REVIEW ON Ksheena Shukra (Oligozoospermia) – Male Infertility: A Medico Social Problem Its Management in Ayurveda

Jitendra Varsakiya*1, Mandip Goyal2 and Divyarani Kathad3

1Assistant Professor, Department of Kayachikitsa, Chaudhary Brahmaprakash Ayurveda Charaka Sma, Najafgarh, Khera Dabar, New Delhi 110073.
2Associate Professor, Department of Kayachikitsa, IPGT & RA, Gujarat Ayurveda University Jamnagar.
3MS Scholar, Department of Shalakya Tantra, Government Akhandanand Ayurveda College, Ahmedabad.

*Corresponding Author: Jitendra Varsakiya
Assistant Professor, Department of Kayachikitsa, Chaudhary Brahmaprakash Ayurveda Charaka Sma, Najafgarh, Khera Dabar, New Delhi 110073.

ABSTRACT

Background: Previously it was the females, who bore the blame and burden for being barren and the social stigma attached there to. Thanks, to the medical statistics that have held the males equally responsible in at least approximately 20% of cases of infertility are entirely due to a male factor, with an additional 30% to 40% of cases involving both male and female factors. Therefore, a male factor is present in one half of infertile couples. Aims & objectives: Modern therapeutics for the management of infertility i.e. artificial insemination, test tube baby etc are very costly and common man cannot afford it and chance of cure is not appreciable, thats why today to explore fertility agents from herbs. Discussion: Ayurveda very long back had realised the factors governing fertility and their defects that give rise to Vandhyatva and Klaibya. In Ayurvedic texts, the treatment of Ksheena Shukra has been highlighted as Upachaya of Shukra Dhatu. There is a list of the plant drugs used as Vajikarana in Ayurveda. Some of the examples are Ashwagandha (withania Somnifera), Musli (Curculigo orchiodes), Shatatvari (Asparagus racemosus), Gokshura (Tribulus terrestris), Shunthi(Zingiber officinale), Kapikachhu(Mucuna prurience) etc. also various Pachkarma therapies which can help to enhance the semen quality and quantity. These herbs are reported in the scientific literature for their aphrodisiac and spermatogenic activity.

KEYWORDS: Infertility, Ayurveda, oligozoospermia, Ksheena Shukra.

INTRODUCTION

Infertility is defined as the inability of a sexually active, non-contracepting couple to achieve pregnancy in one year. Infertility is a major reproductive health problem today, it affects 15% of couples that have unprotected intercourse. Among them male factor is present in one half of couples around 40-50%[1] Oligozoospermia i.e. sperm count less than 15 million/ml is one of the causes for infertility. Now a days oligozoospermia and infertility are common problems due to disturb daily routine, disturb food habits and mental stress on account of fast life.

Some of the known responsible factor for male infertility are poor semen quality, endocrine inter relationship, testicular function and genetical factors etc.[2] Today mental stress, tobacco & alcohol addiction, pollution, faulty eating & clothing habit, change in culture etc. have endangered reproductive capacity of men, leading oligozoospermia (Ksheena Shukra) and ultimately to infertility. Dushki of Shukravaha Strotas takes place which results in diminution of production of Shukra Dhauti which is also not up to its mark and is ejaculated in low volume.[3]

Current treatment of oligozoospermia is hormone therapy and surgical approaches. Various modern therapeutic measures and associated reproductive technologies like artificial insemination, test tube baby etc. are very expensive and common men cannot afford for it. Further results are not very encouraging. Hence, there is a search for alternative treatment modalities in other system of medicine, which is safe and cost effective.

Oligozoospermia stands near to the term Ksheena Shukra which is among eight types of Shukradushti mentioned in the classics and is a Vata Pittaja Vyadh[4] being more prevalence in Madhyama Vaya, a disease from Apana Vata province, which incapacitates man from conceiving his life partner, ending in infertility. In Ayurvedic texts, the treatment of Ksheena Shukra has been highlighted as Upachaya of Shukra Dhatu.[5] It can be done with the drugs having Shukra Vandhaka drugs like Shukratala, Vrishya etc.
Vajikarana (Aphrodisiac therapy) a branch of Ayurveda deals with the promotion of sexual health, healthy progeny, treatment of male sexual disorders (erectile dysfunction, premature ejaculation) and infertility. Vajikarana therapy improves the nourishment and function of the reproductive organs and vitalizes tissues of reproductive organs, increasing semen count and strengthening their motility and making sperms more viable for conception. Vajikarana helps to increase fertility of both sexes, thereby leading to the propagation of healthy future generations.

