

REVIEW OF MALE INFERTILITY

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Ayurveda is an ancient medical science. *Dharma, Artha, Kama* and *Moksha* are main four aims of life of every person, to achieve these, one of the most important thing is to have a child. Infertility is defined as a failure to conceive within one or more years of regular unprotected coitus. Infertility affects as estimated 8-12% of couples globally. Males are found to be solely responsible for 20% to 40% infertility cases. So male infertility is rising medical issue these days. In Ayurveda main causative factor of male infertility is *shukra dushti* i.e. abnormalities of semen. Any abnormality in the *Shukra dhatu* leads to either infertility

or congenital abnormality in child. Ayurveda realized the problem of male sexual dysfunction thousands of years ago and developed a separate specialty namely, *Vajikarana*. Therefore this article aims at putting forward the concept of *shukra dhatu* & causes, investigation, treatment of male infertility according to both Ayurveda and modern medical science.

KEYWORDS: Male infertility, Ayurveda, *Shukra Dhatu*, *Vajikarana*.**INTRODUCTION**

Ayurveda is an ancient medical science. The word, *ayurveda* is composed of two words of Sanskrita, *ayur*-meaning life and *veda*-meaning knowledge. Thus, *Ayurveda* is a medical science of ancient India. It deals with matters relating to health. *Dharma, Artha, Kama* and *Moksha* are main four aims of life of every person, to achieve these, one of the most important thing is to have a child.

Infertility is defined as a failure to conceive within one or more years of regular unprotected coitus. Primary infertility denotes those patients who have never conceived. Secondary

infertility indicates previous pregnancy but failure to conceive subsequently. Infertility affects as estimated 8-12% of couples globally,^[1] Males are found to be solely responsible for 20% to 40% infertility.

Cases globally.^[2] In India prevalence rate of male infertility is 23%.^[3] Male infertility refers to the inability of a male partner who achieve a pregnancy in a fertile female. Male infertility is commonly due to deficiencies in the quantity and quality of semen.

Shukra Dhatu is sara of all *dhatu* and its quality is influenced by the quality of prior *dhatu*s. When 'Shukra' and 'Shonita' come together in 'MatruGarbhashaya' then origin of 'Garbha' takes place.^[4] So proper quantity i.e. 'Sperm Count' is very much necessary for the maintenance of species generation. Further any abnormality in the *Shukra dhatu* leads to either infertility or congenital abnormality in child. Therefore detail study of *shukra dhatu* is important to understand male infertility.

Concept of Shukra

A) *Shukra Vyutapti* – *shukra* is white, pure excellent *dhatu* of all.

B) *Shukra Nirukti* – The substance which comes out during coitus is *retas*.

C) *Paryaya* (Synonim)

- *Akshaya* (continuously produced)
- *Nirmal* (clean)
- *Majjasamudbhava* (originated from majja)
- *Anandprabhava* (originated due to extreme joy)
- *Kittavivarjita* (purest form)
- *Punatatva* (sign of masculinity)
- *Oja* (Strength)
- *Dhatu sneha* (Essence of body constituents)
- *Paurusham* (virility)
- *Indriya* (involved in act)
- *Virya* (power)

D) Definition of *Shukra*^[5]

According to well accepted seven *dhatu* theory of *Ayurveda*, *shukra* remains available in the all age groups. Just as *ghrita* is present in milk, jaggery in sugar cane juice and oil in

sesames, in the same way, *shukra* is present in invisible form in the entire human body. *Shukra* is meant for the reproduction. Hence, *shukra* is considered as purest form and essence of all *dhatu*s because which is going to be produced by *shukra* is having all *dhatu*s in it. Hence, *shukra* in its pure form is required to be having *beeja* of all these *dhatu*. This is the definition given by *Charak Samhita*. It includes the function of *shukra*, formation and origin of *shukra*. When male and female do sexual intercourse after the end of menstrual period, *shukra* enters in female reproductive tract. *Shukra* is having dominance of four *mahaabhuta*'s, and six *rasas*'. *shukra* is produced from the essence part of the *majja dhatu*. It comes out with force from the body by sexual ecstasy and passionate determination.

E) Quantity of *Shukra Dhatu*^[6] – Quantity of *shukra* in human body is half *Anjali*.

F) *Shukravaha Strotas*

Strotasas are minute hollow pathways or passages through which *parinamita dhatu*s are transported across body. All the *Brihatrayi*'s have mentioned *shukravaha strotas*. *Mulasthana* are principle organ of that *dhatu*, mainly from these, particular *dhatu* are produced.

- *Charak*7- *Vrishan* (Scrotum / testis) and *Shepha* (penis).
- *Sushruta*8- *Stana* (Breast) and *vrishana* (Scrotum/ testis).
- *Vagbhata*9- *Majja, stana* (breast) and *mushka* (testis).

G) *Shukra Karma*

Acharya Vagbhata has described '*Garbhotpadana*' i.e. reproduction as the prime function of *shukra*. *Sushrutacharya* describes about various other functions of *shukra dhatu*.^[10] *Sarvadaihi shukra*,^[11] is responsible for the various biological and physiological functions described below.

