



Review Article

A CRITICAL REVIEW ON ROLE OF KSHINA RETASA (OLIGOSPERMIA) IN MALE INFERTILITY

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ABSTRACT

Male infertility is one of the major problems now-a-days and incidence of this problem is increasing on a regular basis due to the modernization. *Kshina Retasa* is one of the conditions responsible for male infertility which can be correlated with low sperm count in semen. Infertility affects an estimated 15% of couples globally. The terms like *Kshina Shukra*, *Alpa Retasa*, *Shukra Dosha*, *Kshina Retasa* resembles the conditions related with Oligospermia in Ayurveda. **Introduction:** Infertility is a disease of reproductive system defined by failure to achieve the clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. It is a global public health issue. A low sperm count of less than 15 mil sperm/ml of semen is considered as Oligospermia. **Aim:** To review the role of *Kshina Retasa* in male infertility and manage it through the Ayurveda. **Objectives:** To rule out the relevant cause of *Kshina Retasa* and to discuss the Ayurvedic perspective of oligospermia and to find out the cheap, easily available Ayurvedic modalities to treat and prevent *Kshina Retasa*. **Data source:** *Charaka Samhita*, *Sushruta Samhita*, *Astanga Hridaya*, modern medical textbooks, Journals and online databases. **Results and Conclusion:** The literary study shows that the drugs possessing *Snigdha guna*, *Balya*, *Vrishya* and *Vata-sthapana* properties have good effect in *Kshina Retasa*. Similarly, *Madhura rasa*, *Sheetavirya*, *Vrishya*, *Brimhana* and *Vatapittahara* properties of many drugs offers beneficial effect in *Kshina Retasa*. Hereby, we can conclude that the traditional system of Ayurvedic literature is better treatment option for *Kshina Retasa* in present context.

INTRODUCTION

Infertility is a disease of reproductive system defined by failure to achieve the clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.^[1] It is a global public health issue. A low sperm count of less than 15 mil sperm/ml of semen is considered as Oligospermia.^[2] Infertility affects an estimated 15% of couples globally.^[3]

In man, infertility may result from impaired sperm quality (reduced motility/reduced sperm numbers).^[4] *Acharya Sushruta* clearly defines the condition of *Kshina Retasa* to be *Vata-Pitta*

predominant.^[5] *Ayurvedic* classical texts gives highest relevance to *Shukradoshas* as the prime factor responsible for causing male infertility.

A detailed description of examination of the *Retasa* is available in the Ayurvedic classics. The examination of *Dusta Retasa* has been explained by *Charaka* under eight factors i.e., *Phenila*, *Tanu*, *Ruksha*, *Vivarna*, *Puti*, *Picchila*, *Anya Dhatusamsrata* and *Avsasaki*.^[6] According to *Acharya Sushruta*, the *Shukra* which is vitiated either by *Vata*, *Pitta*, *Kapha* or *Kudapagandhi* (smell as if dead body) or *Granthiyukta* or *Durgandhayukta* or *Puyamisrit*, *Kshina* or *Alpamatrayukta* or smell as if urine and stool are unable or unfit to reproduce naturally.^[7] Low sperm count (Oligospermia) is one of the main causes of male infertility and it is correlated with *Kshina Retasa* in *Ayurveda*. *Kshina Retasa* means despite of being in *Madhyam Aayu*, due to several factors, *Retasa* count will be lower than the normal.^[8]

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Need for the Study

Infertility is a social stigma, it affects the psychological harmony, sexual life and social function. The life of infertile couple goes on roaming around doctors, laboratories for the check-up frequently. Acharya Charaka has compared person without a child is just like a solitary tree with branches devoid of fruits, shadows and also devoid of any pleasant smell. He is regarded as artificially painted lamp as well, a dried up lake or a pseudo metal which has the appearance of a precious metal. He is recognised as *Apratishtha* (not to be well established), *Nagna* (naked), *Shunya* (vacant) and possesses only one sense organ and as having lived a purposeless life.^[9]

MATERIALS AND METHODS

- Classical texts in Ayurvedic and modern literature are reviewed.
- Various articles and databases in platform like PubMed, Medline, Scopus are reviewed.