Further Samshodhana is one of the important therapies of Ayurveda which deals mainly with elimination of the aggravated Doshas from the body. These Doshas (toxins and waste material) should be eliminated from natural as well as the nearest root of the body.

As it has said that, the morbid Doshas subdued by Langhana and Puchana may sometimes be again provoked, but in the case of those which are subdued by Samshodhana (cleansing procedures), there is no possibility of such recurrence. When the root of the morbid Doshas like that of trees is not destroyed, there certainly occurs the reappearance of disease like that of the tree. References regarding the importance of Shodhana therapies are galore since Vedic era till the date. All the classics of Ayurveda advocates the importance of Shodhana prior to Shamana therapy especially Rasayana and Vajikarana therapies. Shodhana therapy not only increases the bioavailability of the drug, but also cures the ailments and with these therapies only, the occluded channels in the body will be cleared off to enhance the therapeutic efficacy of the drug. in classics it clearly mentioned that, Virechana enhances the quality level of Shukra.

AIMS AND OBJECTIVES
To evaluate the scope of treatment in Ayurveda for the management of male infertility context to Ksheena Shukra.

To review oligozoospermia from Ayurvedic and modern science point of view and to plan its treatment principle & formulations.

MATERIALS AND METHODS
To fulfil the aims and objectives relevant Ayurveda and Modern literature, available information on internet etc. were searched. The results on search are described hereafter.

DISCUSSION
Aetio-pathogenesis
Nidana Panchaka of Ksheena Shukra
In Ayurvedic system of medicine, examination of a disease is completed by going through five steps generally known as Nidana Panchaka. (Five diagnostic parameters). Hence, before determining treatment, a physician must be having depth knowledge of diagnostic parameters of Nidana Panchaka of disease.

In Ksheena Shukra Roga, different etiological factors are indicated as the causative factors (Nidana), Shukra Doshtikara Aharus and Viharas can be considered as the primary cause of Ksheena Shukra. Shukra is the Sara of Saptap Dhatus. So the factors which cause Kshaya of Dhatus can also be considered as its Nidana.

Aharaja Nidana
Anashana, Alpa-Pramitaashana (Eka Rasaabhyuasa), Vishamaashana can impede Agni and may produce Shukradushti which ultimately affects fertility.

Deprived substance may alter the metabolism, which may result in Dhata Kshaya. Shukra is essence of all the former dhatus, so any disturbances in the digestive process may lead to defective formation of Shukra i.e. Majjakshaya leads to Alpa Shukra.

Viharaja Nidana
Excessive coitus (Ati Maithuna), untimely coitus (Akala Maithuna), coitus in other than vagina (Ayoni Maithuna), abstinence, intercourse with unaroused partner, coitus in old age (Jaraya Gamana), excessive exercise (Ati Vyayama), excessive exposure to heat (Ushna Sevana) and suppression of ejaculation (Shukravega Nigrahaha) may cause the Ksheena Shukra. Vyavaya Shosha is due to excessive indulgence in sexual intercourse leading to loss of Shukra in large quantity. This will lead to retrograde emaciation of Dhatus beginning from Shukradhatu towards Rasadhatus. Vata and Atapa Sevana may vitiate Vata and Pitta Dosha and Prajagaran and Ati Vyayamata vittate Vata Dosha, which are responsible for Ksheena Shukra. It is reported that prolonged exertion (Ativayyama) and sleep deprivation lowers the serum testosterone levels in man (Opstad and Aakavarg,1982). Ati Ushna Sevana is one of the causes of Ksheena Shukra. Spermatogenesis is very sensitive to alterations in temperature. The scrotal contents are kept 2°-4° C below the temperature of abdominal cavity. Using tight undergarments and working in hot temperature zones may vary the scrotal temperature. Regular use of hot baths or sauna may also lead to oligozoospermia (Glezerman and Lunenfeld, 2006).

