

Male Infertility (*Klaibya and Shukra Duṣṭi*): An Integrative Review of Ayurvedic Concepts and Modern Andrology

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Abstract: Male infertility is a major contributor to reproductive failure worldwide, accounting for nearly half of infertility cases. Infertility is an indeterminate universal issue affecting humanity. It is noticed in approximately 60-80 million couple worldwide among which 40-50% of infertility is estimated to be due to male factors. Classical Ayurveda describes male reproductive disorders under conditions such as *Klaibya* (sexual dysfunction/impotency) and *Shukra Dushti* (vitiation of semen). A separate branch as *Vajeekarana* (Aphrodisiac therapy) was established among eight branches of Ayurveda, emphasizing the awareness of physiology of *Shukradhatu* (Sperm) and its role in Reproduction along with the measures to procreate children. *Shukradushti/Retodushti* (vitiation of Semen) occurs due to congenital and acquired factors leading to defective formation or ejaculation of *Shukra* by vitiation of *Tridoshas* (three biological humors), resulting in *Klaibya* (Male Infertility). The mention of *Retopareeksha* in the era of absence of microscope for diagnosis of *Shukradushti* shows the awareness on the importance of male infertility in the Ancient period. Modern andrology, on the other hand, evaluates male infertility through semen parameters, hormonal profiles, genetic factors, and structural abnormalities. This review integrates Ayurvedic principles with contemporary biomedical understanding to explore pathogenesis, diagnostic parallels, and therapeutic approaches. An integrative framework may offer broader insight into prevention and management strategies.

Keywords: Male infertility, *Klaibya*, *Shukra Duṣṭi*, Ayurveda, Andrology, Integrative medicine

I. INTRODUCTION

Infertility is defined as the inability of a sexually active, non-contracepting couple to achieve pregnancy within one year. Male factors contribute to approximately 40–50% of infertility cases worldwide¹. Modern medicine explains male infertility through defects in sperm production, function, or delivery, whereas Ayurveda recognizes male reproductive failure under broader entities such as *Klaibya*, *Shukra Kṣaya*, and *Shukra Duṣṭi*². Ayurveda emphasizes *Shukra Dhatu* as the essence of all *Dhatus*, responsible not only for reproduction but also for vitality (*Ojas*), strength, and mental well-being³. Disturbances in *Shukra* therefore affect both fertility and overall health. Disorders affecting fertility are described under *Klaibya*, *Shukra Kshaya* (depletion of semen), and *Shukra Dushti* (qualitative vitiation of semen). Contemporary medicine attributes male infertility to abnormalities in sperm count, motility, morphology, hormonal imbalances, oxidative stress, infections, genetic defects, and lifestyle influences. These descriptions, although ancient, show conceptual similarities with modern seminal abnormalities. The present review attempts to bridge classical Ayurvedic concepts with contemporary scientific knowledge in andrology.



Classification of *Klaibya* (Male-infertility) according to various literatures:⁽⁴⁻⁷⁾

<i>Charaka Samhita</i>	<i>Sushruta Samhita</i>	<i>Bhavaprakasha</i>	<i>BhaishajyaRathnavali</i>
1. <i>Beejopagathaja klaibya</i>	1. <i>Manasa klaibya</i>	1. <i>Manasa klaibya</i>	1. <i>Manasa klaibya</i>
2. <i>Dhwajabhangaja Klaibya</i>	2. <i>Soumyadhatu kshaya (Aharaja) klaibya</i>	2. <i>pitta nimitta klaibya</i>	2. <i>Pittaja klaibya</i>
3. <i>Jaraja Klaibya</i>	3. <i>Shukrakshayaja Klaibya</i>	3. <i>Shukrakshayaja klaibya</i>	3. <i>Shukrakshayaja klaibya</i>
4. <i>Shukra Kshayaja Klaibya</i>	4. <i>Shukra Kshayaja Klaibya</i>	4. <i>Medrarogaja klaibya</i>	4. <i>Medrarogaja klaibya</i>
	5. <i>Sahaja klaibya</i>	5. <i>Marma Chedaja klaibya</i>	5. <i>Upagataja klaibya</i>
	6. <i>Bhramhacharyaja klaibya (kharashukra nimmita)</i>	6. <i>Shukrastambha nimittaka</i>	6. <i>Shukrastambha nimittaka klaibya</i>
		7. <i>Sahaja klaibya</i>	7. <i>Sahaja klaibya</i>