DISCUSSION

What is Retasa?

The term *Retasa* is derived from the Sanskrit root 'Ri Ksrane Riyate Ksarate Iti' which means to flow. 'Re Gati Recanyoh Riyate Gacchati SariratVahati Maithunkale Iti' i.e., the substance which flows out of the body during the sexual intercourse is *Retasa* (ejaculate). It is in common practice to use the term 'Retas', 'Sukra' and 'Virya' to be vaguely synonymous. However, these words are coined for specific purpose, that is to say *Shukra* denotes the whole testicular and accessory gland secretion i.e., semen and androgens. It is the seventh and last *Dhatu* of the body as an essence of all *Dhatu* while 'Retas' denotes the ejaculate (Semen) and 'Virya' denotes the potency. According to Acharya Sushruta, flower bud emits fragrance only when it blossoms, this does not mean that there is absence of fragrance in the bud. Similarly, *Shukra* does not show its presence in childhood, but as the age proceeds it shows its presence and it doesn't mean that *Shukra* is absent in childhood. As *Shukra* is present in both male and female and is exhibited in male by appearance of hairs on face and genital organs (secondary sexual characters) and with appearance of menstruation in female. The term 'Veerya' is used to mean potency or we can say strength or masculinity in general.

Amurta roopa Shukra - Just as *Sarpi* exists in all parts of *Kshira*, *Ikshurasa* exists in *Ikshu*, similarly *Shukra* resides in all parts of *Shareera*.

Murta roopa Shukra- *Amurta roopa* attains *Murta roopa* as it traverses along the *Mutravaha Srotas* in males which is known as the "Retas"

How to Differentiate healthy & unhealthy Retasa Unhealthy Retasa/Astadasha of Retasa

According to Acharya Charaka -Phenilam (frothy), Tanu (slender), Ruksha (arid), Vivarnam (discolored), Puti (putrid), Picchilam (slimy), Anya Dhatu Samsrata (afflicted with other Dhatu) and Avasadi are the eight *Doshas* of *Shukra*. Frothy, slender, arid, scanty, discomforting ejaculation is due to *Vata* (dominance). Thus, affected semen is incapable of fertilization (*Garbha*). Semen of bluish or yellow discoloration with putrid odour, ejaculation with burning sensation is affected by *Pitta*. Semen affected by *Kapha* is extremely slimy and obstructs channel of semen (ejaculatory duct).^[10]

Qualities of Healthy Retasa/Suddha Retasa

According to Acharya Charaka, the optimum pure *Retasa* are *Snighda* (unctuous), *Ghana* (viscous), *Pichila* (slimy), *Madhura* (sweet), *Avidahi* (non-blazing), *Sweta*, *Sphatika Sannibham* in nature.^[11] Similarly, according to Acharya Sushruta the qualities of pure *Retasa* are *Sphatikabham*, *Dravam*, *Snighdam*, *Madhuram*, *Madhugandhi*, *TailaNibham*, *Ksoudra Nibham*.^[12]

Pathological consideration

The Nidana of Kshina Shukra are

- As there is fundamental principle of Ayurveda for *Sapta-dhatu* i.e., if the initial *Rasadhatu* is not formed properly or in right amount then the succeeding *Dhatu*s will also be formed improperly.^[13]
- Due to *Shukravaha srotadusti* i.e., sexual acts at inappropriate hours and through non-vaginal tract, suppression of discharge of semen, excessive coitus, unaware of female desire, senility and faulty surgical procedures, or if *Kshara* and *Agni karma* procedures are administered for cauterization.
- Any physical or mental trauma may also lead to Oligospermia.
- Excess exercise, consumption of unsuitable food, consumption of dry, bitter, astringent, salty, sour, hot food, untimely ejaculation, anxiety, distress, distrust, apprehension, rage, exorcism, emaciation (secondary) to diseases, injury, morbidity producing vitiation of *Dhatu*, *Dosha* individually or collectively reaching to *Retovahasrotas* lead to acute disorders of the *Shukra* (semen).^[14]