Manasika Nidana
Chinta (worry), Shoka (depression) Bhaya (fear), Avisrambha (Suspicion), Krodha (anger), Tarsha (Apprehension), Irshya (jealousy) Abhichara,
Daurmanasyam Avrushyanam, Strishuatiprasangaha Shoshakaranam[26] are causative factors of Shukra and Shukravaha Srotos Dushhti by vitiating Vata Doshas (Bhaya and Shoka) and Pitta Doshas (Krodha) and furthermore they also disturbs the Agni and leads to malnourishment of Dhatus and subsequently of Shukra Dhatu causing Ksheena Shukra.

Congenital
The pathology occurs during fertilization due to the Upatupta Bija i.e. abnormal or vitiated Bija (whole sperm) or Bija Bhaga (chromosome) or Bijabharga Avayava (gene) by which reproductive organs represente by these vitiated entities are deformed and hence render them to mal function resulting into Cryptorchidism - Failure of testis to descent to embryological life or after birth, Germ Cell Aplasia – Germ cells nearer to absence in the testis due to unknown cause, chromosomal abnormalities . According to Ayurvedat his genetic anomaly depending on the nature and severity of the condition produces primary defect at various functional aspects of Shukra i.e., Sarvadahihika (androgens), Retas related (semen) or Bija (sperm), the ultimate outcomes of Shukra Dushti. Owing to equal proportion of Shukra and Shonita, and also abnormality in Bijajanka Bija Bhaga, Dvireta (hermaphrodite).

Acquired: Systemic disease like Chronic Renal Failure, Cystic Fibrosis, Diabetes Mellitus, Thyroid Disease, Leydig cell atrophy. Infectious disease like Viral orchitis, complication of mumps, Genitourinary Tract Infection, Vascular-Varicocele and Sexually Transmitted Disease. In Ayurveda as a result of consumption of excessive Shita, Raksha, Viruddha Ahara, Alpa Bhojana (undernutrition), Shoka, Chinta, Atimaithuna, infidelity in wife (Avisrama), Adhika Shrama, Kalibya in a man occurs.[27]

Ksheena Shukra Lakshna
It can be classified into Sarvadehagata like Daurbalya, Bharma, Panduta, Sandhishula, Sadana, Shosha, Shrama. Sthana Lakshna like Mukha Shosha, Timira Darshana, Medhara Vedana, Virshana Vedana, Medhura Dhumayana, Virshana Dhumayana, Monisaka lakshana include Stridvesha, Maithungata Lakshnas are Klaibya, Acheshta, Maithune Ashakti, Shukragata,Shukra Lakshana are i.e Aavarga, Chirat Praseka, Alpa-Raktayukta, Majjamishritra Shukra Pravritti.

Samprapti of Ksheena Shukra
Samprapti of Ksheena Shukra is not mentioned in classics. But it is mentioned that vitiation of Vata and Pitta Doshas, are responsible for its manifestation of Shukra Kshay.[28][29][30] In Ksheena shukra, Vata and Pitta aggravation disturb to Shukra Dhatu, causing Shukra Dhatu Daurbalya and Shukravaha Sroto Ddushhti.

The Samprapti of Shukra Kshaya can be interpreted in the context of Ksheena Shukra as excessive indulgence in the Nidanas like Viruddha Ahara, Asatmya Ahara, Raksha Annapana Sevana which leads to Agnimandya as well as Amotpatti. Hence, improper formation of Ahara Rasa leads to Rasa Kshaya due to fault in Jatharagni resulting in the depletion of successive Dhatus and ending in Shukra Kshaya.