Klaibya manifests due to vitiation of the *Beejabhaga* (part of sperm) or *Beeja* (Sperm) in the foetus,⁸ and *Shukradushti/Retodushti*⁹ (vitiation of Semen). Eight types of *Shukra dushti*'s are mentioned by authors based on the vitiated doshas (humours of body) and characteristics which play a major role in diagnosis.^(10- 13)

Types of *Shukra dushti*'s (vitiation of Semen) according to various Acharyas:

<i>Acharya Charaka</i>	<i>Acharya Sushruta</i>	<i>Acharya Vriddha Vagbata</i>	<i>Acharya Laghu Vagbata</i>
<i>Phenila</i>	<i>Vataja</i>	<i>Vataja</i>	<i>Vataja</i>
<i>Tanu</i>	<i>Pittaja</i>	<i>Pittaja</i>	<i>Pittaja</i>
<i>Ruksha</i>	<i>Slesmaja</i>	<i>Slesmaja</i>	<i>Slesmaja</i>
<i>Vivarna</i>	<i>Kunapa</i>	<i>Kunapa Granthi</i>	<i>Kunapa</i>
<i>Pooti</i>	<i>Granthi</i>	<i>Granthi</i>	<i>Granthi</i>
<i>Picchila</i>	<i>Pootipuya Ksheena</i>	<i>Pootipuya Ksheena</i>	<i>Pootipuya Ksheena</i>
<i>Anyadhatu samsrusta Avasadi</i>	<i>Mutrapureesha retasah</i>	<i>Mutrapureesha retasah + Abeja</i>	<i>Malahva yaha cha dvidha</i>

Aim : - To outline the contemporary biomedical perspective of male infertility, including definitions, etiological factors, diagnostic criteria, and therapeutic approaches used in ayurvedic concepts & modern andrology.

Objective:- To critically review and correlate Ayurvedic concepts of *Klaibya* and *Shukra Dushti* with contemporary understanding of male infertility in modern andrology.

Materials and Methods :

This integrative review utilized:

- Classical Ayurvedic texts: Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya
- Commentaries such as Chakrapani and Dalhana
- Modern references including WHO laboratory manuals and standard andrology textbooks
- Indexed journal articles related to male infertility, oxidative stress, and reproductive endocrinology



Data were analyzed descriptively and conceptually to establish correlations between Ayurvedic and modern frameworks.

Concept of Male Infertility in Modern Andrology

Modern andrology evaluates fertility using:

Semen analysis (WHO parameters: count, motility, morphology)

Hormonal assays (FSH, LH, testosterone, prolactin)

Genetic testing

Scrotal imaging

Assessment of oxidative stress and DNA fragmentation

Common conditions include:

Oligozoospermia (low sperm count)

Asthenozoospermia (reduced motility)

Teratozoospermia (abnormal morphology)

Azoospermia (absence of sperm)

Lifestyle factors such as smoking, alcohol, obesity, environmental toxins, and psychological stress significantly affect sperm quality.

Ayurvedic Perspective of Male Infertility :

Ayurvedic Understanding of *Klaibya*

Klaibya broadly refers to sexual inadequacy, which may include erectile dysfunction, premature ejaculation, reduced libido, or infertility¹⁴. Ayurvedic texts classify *Klaibya* based on causative factors such as:

Dosha imbalance (Vata, Pitta, Kapha)

Psychological disturbances (fear, anxiety, grief)¹⁵

Congenital defects

Excessive sexual indulgence

Chronic systemic diseases

Unlike the purely mechanical interpretation of infertility, Ayurveda considers both physical and psychological components. These classifications show similarity to congenital anomalies, hormonal disorders, testicular damage, and psychogenic impotence described in modern medicine.

