

Integrative Ayurvedic Management of severe Globozoospermia with long-standing Male Infertility: A Case Report

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ABSTRACT:

Male factor infertility contributes significantly to delayed conception, with complex etiologies such as severe sperm morphological defects posing major therapeutic challenges. Globozoospermia, a rare form of Teratozoospermia characterized by round-headed sperm lacking acrosomes, is associated with poor fertilization outcomes. Conventional management options are limited, particularly in long-standing and treatment-refractory cases. *Ayurveda* describes male infertility under the spectrum of *Ksheena sukra* and emphasizes *Shodhana*, *Shamana*, and *Rasayana* therapies for restoration of reproductive health. A 48-year-old male with 18 years of primary infertility presented after unsuccessful conventional treatments, including varicocelelectomy, 16 intrauterine inseminations, and one in vitro fertilization resulting in mid-trimester miscarriage. His history included childhood mumps. Semen analysis revealed hypospermia with astheno-teratozoospermia and severe globozoospermia, with less than 1% normal sperm morphology. He underwent a comprehensive Ayurvedic treatment protocol comprising internal medications and sequential *Panchakarma* procedures, including *Takradhara*, *Udwarthana*, *Snehapana*, *Virechana*, *Jalookavacharana*, *Yoga Vasti*, and *RajayapanaBasti*, along with *Rasayana* therapy, over a period of approximately two and half months. Post-treatment semen analysis showed remarkable improvement: sperm concentration increased from 25 million/ml to 224 million/ml, progressive motility improved from 25% to 35%, and normal morphology rose from less than 1% to over 70%. The patient also reported better sleep and overall well-being. This case highlights the potential of integrative *Ayurvedic* management in severe male infertility conditions like globozoospermia, warranting further systematic research to validate these findings.

KEYWORDS: *Ayurveda*, *Globozoospermia*, Male infertility, *Panchakarma*, *Rasayana*, Teratozoospermia.

Received: 08.04.2026

Accepted: 30.05.2026

Published: 06.06.2026



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INTRODUCTION:

Infertility is a major global reproductive health concern, affecting approximately 15–20% of couples of reproductive age, with male factor infertility contributing to nearly half of these cases either alone or in combination with female factors. Declining semen quality, environmental exposures, lifestyle factors, metabolic disorders, and urogenital pathologies have contributed to the increasing burden of male infertility worldwide [1,2]. Among sperm abnormalities, defects in morphology (*teratozoospermia*) are particularly associated with poor fertilization outcomes.

Globozoospermia is a rare and severe form of *teratozoospermia*, characterized by round-headed spermatozoa lacking an acrosome, resulting in failure of zona pellucida penetration and impaired oocyte activation [3]. It accounts for less than 0.1% of male infertility cases and is often resistant to conventional medical and surgical interventions [4]. Assisted reproductive techniques such as intracytoplasmic sperm injection (ICSI), sometimes combined with artificial oocyte activation, remain the primary management options; however, success rates are variable and do not address underlying spermatogenic dysfunction [5].

Several etiological factors have been implicated in male infertility, including varicocele, childhood viral infections such as mumps orchitis, metabolic disorders, and oxidative stress-induced testicular damage [6,7]. Even after corrective procedures like varicocelectomy, complete restoration of sperm quality is not always achieved,

especially in long-standing cases [8]. This highlights the need for holistic and restorative treatment approaches that address both systemic and reproductive health.

Ayurveda conceptualizes male infertility under conditions such as *Ksheena Shukra*, *Shukra Dushti*, and *Beeja Upaghata*, emphasizing derangement of *Vata* and *Pitta Dosha*, impaired *Agni*, and depletion of *Dhatu*, particularly *Shukra Dhatu* [9]. Classical Ayurvedic management advocates a comprehensive approach involving *Shodhana* (bio-purificatory therapies), *Shamana* (palliative medications), *Vasti* (medicated enemas), and *Rasayana* (rejuvenative therapy) to restore tissue integrity, improve sperm parameters, and enhance overall reproductive potential [10,11].

Panchakarma procedures such as *Virechana*, *Vasti*, and *Raktamokshana* are described to remove metabolic toxins, regulate neuro-endocrine functions, and improve pelvic and testicular microcirculation. *Rasayana* formulations are believed to exert antioxidant, adaptogenic, and spermatogenic effects, which may contribute to improved semen quality [12,13]. Emerging clinical evidence suggests that *Ayurvedic* interventions can positively influence sperm concentration, motility, and morphology in cases of male infertility [14].

In this context, the present case report documents the successful management of a long-standing, treatment-refractory case of male infertility associated with severe globozoospermia using a comprehensive *Ayurvedic* treatment

protocol, highlighting its potential role as an integrative therapeutic approach

CASE REPORT:

Presenting complaint:

A 48-year-old moderately built male patient complaints of inability to achieve conception even after 18 years of unprotected sexual act.