It has been said that the etiological factor affecting the Dhatus may also disturb the Doshas. This may also happen vice-versa. Nidanas lead to Doshas Dushti, Kharya, Dushta-Daurbalya and Dhatvagnimandya. This may happen simultaneously or gradually. In this case of Ksheena Shukra, Vata and Pitta provocation and decrease in the Kapha damage Shukra Dhatu also, causing Shukradhatu Daurbalya and Shukravaha Sroto Dushhti. Doshas diminish Dhatus by their Atmatejas. Here in this case, Atmatejas is Shoshana of the Dhatus by Vata and Tikshna and Ushna Guna of Pitta.[31] In the different context, it has been already been explained that Gunas like Raksha, Khara, Tikshna and Ushna may directly damage Shukradhatu. Hence, in Ksheena Shukra condition Raksha and Khara Guna of Vata and Tikshna and Ushna Guna of Pitta participates.

Mithyahara Vihara Sevana leads to vitiation of Vata and Pitta Dosha. At the same time they also cause Dushti of Shukravaha Srotas.[32] Vata and Pitta are main in factors of Ksheena Shukra. Shukra Dosha occurs due to Vyana and Apana Vata Prakopana.[33] Pathogenesof Ksheena Shukra is can be explained in following manner:

Vitiated Vata and Pitta Dosha vitiates Jatharagni, which in turn causes vitiation of Shukra-Dhatvagni.[34] Prakupita Vata and Pitta get localized in Shukravaha Srotas. In oligozoospermia, vitiatiated Dosh has affinity / predilection for Shukravaha Srotas (Shhanavishesh). This affinity is the main reason, which enables formation of Dosh-Dushya Sammucchana. This will lead to Shukra Dhatvagnimandhya. So production of Shukra Dhatu is hampered leading to Ksheena Shukra. The same process of Ama in mother and father may lead to the Bija Dushti directly, which is already mentioned in the classic as a etiological factor for Shukra Dushti.

Due to vitiated status of Jatharagni by vitiatiated Vata and Pitta, digestion of ingested food may be hampered leading to production of Ama. Ama may obstruct (Margavarodha) Srotas including that of Shukravaha Srotas leading to production of subnormal quality semen (hypo functioning). Final outcome of all these pathology is Ksheena Shukra. Clinically this entity results as male infertility or Na Garbham Jayat[35] or Nishphalatva.

Charaka has mentioned Samprapti of Shukra Dushti It has been mentioned that the consumption of etiological factors leads to vitiation of Doshas and thus provoked Doshas either individually or togethery reaches Retovaha Sira, causing Ashtavidha Shukra Dushti.

Certain diseases in which person already has structural and functional abnormality in Bija (Shukra),

www.ejbps.com

308
Bijabhagavayava (chromosomal defect), and Shukravaha Srotas are predisposed and have Srotovijunata. In such condition, if person consumes etiological factors, it will directly lead to Ksheena Shukra.

Sadhyasadhyyata of Ksheena Shukra: (Prognosis)
A forecast of the probable course and termination of a disease is prognosis or Sadhyasadhyyata. Assessment of this is mandatory before commencement of the treatment. It determines whether the disease is curable or not. Ksheena Shukra is Dvidoshajaya with involvement of Pitta and Vata Dosha and is said to be Krichhra Sadhaya. Pitta Prakriti Purusha has less Shukra and if he is afflicted with Shukra Kshaya then the prognosis is still more Kashtrasthadihya.

Prognosis of Oligospermia
It usually depends upon the underlying cause i.e. Oligospermia due to major systemic disorders like Cirrhosis of liver or renal involvement depends upon the severity of the disease. Oligospermia due to genetic causes is difficult to manage. Oligospermia associated with Varicocele has a very poor prognosis with medical management. Surgical intervention (Varicocelectomy) is very much necessary. Severe Oligospermia i.e. <5 million/ml has a very poor prognosis according to modern science and so they suggest for ART(Assisted Reproductive Technology). Stress induced Oligospermia and Oligospermia due to environment hazards and chemicals often have a good prognosis until and unless the cause is avoided.

Upadrava of Ksheena Shukra
If the condition is untreated then it may lead to infertility and sexual inadequacy or Klaibya.