Concept of Shukra Dushti

Shukra represents not only semen but the refined essence of all bodily tissues. Healthy Shukra is described as clear, unctuous, white, and abundant¹⁶.

These qualities reflect optimal semen volume, viscosity, pH, and sperm viability.

Shukra Dushti refers to qualitative or quantitative defects caused by:

Vata aggravation → low volume, thin semen (comparable to oligozoospermia)

Pitta aggravation → discolored semen, burning sensation (possible infection/inflammation)

Kapha aggravation → thick, heavy semen with poor motility

Ayurveda also describes:

Shukra Kshaya – depletion of semen

Retodushti – pathological semen changes

Shukravaha Srotas Dushti – dysfunction of reproductive channels

These can be conceptually correlated with abnormal semen parameters, infections, and obstructive disorders described in modern andrology



Shukra Dushṭi (Vitiation of Semen)

Charaka describes eight types of *Shukra Dushṭi*¹⁷:

Ayurvedic Type	Description	Modern Correlation
<i>Phenila</i>	Frothy semen	Low sperm count
<i>Tanu</i>	Thin semen	Oligozoospermia
<i>Ruksha</i>	Dry semen	Reduced seminal plasma
<i>Vivarna</i>	Discolored semen	Infection / Hematospermia
<i>Putipuya</i>	Foul-smelling	Seminal infection
<i>Avasadi</i>	Sedimented	Poor motility
<i>Picchila</i>	Excessively sticky	Asthenozoospermia
<i>Kshina</i>	Decreased quantity	Hypospermia

Samprapti (Pathogenesis) :

Ayurveda explains pathogenesis through:

Mithya Ahara (unhealthy diet)

Ati Vyavaya (excessive sexual activity)

Manasa Bhava (stress, anxiety)

Agni Mandya (Impaired digestive/metabolic fire)

Accumulation of toxins (Ama)

Dosha imbalance

Improper nourishment of successive tissues (Dhatu Parinama)

Srotorodha (obstruction of reproductive channels)¹⁸

Defective formation of Shukra Dhatu :

Interestingly, oxidative stress—a major cause of sperm damage—may be comparable to the Ayurvedic concept of Ama and aggravated Pitta.

Integrative Perspective :

From a modern viewpoint, infertility often arises due to hormonal imbalance, oxidative stress, varicocele, infection, or genetic abnormalities.

Modern Andrology Perspective

Physiology of Spermatogenesis

Spermatogenesis occurs within seminiferous tubules under hormonal regulation by:

- Gonadotropin-releasing hormone (GnRH)
- Follicle-stimulating hormone (FSH)
- Luteinizing hormone (LH)
- Testosterone¹⁹

Disruption at any level can impair sperm quantity or quality.

Causes of Male Infertility

Modern causes include²⁰:

- Oligozoospermia
- Asthenozoospermia
- Teratozoospermia



- Azoospermia
- Varicocele
- Endocrine disorders
- Genetic abnormalities
- Oxidative stress
- Lifestyle factors (smoking, obesity, toxins)

Oxidative Stress and Sperm Dysfunction

Reactive oxygen species (ROS) damage sperm DNA, membranes, and motility. This parallels Ayurvedic concepts of *Pitta* aggravation and *Dhatupaka*²¹.

Diagnostic Correlation:

Relation between Sperm/Semen macroscopic and microscopic abnormalities with *Shukra Dushti*