History of presenting illness:

The patient was married at the age of 30. After 6 months of marriage, couple underwent different investigations as a part of Pre Conceptional care, in which they noticed reduced sperm count. Later they consulted many physicians from different system of medicine. From 2014 they started Infertility treatment and underwent 16 intra uterine insemination but the result was negative. Last IUI was done at May 2025. In 2019 In vitro fertilization was done and it became positive, but the pregnancy lasted till 5 months then turned in to miscarriage. After which he noticed occasional sleep disturbances at night as he felt suffocated during sleep. For these complaints he consulted Government *Ayurveda* College Kannur and got admitted to the IPD. The female factors were also evaluated simultaneously.

Past illness:

H/O

- Grade 4 Varicocele and underwent Varicolectomy in 26/5/2023.
- Mumps in childhood
- Dyslipidemia since 1 month
- Grade I Prostatomegaly
- Grade I fatty liver
- Gall bladder polyp
- Extra hepatic portal vein obstruction

- first degree hemorrhoid at 5 O' clock position diagnosed since 1 month

Personal history:

Bowel – regular
Appetite-adequate
Micturition – within normal limit
Sleep- disturbed
Allergy –not yet noticed
Addictions – nil

Family history:

Nothing relevant

INVESTIGATIONS

The basic Blood routine investigations, USG and semen analysis were taken (table-1 & 4)

➤ According to the semen analysis reports the patient have:

- Teratozoospermia
- Globozoospermia
- Asthenozoospermia
- Hypospermia

TREATMENT:

Internal medicines and panchakarm is mentioned in table-2 and 3 respectively

Food items advised during treatment

Red Rice, Wheat products, milk, ghee, proper balanced diet at proper time, proper sleep, and Exercises.

Foods to be avoided

The Patient was strictly advised to restrict Curd, Pickle, *Ati lavana* [excessive salt], Fried and spicy food, excess caffeine intake, Suppression of natural urges, Alcohol and smoking, *Shukravedharana* [suppressing urge to ejaculation of semen], Excessive

fasting, *Chinta* and *Soka* [mental factors].

RESULTS:

After *Ayurveda* treatment for the duration of 2 and half months patient got better sleep cycle. In Addition,the

values of SGOT, SGPT, Serum Creatinine also reduced. Varicocele became mild at left and moderate at right. Most successful outcomes are improvement of sperm count, progressive motility and recovery from severe abnormal morphology of sperm.

Table 1: USG [Abdomen and Pelvis] findings

10/10/25	Gall bladder polyp Fatty liver grade 1 Prostatomegaly grade 1 Extra hepatic portal vein obstruction Altered echo texture of liver
Scrotal USG [15/7/2024]	Grade 4 Varicocele

Table 2: Internal medications

Medicines	Dose & duration
1. <i>Guluchyadi kashayam</i>	90ml, two times a day, Before food, for 8 weeks
2. <i>Chandraprabha gulika</i>	1 tablet, two times a day, with <i>kashayam</i> for 8 weeks
3. <i>Manibhadra gulam</i> with <i>Avipathi choornam</i>	2 tsp <i>gulam</i> with 1 tsp <i>choornam</i> at bedtime for 8 weeks
4. <i>yogaraja guggulu</i>	1 tablet, two times a day, for 8 weeks
5. <i>Narasimha rasayana</i>	1 tsp at night for 1 month
6. <i>Aswagandha choornam</i>	1 tsp at night with Milk

Table 3: Panchakarma procedures

Procedure done	Medicine	Duration
<i>Takradhara</i>		14 days
<i>Udwartana</i>	<i>kolakulathadi choornam</i>	14 days
<i>Acha snehapana</i>	<i>Dadimadi gritha</i> [Starting dose 25 ml]	5 days
<i>Abhyanga ushma sweda</i>	<i>Satahwadi kuzhamb</i>	7 days
<i>Virechana</i>	<i>Trivrith choornam</i> [20gms] and <i>Triphala choornam</i> [10gms]	
<i>Acha snehapana</i>	<i>Vidaryadi gritha</i> [Starting dose 30 ml]	5 days

<i>Abhyanga ooshma sweda</i>	<i>Ksheerabala tailam</i>	3 days
<i>Vicharana snehapana</i>	<i>Vidaryadi gritha</i> [10 ml bd with Hot water]	3 days
<i>Virechana</i>	<i>Gandharva erandam</i> [25ml]	
<i>Yogavasti</i>	<i>Snehavasti- Pippalyadi anuvasana tailam</i> [60ml]. <i>Kashaya vasti- Rajayapana vasti.</i>	8 days
<i>Jalookavacharana</i> at scrotal region		2 sittings