- *Dhairya* (fearlessness),
- *Shaurya*(Bravery),
- *Chyavana* (forceful & copious ejaculation),
- *preeti* (love, passion, erotic attraction towards female partner),
- *Dehabalam* (Strong),
- *Prasananata*(contentment),
- *harsha* (Feeling of recopulation),
- *beejarthama* (for production of embryo).

H) Prashasta Shukra (Qualities of semen)^[12,13]

- *Spatikabha- Shukra* is crystalline translucent in colour.
- *Shukla- Shukra* is white in colour.
- *Drava- Shukra* is in liquid state.
- *Ghana-* After ejaculation, semen is coagulated, *ghana* indicates coagulation.
- *Snigdha- Shukra* is lustrous.
- *Madhur- Shukra* is sweet in taste.
- *Madhugandhi- Shukra* Smell like chest nut flowers, honey.
- *Picchila* (Viscous)
- *Avidahi-* There is no burning sensation during ejaculation.
- *Shweta*
- *Avistra*
- *Guru*
- *Bahu*
- *Sara*

Causes of Male Infertility according to modern medicine,^[14]**A) Failure to Produce Spermatozoa in Sufficient Numbers and With the Capacity to Fertilize**

- 1) Incomplete development of the testis.
- 2) Late descent or non-descent of the testis.
- 3) Orchitis–Inflammation of testis.
- 4) Damage to the testis resulting from operation, accident or exposure to X-rays.
- 5) Exposure of the testis to heat impairs spermatogenesis.
- 6) Varicocele.
- 7) Diseases of the testes such as tumors, tuberculosis and syphilis.
- 8) Depression of testicular activity by disease of other endocrine glands -e.g. hypogonadism as in Frolich syndrome, thyrotoxicosis, diabetes mellitus.

B) Bilateral Obstruction of the Epididymis, the Vas or the Ejaculatory Ducts

- 1) Accident or operation -especially herniorrhaphy.
- 2) Infections -of which gonorrhea and tuberculosis are the most important.
- 3) Congenital absence or gross hypoplasia of the vas.
- 4) Congenital or developmental obstruction of the epididymis.

C) Failure to Deposit Spermatozoa in the Vagina

- 1) Impotence
- 2) Premature ejaculation
- 3) Abnormalities of the penis such as hypospadias and phimosis.
- 4) Retrograde ejaculation into the bladder.
- 5) Drugs which affect ejaculation include α -blockers, the tricyclic antidepressants, β -blockers and thiazides.

D) Abnormal Semen Quality

- 1) An unusually high or small volume of ejaculation.
- 2) Oligozoospermia - Less than 20 million sperm/ml.
- 3) Asthenozoospermia - Less than 50 per cent sperm with forward progression or less than 25 per cent with rapid progression.
- 4) Teratozoospermia - Less than 30 per cent morphologically normal forms.
- 5) Azoospermia - Absence of sperm in the seminal fluid.
- 6) Asthenoterato-oligozoospermia - Combinations of the above.

E) Other

- 1) Alcohol and drugs
- 2) Emotional stress
- 3) Obesity
- 4) Malnutrition
- 5) Tobacco smoking
- 6) Environmental factors like pollution

Causes of Male Infertility according to ayurveda

A) *Shukra Dushti* – In Ayurveda main causative factor of male infertility is *shukra dushti* i.e. abnormalities of semen.

B) Causes of *Shukradushti*^[15]

1. Excessive coitus
2. Excessive exertion
3. Intake of *asatmya ahara*
4. Coitus at improper times or other than vagina or long-time abstinence
5. Intake of *ruksha, tikta, kashya, ati lavana, amla, ushna ahara*.

6. Impotency, old age
7. Anxiety, sadness

C) Types of *Shukra Dushti*

a) As per *Sushruta*^[16]

Table 1:

No.	TYPE	<i>Doshprakopa</i>	<i>Sadhyasadhyatva</i>
1	<i>Vataja</i>	<i>Vata</i>	<i>Sadhya</i>
2	<i>Pittaj</i>	<i>Pitta</i>	<i>Sadhya</i>
3	<i>Kaphaja</i>	<i>Kapha</i>	<i>Sadhya</i>
4	<i>Granthibhuta</i>	<i>Kapha+vata</i>	<i>Kricchrasadhya</i>
5	<i>Kunapa-gandhi</i>	<i>Rakta</i>	<i>Kricchrasadhya</i>
6	<i>Putipuya</i>	<i>Pitta-kapha</i>	<i>Kricchrasadhya</i>
7	<i>Khshina</i>	<i>Pitta+vata</i>	<i>Kricchrasadhya</i>
8	<i>Mutrapurisha-gandhi</i>	<i>Tridosha</i>	<i>Asadhya</i>

b) As per *Charaka*^[17]

Table 2:

