Vajikarana expertization will roll

out the possibility of androgen deficiency Sukra Kshaya (loss of sperm) and Ksheena Sukra Lakshanas and can give the best intervention. In this regard, the present review study highlights the clinical significance of androgen deficiency features with respect to Sukra Kshaya (loss of sperm) and Ksheena Sukra Lakshanas. The clinical intervention in such cases should be planned on Pachana, Virechana Basti, and Uttara basti. Vata Pitta Prashamana, Dhatu Poshana, Madhura Amla Tikta Vrushya Brahmana Rasayana viz. Shatavaryadi Ghrita, Ksheera Kalyanaka Ghrita, Phala Ghrita, Madhuyastyadi Ghrita, Vidaryadi Ghrita etc.

CONCLUSION

Sukra Dhatu Vriddhi (growth) Kshaya (loss) and Ksheena Sukra (loss of sperm) which are classical clinical features should also be clinically interpreted as androgen deficiency features when and wherever possible in Ayurvedic specialty practice. Daurbalya (weakness), Shrama, Sadana (fatigue), Angamarda, and Bhrama (vertigo) are Sarvadaihika Sukra Kshaya (loss of sperm) Lakshanas (features) correlate with clinical signs and symptoms of androgen deficiency features like Lethargy fatigue, Reduced muscle strength, weaker erection, etc., Further, clinical interventional descriptive research is needed.

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