Table 4: Blood test report

Before treatment	After treatment
BLOOD ROUTINE: 10/9/25	
Hb - 14gm%	Hb-14.9 gm%
FBS-92mg%	FBS- 96mg%
Total cholesterol-244mg%	T.Cholestrol -205mg%
LDL Cholesterol -162mg%	LDL- 70 mg%
VLDL -38mg%	
Serum creatinine-1.2 mg%	Serum Creatinine-0.6 mg%
Total bilirubin-1.8mg%	T.Bilirubin-1.2 mg%
Direct bilirubin -0.6mg%	Direct Bilirubin -0.3 mg%
SGPT -30 IU/L	SGPT- 25 IU/L
SGOT-49 IU/L.	SGPT- 29 IU/L

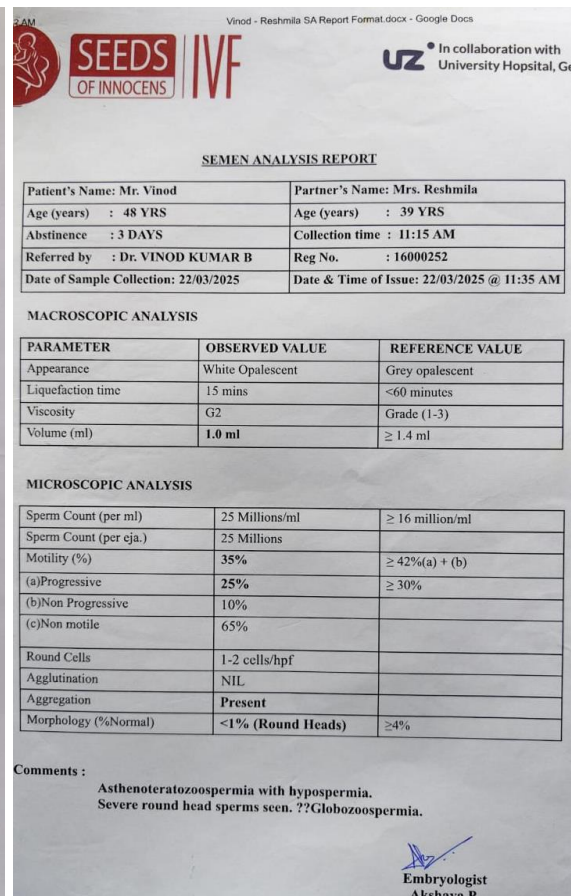
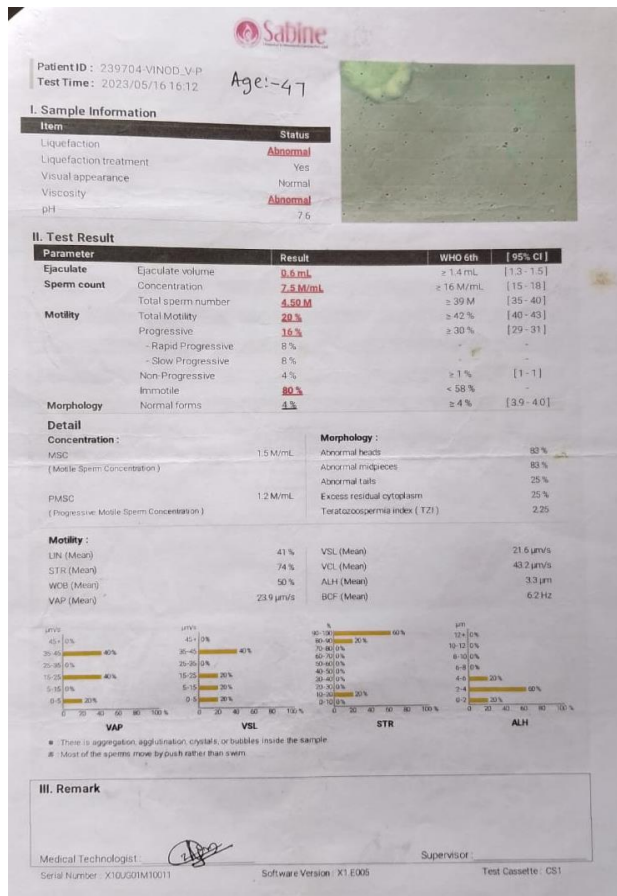
Table 5: Evaluation of semen analysis before and after treatment;

Semen analysis	Before varicocelelectomy	After varicocelelectomy
Total sperm count	7.5 millions/ml	25 millions/ml
Total Motility	20%	35%
Progressive motility	16%	25%
Non-progressive motility	4%	10%
Non-motile	80%	65%
Normal morphology	4%	<1%

Table-6: Assessment

Parameters	Before <i>Ayurveda</i> Treatment [March 2025]	After <i>Ayurveda</i> Treatment [November 2025]	Reference Value
1. Volume	1ml	1ml	>/= 1.4ml
2. sperm count in millions/ml	25	224	>/= 15

3. progressive motility in %	25	35	>/= 32
4. normal morphology of sperm in %	<1%	>70%	>4