Sr. no.	Type	<i>Doshprakopa</i>
1	<i>Phenila</i>	<i>Vata</i>
2	<i>Tanu</i>	<i>Vata</i>
3	<i>Ruksha</i>	<i>Vata</i>
4	<i>Vivarna</i>	<i>Pitta</i>
5	<i>Puti</i>	<i>Pitta</i>
6	<i>Picchila</i>	<i>Kapha</i>
7	<i>Anyā dhatupasansrishta</i>	<i>Rakta(mainly)</i>
8	<i>Avasadi</i>	<i>Avaruddha vata</i>

D) Symptoms of *Shukra Dushti*^[18]

- 1) Impotence,
- 2) Defective progeny
- 3) Abortions or sterility

Investigations of male infertility^[14]

A) Need of Investigation

- 1) A highly fertile couple practicing coitus regularly take an average of 6-7 months to achieve a pregnancy.
- 2) Four out of five women conceive within one year of commencing regular coitus without contraception.

- 3) Failure to conceive during 12-18 months despite adequate opportunity is therefore always acceptable as justifying full investigation.

B) History Taking

- 1) Ages, occupations, previous marriages.
- 2) Duration of marriage.
- 3) The period of time during which contraception has been practiced.
- 4) Are the partners separated for significant periods of time?
- 5) Any operation on or near the genital tract?
- 6) The family medical history.
- 7) Coitus history.

C) Physical Examination

- 1) Abnormalities of the penis.
- 2) Cryptorchidism.
- 3) The size and consistency of the testes and epididymis.
- 4) The presence of the vasa.
- 5) Presence of varicocele.
- 6) Any prostatic abnormality.

D) Semen Analysis

- 1) The specimen is best collected after 3 days of abstinence.
- 2) By masturbating directly into a dry and clean wide-mouthed glass container.
- 3) Its examination carried out as soon as possible after it has liquefied preferably within 1 hour.
- 4) Collection under home conditions is generally preferred by the patient but for optimal results it is best carried out near the laboratory.
- 5) Volume -2-6 ml
- 6) Liquefaction time -30 minutes
- 7) Sperm count -20 million/ml or more
- 8) Motility –60 per cent should have forward progressive motility or 25 per cent or more should show rapid progression within 60 minutes of ejaculation.
- 9) 70 per cent or more must be morphologically normal.

E) Hormonal Assessment

- 1) A raised FSH level reflects failure of spermatogenesis.
- 2) Low levels of FSH and LH are diagnostic of hypogonadotropic hypogonadism.
- 3) Normal FSH levels with normal testes but azoospermia suggest obstruction.
- 4) Raised LH levels with low testosterone levels indicate Leydigcell dysfunction.
- 5) A low testosterone level warrants replacement therapy.

F) Other Tests

- 1) Vasography
- 2) Trans rectal ultrasonography
- 3) Seminal vesiculography
- 4) Chromosomal analysis
- 5) Sperm Antibodies
- 6) Testicular Biopsy
- 7) Sperm Penetration Assay
- 8) Sperm Antibodies test
- 9) Sperm DNA fragmentation test
- 10) Vericocele

Treatment according to modern science^[14]

- 1) Reassurance
- 2) Correction of testicular pathologies
- 3) Correction of Coital Difficulties
- 4) Correction of General Ill Health
- 5) Support from female partner
- 6) Androgens by mouth, by injection or by implant for hypogonadism.
- 7) Correction of defective spermatogenesis like oligozoospermia, asthenozoospermia, teratozoospermia etc.
- 8) Correction of azoospermia - Pre-testicular causes, Testicular causes, Post-testicular causes

Treatment according to Ayurveda^[19]

- 1) *Shodhan chikitsa* like *virechana*, *vamana*
- 2) *Shaman chikitsa*
- 3) *Vajikarana*

- 4) For *vata dushti niruha & anuvasana basti*
- 5) For *pitta dushti abhayamalaki rasayana*
- 6) For *kapha dushti pippali, guduchi, triphala, bhallatak rasayana*
- 7) *Jeevaniya gana siddha ghrita*
- 8) *Pathya – sarpi, godugdha, mansrasa, shalishashtika, yawa, godhum, shilajit prayog*
- 9) *Basti for apana vayu chikitsa*
- 10) Drugs used in treatment from *raktapitta* and *yonivyapada* treatment.

CONCLUSION

Males are becoming major contributing factors in infertility ratios. Through simple investigation of semen analysis male infertility can be diagnosed. According to Ayurveda *shukra dhatu dusti* is responsible for male impotency. Various systemic problems along with lifestyle disorders like obesity, diabetes mellitus and habits like alcohol consumption, tobacco smoking as well as environmental factors like pollution are contributing in pathogenesis of male infertility. With very limited hope for treatment in modern medicine, Ayurveda have positive hope for male infertility patients. *Shukra dushti* is treated with *shodhana karma* like *virechana, vamana, basti*. Because of involvement of *apana vata* in *samprapti* of *shukra dushti*, *basti karma* have major importance. Then patient is administered with various *vajikarana* drugs for production of *shuddha shukra dhatu*. So male infertility can be controlled with balanced diet, proper lifestyle habits, and correct medical assistance.

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