CHIKITSA (Treatment)
Doshas, Dhatu and Malas are primary constituents of the body. These are having their own functions that help to maintain the normal health of the body. Since they are doing the Dharana Karma they can be generally called as Dhatu. Impairment of any one of these constituents known as Dhatu Vaishmya produces disease. While treating a patient; physician should be able to create the Dhatu Samya.

The primary importance of Chikitsa lies in Samprapti Vighatana. Practice of Chikitsa is only possible after the thorough knowledge of principles, which are hidden in it. Hence the principles of Chikitsa and its knowledge are essential to study Ksheena Shukra Chikitsa. Acharya Charaka has explained that one should confine from indulgence in causative factors and should start induction of the substance homologous to the diseased condition. Hence, restriction of the causative factors is the first line of treatment of any disease. Acharya Sushruta also opines this, by stating that Nidana Parivarjana is the first step of the treatment. So, the first line of treatment of Ksheena Shukra will be avoidance of etiological factors described earlier.

Ksheena Shukra is manifested by provocation of vitiated Vata and Pitta Dosha. Shodhana Karma is considered the best, when Doshas are more vitiated. Acharya Charaka has also advised to perform Shodhana Karma for the treatment of Shukra Dushhti. Snehana, Svedana, Vaman, Niruha Basti, Anuvasana Basti and particularly Uttar Basti are advocated for the treatment of Shukra Dushhti as well as Ksheena Shukra.

In Shukravaha Srotodushti, the diet includes Madhura and Tikta Rasas along with proper Vayamana and Vyayama along with timely elimination of Doshas in proper quantity is essential. In conditions like obstruction to the path of Shukravaha Srotas, Virechana is the best line of treatment.

Chikitsa of Ksheena Shukra
Hence whole management of Ksheena Shukra can be discussed under three headings Viz.

1. Nidana Parivajana
To root out the Roga one has to avoid the etiological factors. The etiological factors which have been mentioned under Nidaana, Aunupashya are to be strictly avoided by the patient of Ksheena Shukra.

2. Sanshamana Chikitsa
As Upachaya is the primary line of treatment in Ksheena Shukra, so while treating Ksheena Shukra the physician should select the combination of drugs which boost the Shukra Dhatu, like Virshya Dravyas (Shukrakara) which possess Madhura Rasa, Snighdha Gura Guna with function of Jivana and Brimhana and which create Harshana of Mana.

3. Samshodhana Chikitsa in Ksheena Shukra
“Ksheene Shukrakari Kriya” is the main line of treatment in Ksheena Shukra. Before the administration of the drugs, which are having Virshya Karma, it is a important to prepare the body in order to get maximum benefit. These procedures are sufficient enough to create Srotoshuddhi and a body devoid of Malas. Ayurveda includes Yamana Karma and Virechana Karma in these procedures. In Shukra Doshha i.e in Ksheena Shukra, the choice of treatment is Basti (Anuvasana & Niruha) which is made from Shukravardhaka Dravyas i.e. Ghrita Taila etc. Various recipes of Virshya Basti are described in classics which can be effectively used in the condition. Vajikaranata is strongly recommended in management of Ksheena Shukra. While explaining the effect of Vajikaranata, Charaka has said that the therapy which enhances fertility potential of semen and it lends a hand in getting a healthy offspring for maintenance of continuity of ancestry, it is therapy by which even in old age also one does not get semen debility, which enables one to remain firm like a big tree having innumerable branches and to earn respect from people by virtue of
having procreated several children; which is favorable to his enjoying life and eternity in this world and which brings longevity, beauty, strength and nourishment is known as Vajikarana.\[12\]

**Classification of Vajikara drugs**
Vajikara Dravyas are classified in to following categories.\[53\][54]

**Shukrajanaka or Shukra Vriddhikara:** which initiates and enhances the spermatogenesis (Shukrajanana Kriya) by nourishment of Dhatu in sequential pattern from Rasa to Shukra Dhatu. For example, Mamsa, Ghrita, Ashvagandha, Musali, Sarkara and Shatavari etc.

**Shukra Pravartaka or Shukra Sritika:** which causes proper ejaculation of semen. For example, Sankalpa, Ucchata, Bharit etc.