Major causes of Oligospermia (Modern view)

The possible factors which may be responsible for Oligospermia are

- Cryptorchidism or undescended testis
- Infection that interferes with sperm production or sperm health like Syphilis, Non-specific urethritis, Mumps, Orchitis

- Thermal- Heat exposure (hot tube, baths, saunas which affects the scrotal temperature).
- Genetics- Klinefelter's syndrome and XX male syndrome are two genetic defects which lead to defective spermatogenesis.
- Endocrinal- Hypopituitarism, hypothyroidism, adrenal hyperplasia
- Occupational- Environmental hazards like chemical nematocides, lead, micro wave and ultrasound are responsible for oligospermia
- Systemic diseases like AIDS, renal failure, diabetes mellitus, vitamin A deficiency.
- Addiction- Alcohol, tobacco
- Drugs- alpha blockers, finasteride, anti-androgens
- Psychological chronic stage
- Retrograde ejaculation (ejaculation backward into the bladder)
- Hormonal imbalance (low testosterone, high prolactin levels)
- Varicocele^[15]

Investigations

Tests for male infertility may include

1. General physical examination and medical history
2. Scrotal ultrasound
3. CBC
4. Semen analysis
5. Hormonal testing (Testosterone and other male hormones)
6. Genital tract imaging (Transrectal or scrotal ultrasound, Vasography)
7. Testicular mapping or Fine Needle Aspiration biopsy (FNA) of the testes
8. Transrectal ultrasound
9. Post ejaculation urine analysis (to test for retrograde ejaculation)
10. Specialized sperm function tests
11. Testicular biopsy
12. Genetic tests can be done^[16]

Management through Modern Medicine

Treatment varies according to cause

1. Anti-sperm antibody- Immune suppression by cyclic steroid
2. Varicocele- Varicolectomy

3. Epididymal or vasal obstruction- Vasovasotomy or vasoepididymostomy
4. Transurethral resection of ejaculatory duct (TURED)- In obstruction of ejaculatory duct
5. Artificial insemination (A.I)
6. In vitro fertilization (IVF)
7. Zygote intra fallopian transfer (ZIFT)
8. Intra cytoplasm sperm injection^[17]
9. Gamete intra fallopian transfer (GIFT)^[18]

Management in Ayurveda

Ayurveda emphasized *Vajikaranatantra* for the management of oligospermia using *Rasayana* and *Vajikarana dravyas* (aphrodisiac drugs) along with *Panchakarma*. Diet and lifestyle modifications help in better conception and healthy offspring. *Shodhana* has been given a prime importance as a pre-requisite to *Vajikarana*.

In case of disease of *Shukra*, treatment with use of *Vajikarana* (aphrodisiac) and formulations which are *Raktapitta Nashaka* in nature are beneficial. Many classical texts has mentioned medications for *Kshina Retasa* and the main principle is *Upachaya* (spermatogenesis) *Chikitsa* which offers *Viryavardhaka* effect. e.g *Kapikacchuhu* as *Viryavardhaka* effect.^[19]

Shukra Dosh Nashaka Yoga- Management with *Jivaneeya Ghrita*, *Chyavana Prasha* and *Shilajatu* remove the diseases of vitiated semen.