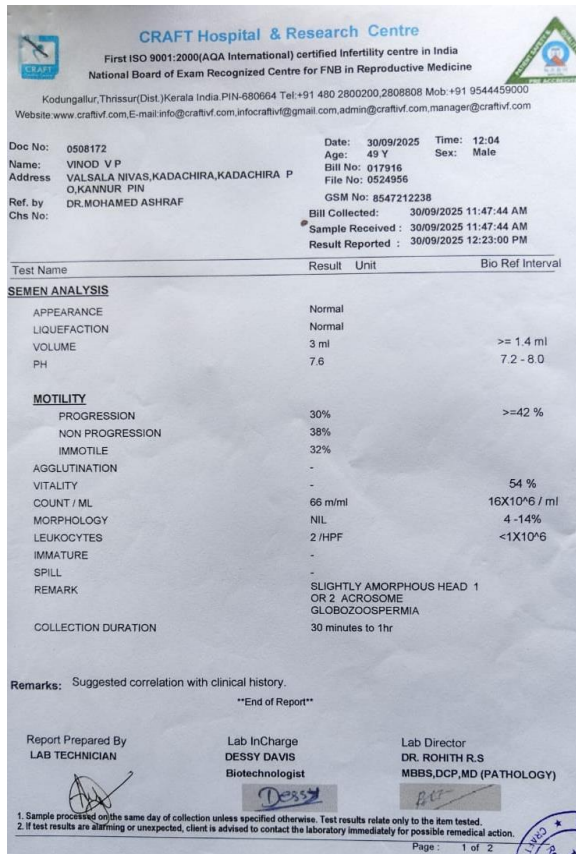


Figure 3-Semen Analysis Report Before Ayurvedic Treatment [30/9/2025]

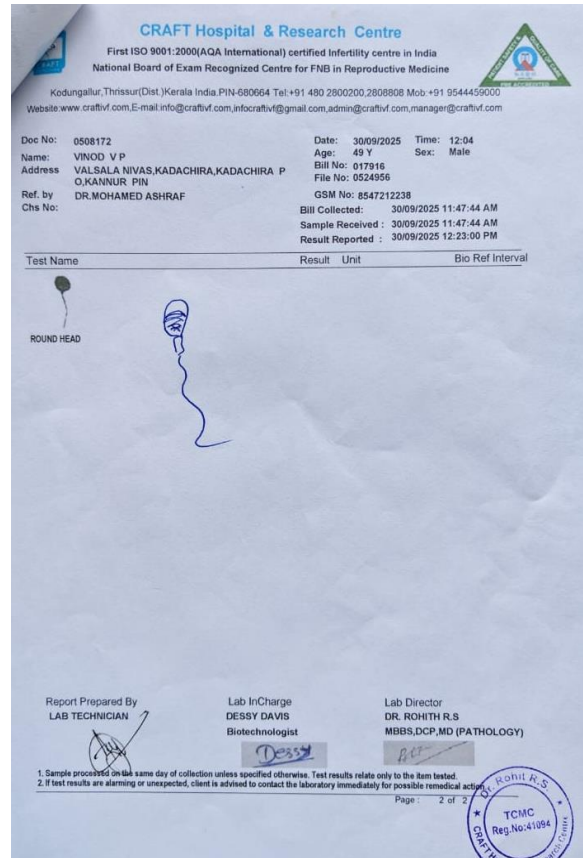


Figure 4- Globozoospermia [30/9/2025]



Figure 5-Semen Analysis Report After Ayurveda Treatment [26/11/2025]

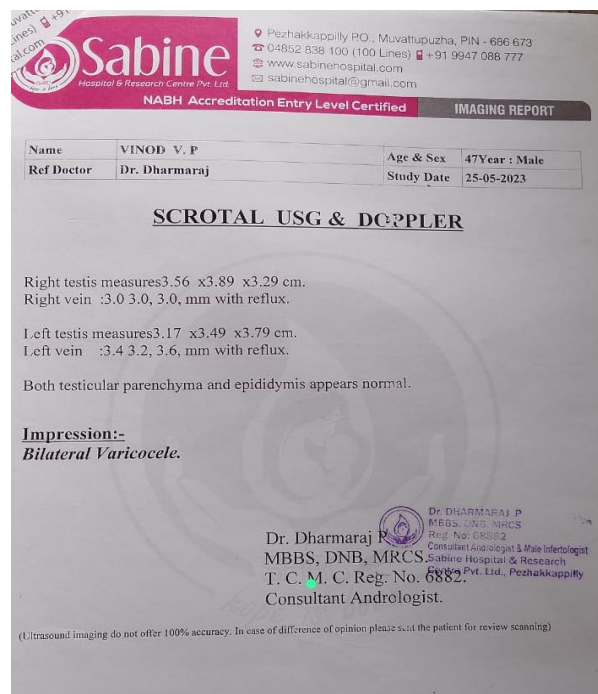


Figure 6- Scrotal USG Before Varicocelectomy [25/5/2023]