**Shukrajanaka-Pravartaka or Shukrusriti Vriddhikara:** which perform both the above said function. For example, Ghrita, Kshira, Mamsa, Bhalla etc.

In addition to these varieties of Vajikara drugs, Acharya Sarangadharana has mentioned some more types viz. Shukra Stambhaka drugs e.g. Nagabala, Jatiphalna; Shukrarechaka drugs e.g. Brhatiphalna; and Shukrashoshini drugs e.g. Hartaki.\[55\] Shrushta has stated that Vajikarana Tantra is specially meant for treatment of Shukra Dushti, where he has prescribed different modalities of treatment in various conditions of Shukra\[56\], which are as follows:

**Alparetas:** is a genetic or congenital condition of Shukra in which level of Shukra is below than its normal values and Prakriti (genetic constitution) is responsible for it.\[57\] In this condition, Ayapayana i.e. preservation of the present status and prevention of further deterioration in semen profile is advocated.

**Dushta Shukra:** is managed by Prasadana; i.e. the drugs, which are alleviating the Doshas are advised.

**Ksheena Retas:** In this condition, subnormal quality of Shukra is to be treated with Upachaya i.e. nourishment to achieve the normal and optimal level of Shukra.

**Vishushka Retas:** In this condition, there is low level of Shukra due to geriatric changes this man has to be brought to normalcy by administering Shukra Janana drugs.

**Pathyapathy**
Pathyapathy\[58\] plays significant role in alleviation of various disease, conduciveness and maintenance of normal health. If a person who has habit of taking Apathya then certainly the effect of the medicine will prove ineffective and the disease aggravates. If a person follows the Pathya that is advised for him, then it will help him certainly to bring down the increased state of disease.

**Pathya:** Patient should advice to take Vasa (Muscle Fat), Majja (Bone marrow), Ghrita (Ghee), Vilepi (Gruel), Kshira (Milk) and its products, Raktal Shali (Red variety of Rice) Godhuma (Wheat), Masha (Vigna mungo), Kadali (Banana), Atasi (Linum usitatissimum), Patola Patra (Trichosanthes dioica), Kushmanda Majja (Benincasa hispida), Aba Phala (Cucurbita lanigera), Kharjura (Phoenix sylvestre), Varadi Mamsa (Swine meat), Mahisha Mamsa (Buffalo meat), Kakkuta mamsa (Chicken), Narkela Ksheera (Coconut Milk), Mandaka (Supernated part of buttermilk), Karpoora Nalika, Rasal, Shankara Uddakam, Yava Saktavaha, Jirna, Mayu (Old wax), Mahisha Dadhi (Curd prepared from Buffalo milk), Mathihih Takra (Churned Buttermilk), Navaneeta (Butter), Gavya Ghrita (Cow ghee), Mahisha, Ghrita (buffalo ghee), Eranda Taila (Castor oil), Madhu (Honey)\[60\], Purana Guda (Old jaggery). Patients should also advice to do Abhyanga, Anjana, Ulavariana, Sheka, Abharama Dharana, Gandarva KanyaShravan, Chandrama Yukta Ratri, Navayaavana Shree, Snana, Pada Prakshalana.

**Apathya:** Patients ask to avoid Katrina Tikta, Lavana (Pungent, Bitter, Salt) Rasa, Atisevana, Nishpava (Lablab purpureus), Chanaka (Cicer arrietium), Kulatthu (Dolichos biflorus), Kshara Atisevana, in routine diet) Patient should ask to avoid. Adhika Vyavaya, Adhika Shoka, Adhika Chinta, Bhaya, Veya Dharana in routine life style.

**CONCLUSION**
Infertility is a burning problem of society mainly male infertility, if we have proper knowledge of cause, diagnostic tools for early diagnosis and have proper management can cure the patient and couple can achieve parenthood. Ayurveda is better choice for the infertile patients,

**REFERENCES**
4. Sushruta, Sushruta Samhita, Dalhanacharya Nibandha Samagraha commentary, Vaidya Yadavji Trikamaji Acharya, Chaukhambha Surbharati