<i>Vataja Shukra Dushti</i>	
-Liquifies within 5 minutes -Increased pH (>6.3)	-Azoospermia - Oligozoospermia -Teratozoospermia
<i>Pittaja Shukra Dushti</i>	
Macroscopic	Microscopic
-Yellowish colour -Foul Smell	-Pyospermia -Teratospermia
<i>Kaphaja Shukra Dushti</i>	
-Hyper viscous -Sample which sinks to bottom -Sample which does not mix in Water	-Asthenospermia -Teratozoospermia
<i>Kunapa Shukra Dushti</i>	
Macroscopic	Microscopic
-Reddish colour/ Blood Mixed -Foul Smell	- RBC - Necrozoospermia
<i>Pootipuya Shukra Dushti</i>	
Macroscopic	Microscopic
-Foul Smell -Colour Change	-Pyospermia
<i>Granthibhoota Shukra Dushti</i>	
Macroscopic	Microscopic
-Agglutination	-Athenospermia (Aggregation of Sperm cells)
<i>Malahva Shukra Dushti</i>	
Macroscopic	Microscopic
-Smell of Mutra Or Purisha	- Presence of E.coli
<i>Anyadhatu Samsrushta Shukra Dushti</i>	
Macroscopic	Microscopic
-Blood mixed	-Immature sperm cells -Crystal -RBC's



While modern medicine relies on laboratory investigations, Ayurveda emphasizes clinical features, constitution (Prakriti), and systemic assessment.

Management Approaches:

1. Modern Treatment

Hormonal therapy
Antioxidants
Antibiotics (for infection)
Surgical correction (varicocele)
Assisted reproductive technologies (IUI, IVF, ICSI)

2. Ayurvedic Management

Ayurveda offers a multi-dimensional approach:

a) Shodhana (Purification)
Panchakarma therapies to eliminate dosha imbalance.
b) Shamana (Pacification)
Herbal formulations with spermatogenic and antioxidant properties.
c) Vajeekarana Therapy

A specialized branch aimed at improving reproductive vitality, semen quality, and sexual health.

Commonly described herbs include:

Ashwagandha
Kapikacchu
Shatavari
Gokshura

These are believed to improve sperm parameters, hormonal balance, and psychological well-being.

d) Diet and Lifestyle
Nutrient-rich diet (milk, ghee, nuts)
Stress management
Adequate sleep
Avoidance of excessive sexual activity
Abstinence from alcohol and smoking

Emerging Integrative Evidence :

Recent studies suggest certain Ayurvedic herbs may improve sperm count, motility, testosterone levels, and reduce oxidative stress. Integrative treatment models combining antioxidants, lifestyle changes, and traditional therapies may enhance outcomes. However, more rigorous randomized controlled trials are required to validate classical claims.

Results:

Ayurveda attributes male infertility primarily to vitiation of *Shukra Dhatu*, *Dosha* imbalance, impaired *Agni*, *Srotodushiti*, and psychological factors. Modern andrology identifies causes such as oligozoospermia, asthenozoospermia, teratozoospermia, hormonal imbalance, genetic defects, oxidative stress, and lifestyle factors. Significant conceptual parallels exist between *Shukra Dushiti* and semen abnormalities described in modern semen analysis.



Integrative Discussion :

The Ayurvedic framework of *Dosha, Dhatu, Agni, and Srotas* provides a systemic understanding of male infertility, whereas modern andrology offers cellular and molecular explanations. *Shukra Dushti* closely resembles abnormalities detected in semen analysis. Ayurveda provides a holistic framework that integrates physical, psychological, dietary, and lifestyle factors. Psychological factors described as *Manasa Klaihya* correspond to stress-induced hypothalamic-pituitary-gonadal axis suppression. Modern andrology offers precise diagnostics and advanced reproductive technologies. An integrative model can:

Address root causes (metabolic and lifestyle)

Improve overall reproductive health

Reduce reliance on invasive procedures

Enhance quality of life

Future Directions :

- Clinical trials integrating *Vajikarana* therapy with modern treatments
- Biomarker-based validation of *Shukra Dushti*
- Personalized integrative infertility management protocols

II. CONCLUSION

Male infertility is a multifactorial disorder requiring comprehensive management. The Ayurvedic concepts of *Klaihya* and *Shukra Dushti* offer a systemic understanding of reproductive dysfunction that aligns conceptually with modern andrology. Integrating traditional wisdom with contemporary biomedical advances may provide a balanced and effective strategy for managing male infertility.

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