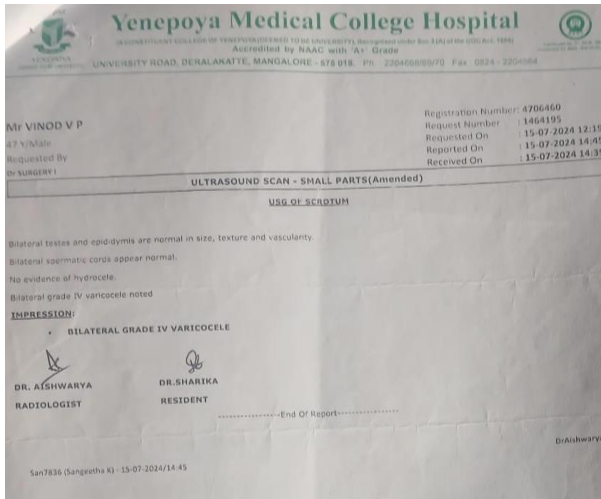


Figure 7- Scrotal USG After Varicocelectomy [Before Ayurveda Treatment -15/7/2024]

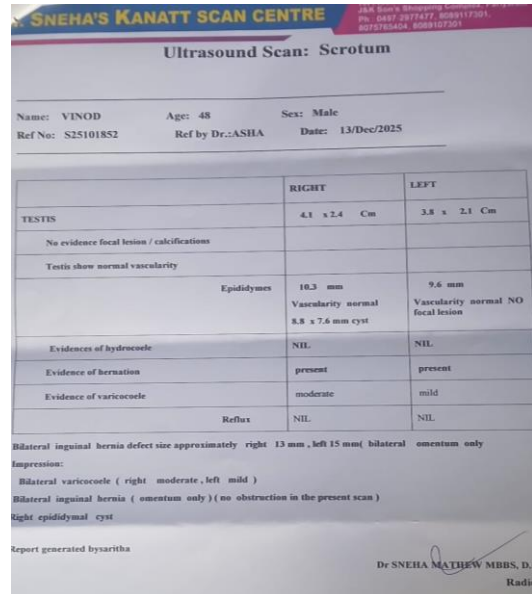


Figure 8- Scrotal USG After Ayurveda Treatment [13/12/2025]

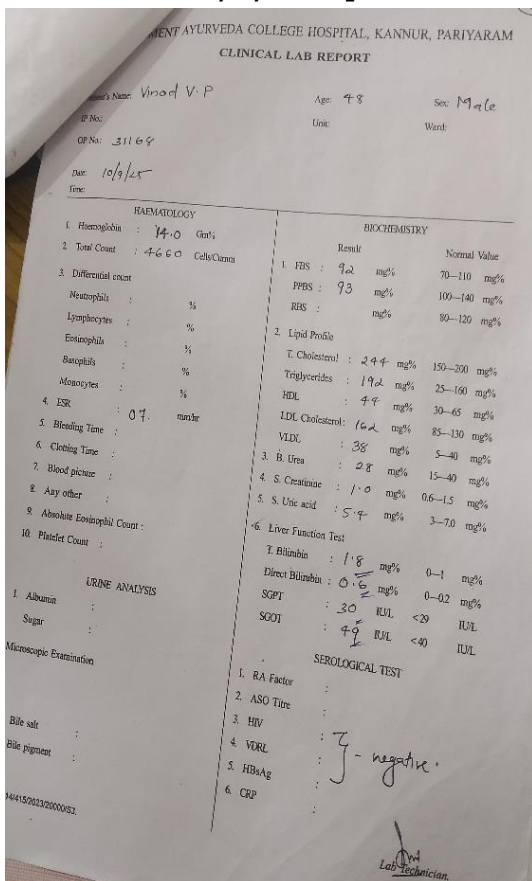


Figure- 9: Report Before Treatment; [10/9/2025]

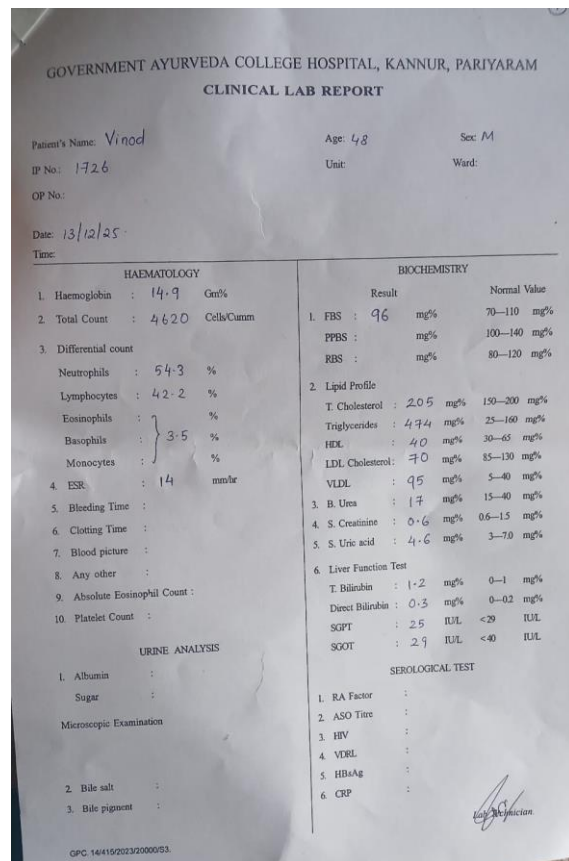


Figure- 10: After Treatment; [13/12/2025]