Dushita Shukra Chikitsa according to Dosh

- For semen affected by *Vata* the *Niruha Basti* with *Anuvasana Basti* are advisable.
- For semen affected by *Pitta* treated with *Rasayana* (formulations) like *Abhayamalakeeyam* is used.
- For semen affected by *Kapha Dosh* treated with *Pippali*, *Amrita*, *Loha*, *Triphala* and *Bhallataka Rasayana*.
- When semen is affected by other *Dhatu*, it shall be observed and skilfully treated, according to the *Doshaa* (vitiated), and the *Dhatu* involved.
- *Sarpi* (ghee), *Payas* (milk), *Rasa* (*Mamsarasa*), *Shali* (*Shali* rice), *Yava* (barley), *Shashtika* especially *Basti karma* are advisable in the disorder of the semen.^[20]

Effect of some Ausadha (Dravyas) in Oligospermia

S.No.	Dravya category	Effect	Examples
1.	<i>Shukrajanana</i>	Helps in Genesis of <i>Shukra</i>	Ghee, milk, happiness, proper sleep, <i>Musali</i> , <i>Satavari</i> , <i>Bala</i> , <i>Jeevaneya Gana</i> etc.
2.	<i>Shukrapravartaka</i>	Helps in ejaculation	<i>Mamsa</i> , <i>Urad dal</i> , <i>Bhallatakaphalamajja</i> and <i>Amalaki</i> , alcohol
3.	<i>Shukrajanaka pravartaka</i>	Used for genesis and also offers ejaculatory effect	<i>Ghrita</i> and <i>Godhuma</i>
4.	<i>Sukrasthambhaka</i>	Control the ejaculation thus useful in premature ejaculation	<i>Jatiphala</i> ^[21]

Herbs commonly used in Ayurveda

- *Gokshura* (*Tribulus terrestris* Linn.), which raises testosterone levels by increasing luteinizing hormone and the gonadotropin-releasing hormone. [22]
- *Ashwagandha* (*Withania somnifera* Dunal.), which enhances spermatogenesis via a presumed testosterone-like effect. [23]
- *Shatavari* (*Asparagus racemosus* Willd.), which helps to enhance fertility by reducing oxidative stress. [24]
- *Yashtimadhu* (*Glycyrrhiza glabra* Linn.), found to improve semen quality (*Shukrala*). [25]

Shamana Chikitsa

- *Ahara- Godhum, Shalidhanya, Ghrita, Amalaki, Pippali, Mamsarasa, Saindhava* all these are *shukrala, vrishya* in nature.
- *Vihara- Snana, Nidra, Vyayama, Abhyanga*
- *Ausadha- Sukrajanana, Sukrasodhana, Balya, Brimhaniya dravyas* are used.

Sodhana Chikitsa

It is essential to perform *Sodhana* procedure before administering the *Vajikarana* drugs. It should be used only after *Sroto suddhi* and ensuring *Shareera* is devoid of *Malas*. Mainly, *Virechana* and *Basti* are advised for the management of *Shukradoshas*.

a) *Virechana*

b) *Basti*- It is stated as *Kshina Shukra Vajikaroti*.

1. *Shukra basti* (*Saindhava* ½ Tola, honey 8 Tola, milk 8 Tola, ghee 8 Tola).
2. *Kshirabasti* is given with *Mamsarasa* to increase *Shukradhatu*.
3. *Yapanbasti* with *Bhrihatpanchamula* is useful in *Shukrakshaya*
4. *Guduchydi niruhabasti* for *Viryavardhana*.
5. *Chatu-prasritiki basti: Niruha basti* prepared with half *Karsha* (about 6 gm) of *Saindhava* (rock salt), one *Prasrit* each of honey, sesame oil, milk and *Ghrita* and one *Karsha* (about 12 grams) of *Hapusha* (*Juniperus communis*), is an excellent promotor of *Shukra*. [26]

CONCLUSION

The literary study shows that the drugs possessing *Snighdha guna, Balya, Vrishya* and *Vatasthapana* properties have good effect in *Kshina Retasa*. Similarly, *Madhura rasa, Sheetavirya, Vrishya, Brimhana* and *Vatapittahara* properties of many drugs offers beneficial effect in *Kshina Retasa*. Hereby, we can conclude that the traditional system of Ayurvedic literature is better treatment option for *Kshina Retasa* in present context.

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