DISCUSSION:

Globozoospermia represents one of the most severe forms of male factor infertility due to the absence of the acrosome, resulting in impaired fertilization and defective oocyte activation. Conventional management largely relies on assisted reproductive techniques such as intracytoplasmic sperm injection (ICSI), occasionally supplemented with artificial oocyte activation. While these approaches may facilitate conception, they do not address the underlying defects in spermatogenesis or restore physiological sperm function, particularly in long-standing and treatment-refractory cases. The present case highlights the potential role of a comprehensive *Ayurvedic* intervention in improving reproductive parameters in a patient with severe globozoospermia who had limited benefit from prior conventional management. From a biomedical perspective, globozoospermia is associated with disturbances in spermiogenesis, oxidative stress, chromatin condensation defects, and impaired acrosomal biogenesis. Persistent oxidative stress and testicular microcirculatory dysfunction have been implicated in poor sperm morphology and function, even following corrective procedures such as varicocelelectomy. These mechanisms may explain the limited reversibility observed in chronic cases managed exclusively with surgical or assisted reproductive strategies. *Ayurveda* conceptualizes male infertility under *Kṣīṇa Śukra*, *Śukra Duṣṭi*, and *Bīja Upaghāta*, where deranged *Vāta* and *Pitta Doṣa*, impaired *Agni*, and depletion

of *Śukra Dhātu* play a central role. The treatment protocol employed in this case was designed to address these fundamental pathogenic factors rather than isolated semen parameters. *Śodhana* therapies, particularly *Virecana* and *Vasti*, are described to normalize *Doṣa* imbalance, enhance metabolic function, and improve tissue nourishment at the level of *Dhātu*. These interventions may have contributed to improved testicular microcirculation, hormonal regulation, and reduction of oxidative stress. *Rasāyana* therapy constitutes a cornerstone of *Ayurvedic* management in chronic and degenerative conditions. The observed clinical improvement in this case is consistent with earlier reports indicating beneficial effects of *Panchakarma* and *Rasāyana* therapy on sperm concentration, motility, and morphology in male infertility. Importantly, the integrative approach adopted in this case aligns with the holistic philosophy of *Ayurveda*, which emphasizes restoration of systemic balance, improvement of tissue quality, and enhancement of overall vitality rather than symptom-specific intervention alone. This may be particularly relevant in rare and complex conditions such as globozoospermia, where conventional options are limited and outcomes remain unpredictable. Nevertheless, this report is limited by its single-case design and the absence of molecular or genetic evaluation, which is often relevant in globozoospermia. Larger controlled clinical studies incorporating standardized semen analysis, oxidative stress markers, and reproductive

outcomes are required to substantiate these findings and to elucidate the precise mechanisms through which Ayurvedic interventions may influence spermatogenic dysfunction.

Varicocele-associated male infertility is primarily mediated through increased scrotal temperature, oxidative stress and hormonal dysregulation, resulting in abnormal sperm concentration, motility and morphology. Ayurveda describes similar pathology under Śukra-doṣa and Śukra-kṣaya, often associated with Vāta-Pitta vitiation and impaired Dhātvāgni. Ashwagandha (Withania somnifera), a classical Rasayana and Vṛṣya drug, is traditionally indicated for Bija-doṣa and Kṣīṇa Śukra and has been evaluated in modern clinical studies for male infertility.

Clinical evidence suggests that root-based preparations of ashwagandha, including churna, improve sperm abnormalities by reducing oxidative stress and enhancing seminal antioxidant capacity. Studies have demonstrated significant reductions in lipid peroxidation and improvements in sperm concentration, motility and morphology following 8–12 weeks of ashwagandha therapy. In men with infertility related to stress and testicular dysfunction—mechanistically comparable to varicocele—ashwagandha has shown normalization of reproductive hormones, including increased testosterone and luteinizing hormone levels. These findings correlate with its Br̥mhaṇa, Balya and Vāta-Pitta śāmaka actions described in Ayurveda [15].

Chandraprabha Gulika, a classical herbo-mineral formulation described in Bhaiṣajya Ratnāvali (Prameha-Mutraroga Cikitsā) and Śārṅgadhara Saṁhitā (Madhyama Khaṇḍa) is indicated in Śukra-kṣaya, Mutravikāra and Bija-doṣa and is traditionally valued for its Rasāyana, Vṛṣya and Srotoshodhaka properties.

Experimental and clinical studies on its constituent drugs demonstrate antioxidant, anti-inflammatory and microcirculation-enhancing effects. Ingredients such as Guggulu, Triphala and Śilājatu have been shown to reduce oxidative stress and improve sperm morphology and motility in male infertility models. These actions may counteract varicocele-induced oxidative damage and support correction of abnormal sperm forms.[16]

Dāḍimādi Ghṛta, a classical medicated ghṛta containing Dāḍima (Punica granatum) among other lipophilic ingredients, is traditionally indicated for Śukra-kṣaya and reproductive debility and may be rationally considered in male infertility where oxidative stress and impaired spermatogenesis predominate. Experimental and clinical evidence on pomegranate extracts shows antioxidant, anti-inflammatory and testis-protective effects with improvements in sperm count, motility and morphology in animal models and small human studies, supporting a plausible role for Dāḍima-containing formulations in mitigating oxidative sperm damage.[17]

Action of Gudūchyādi Kaṣāyam in Improving Semen Parameters;

Male infertility presenting as oligo-asthenospermia is described in

Ayurveda under *Kṣīṇa retaḥ / Śukra-kṣaya*, where *Vāta-Pitta doṣa* vitiation leads to *śukra dhātu daurbalya* and *śukravaha srotoduṣṭi*. Therapeutic intervention focuses on correction of *doṣa* imbalance, restoration of *dhātvāgni*, and nourishment of *śukra dhātu*.

Gudūchyādi Kaṣāyam exerts its action primarily through *Vāta-Pitta śamana*, *āma pācana*, and *dhātu-poṣaṇa*. The drugs of *Gudūchyādi* group possess *Tikta-Kaṣāya rasa*, *Laghu-Rūkṣa guṇa*, and *Rasāyana* properties, which help in clearing *srotoduṣṭi* and improving metabolic activity essential for proper *dhātu* formation. Correction of impaired *śukra-dhātvāgni* facilitates qualitative and quantitative improvement in semen parameters.

Gudūchī (*Tinospora cordifolia*), the principal drug, is a well-documented *rasāyana*, contributing to *dhātu* stability, tissue regeneration, and enhanced reproductive capacity. The formulation also addresses inflammatory and oxidative components implicated in male infertility, thereby protecting spermatozoa and improving motility.

Clinical evidence from an *Ayurveda* journal study published in PIJAR (2018) demonstrated significant improvement in sperm count and motility with *Gudūchyādi Yoga* in patients of oligoasthenospermia. The observed effects were attributed to *Vṛṣya*, *Śukra-vardhaka*, *Rasāyana*, and *Vāta-Pitta hara* properties of *Gudūchyādi* drugs. As *Gudūchyādi Kaṣāyam* contains the same therapeutic drug group, similar pharmacological actions can be reasonably inferred.

Thus, *Gudūchyādi Kaṣāyam* serves as an effective supportive and corrective therapy in male infertility, particularly in conditions associated with *pitta* predominance, inflammation, and metabolic derangement, and is best used as an adjuvant along with classical *vājīkaraṇa* measures. [18]

The action of *Jalookavacharana* is attributed to bioactive components in leech saliva such as:

Hirudin – thrombin inhibitor, reducing venous stasis

Bdellins – anti-inflammatory effect

Hyaluronidase – improves tissue permeability and microcirculation

These mechanisms support improvement in local blood flow and drainage, thereby relieving symptoms of *Siraja Granthi* (varicocele). [19]

Narasimha Rasayana in Teratozoospermia;

Teratozoospermia can be correlated with *Shukra Dushti* and *Ksheena Shukra* described in *Ayurveda*, for which *Vajikarana* and *Rasayana* therapies are indicated. *Narasimha Rasayana*, a classical *Rasayana* formulation, is traditionally indicated for enhancement of *Shukra Dhatu* and reproductive vitality. Although direct randomized clinical trials evaluating *Narasimha Rasayana* alone in teratozoospermia are limited, available clinical case reports and integrative Ayurvedic studies demonstrate improvement in semen parameters, including sperm morphology, when it is used as part of a comprehensive treatment protocol. The observed benefits may be attributed to its antioxidant, tissue-rejuvenating, and anabolic properties, which help mitigate

oxidative stress—a key factor implicated in abnormal sperm morphology. Further controlled clinical studies are required to validate its efficacy. [20]

CONCLUSION:

This case suggest that Ayurveda based integrative management may offer a promising complementary strategy in selected cases of severe male infertility, particularly in chronic and treatment refractory conditions warranting further scientific exploration.

Declaration of Patient consent:

The informed written consent has been taken from patient for publication of data and images without disclosing the identity of patient.

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor: The corresponding author is the guarantor of this article and its contents.

Source of support: None

How to cite this article:

Vidya K P, Navya Mohanlal, Asha Sreedhar, Rajitha R Warriar: Integrative Ayurvedic Management of severe Globozoospermia with long-standing Male Infertility: A Case Report. Int. J. AYUSH Case Reports. 2026; 10(2): 1-13.

REFERENCES:

1. World Health Organization. *WHO laboratory manual for the examination and processing of*

human semen. 6th ed. Geneva: WHO; 2021.

2. Agarwal A, Baskaran S, Parekh N, et al. Male infertility. *Lancet*. 2021;397(10271):319-333.
3. Dam AH, Feenstra I, Westphal JR, Ramos L, van Golde RJ, Kremer JA. Globozoospermia revisited. *Hum Reprod Update*. 2007;13(1):63-75.
4. Eskandari N, Tavalae M, Zohrabi D, Nasr-Esfahani MH. Association between globozoospermia and sperm chromatin defects. *Andrologia*. 2018;50(4):e12993.
5. Kyono K, Nakajo Y, Nishinaka C, et al. A birth from the first case of round-headed spermatozoa in Japan. *Fertil Steril*. 2009;92(2):698.e1-698.e4.
6. Dohle GR. Inflammatory-associated obstructions of the male reproductive tract. *Andrology*. 2015;3(3):464-470.
7. Jensen TK, Swan SH. Environmental endocrine disruptors and male reproductive health. *Asian J Androl*. 2013;15(1):13-20.
8. Baazeem A, Belzile E, Ciampi A, et al. Varicocele and male factor infertility treatment. *Hum Reprod Update*. 2011;17(3):292-302.
9. Sharma RK, Dash B. *Charaka Samhita*. Reprint ed. Varanasi: Chaukhambha Sanskrit Series; 2014. Sutrasthana, Chikitsasthana.
10. Shastri AD. *Sushruta Samhita*. Reprint ed. Varanasi: Chaukhambha Sanskrit Sansthan; 2016.
11. Lad V. *Textbook of Ayurveda, Volume 2*. Albuquerque: The Ayurvedic Press; 2008.
12. Patwardhan B, Mutalik G, Tillu G. Integrative approaches for male

- infertility. *J Ayurveda Integr Med.* 2015;6(2):67-71.
13. Chauhan NS, Sharma V, Dixit VK, Thakur M. A review on plants used for improvement of sexual performance and virility. *Biomed Res Int.* 2014;2014:868062.
14. Mahajan BK, Singh S, Reddy KR. Effect of Panchakarma and Rasayana therapy in male infertility. *J Ayurveda Integr Med.* 2019;10(4):269-275.
15. Ahmad MK, Mahdi AA, Shukla KK, et al. Withania somnifera improves semen quality by regulating reproductive hormones and oxidative stress in infertile men. *Fertil Steril.* 2010;94(3):989-996. Mahdi AA, Shukla KK, Ahmad MK, et al. Withania somnifera improves semen quality in stress-related male fertility. *Evid Based Complement Alternat Med.* 2011;2011:576962. Ambiye VR, et al. Clinical evaluation of the spermatogenic activity of Withania somnifera root extract in oligospermic males. *Evid Based Complement Alternat Med.* 2013;2013:571420. Reference; Agarwal A, et al. Oxidative stress and its implications in male infertility – including varicocele. *Reprod Biol Endocrinol.* 2014;12:82.
16. Govind Das Sen. Bhaiṣajya Ratnāvali. Prameha–Mutrārōga Cikitsā. Varanasi: Chaukhambha Sanskrit Sansthan; reprint ed. Agarwal A, Majzoub A, Esteves SC, Ko E, Ramasamy R, Zini A. Clinical utility of antioxidants in the treatment of male infertility: evidence-based analysis. *World J Mens Health.* 2019;37(3):261–275. Śārṅgadhara. Śārṅgadhara Samhitā. Madhyama Khaṇḍa; Gulika-Prakaraṇa. Varanasi: Chaukhambha Orientalia; reprint ed.
17. Fedder MDK, et al. An extract of pomegranate fruit and galangal rhizome increases the proportion of motile ejaculated spermatozoa in subfertile men: a randomized, double-blind, placebo-controlled crossover trial. *Phytother Res.* 2014;28(6):813–819
18. Jadhav V, Varsharani. Clinical study on Gudūchyādi Yoga in the management of oligoasthenospermia. *PIJAR.* 2018;2(6):94-99.
19. Poornima MR, Masalekar S, Rao S. A case study to evaluate Jalaukavacharana in the management of Siraja Granthi with special reference to varicocele. *J Ayurveda Integr Med Sci.* 2021;6(3):210–213.
20. Mohan Kumar SS, Kapoor P, Durgesh K, Trivedi AB. Ayurvedic management of Ksheena Shukra: a case study. *J Ayurveda Integr Med Sci.* 2023;8(3):180-184. Uppin SR, Aravinth TU. Management of oligo-teratozoospermia with Vajikarana Chikitsa resulting in natural conception: a case report. *J Ayurveda Integr Med.* 2025;16(5):101190. Agarwal A, Durairajanayagam D, Du Plessis SS. Oxidative stress and male infertility: role of antioxidants and herbal medicines. *Andrologia.* 2022;54:e13509.