

# Ayurvedic management of necrozoospermia - A case report

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## Abstract

Male factors are responsible for more than forty percent of the infertility cases. Necrozoospermia is one among the main cause for infertility in male. Necrozoospermia i.e. 100% immotile and 0% viable spermatozoa in ejaculate, is a rare and poorly documented cause of male infertility. A 56-year-old man was referred for reproductive counseling with secondary infertility and diagnosed as necrozoospermia (*Shukra Dosha*). He presented with complaints of having no issues since 7 years of married life with his second wife. The patient has a son from divorced first wife. After the thorough clinical examination and laboratory investigations, diagnosis was confirmed as necrozoospermia. The patient was administered *Koshtha-Shuddhi* (purgation) with *Eranda Taila* (castor oil) as per the guidelines of Ayurvedic treatment. After the proper purificatory procedures depending on dominance of deranged *Dosha*, the patient was given *Arogyavardhini Vati*, *Chandraprabha Vati*, *Shilapravanga* and *Phala Ghrita* (medicated ghee) as *Sneha* (internal oleation). At the end of 3½ month, semen analysis showed marked improvement in sperm count and increase in the sperm motility. The present finding and the effective management of necrozoospermia with Ayurvedic formulations with no adverse effect highlight the promising scope of traditional medicine in male infertility disorders.

**Keywords:** Necrozoospermia, Semen analysis, *Shukra Dosha*

## Introduction

Necrozoospermia is a rare condition and poorly documented cause of male infertility. Its incidence in an infertile male is reported to be from 0.2% to 0.5%.<sup>[1]</sup> It is defined as a condition in which spermatozoa in the ejaculated semen are dead or immotile. According to sperm norms of the World Health Organization, sperm viability is higher than or equal to 75% in human semen samples. Fertility of the semen is impaired below this percentage.<sup>[2]</sup>

In Ayurveda, *Shukra Dosha* (pathological disorders of sperm/ semen) is mentioned as of eight types. They are *Vataja*, *Pittaja*, *Kaphaja*, *Kunapa*, *Granthi*, *Puti*, *Puya* and *Ksheena*.<sup>[3]</sup> Necrozoospermia is akin to *Vataja Shukra Dosha* in Ayurveda. Quality and quantity of *Vataja Shukra Dosha* are *Phena* (frothy), *Tanu* (less viscosity), *Ruksha* (lack of unctuousness), *Kashtha Alpa Matrayukta* (painful ejaculation with less quantity of semen), and incapability of producing off spring.<sup>[4]</sup>

The line of treatment for *Shukra Dosha* as mentioned in Ayurvedic texts are *Snehana* (oleation), *Vamana* (emesis), *Virechana* (purgation), *Niruha* (medicated enema with decoction) *Anuvasana* (medicated enema with oil)<sup>[5]</sup> and *Shamana Aushadhi* (palliative therapy) depending on the condition. According to these principles, it is advocated to use *Shamana*

therapy after performing *Virechana Karma* (purgation). In the present study, selected *Shamana Aushadhi* (palliative therapy) were easily available for prescription in OPD patients.

## Case Report

### Presentation

A male patient aged 56 years attended the outpatient department, presenting with the complaints of no issues since 7 years of married life with the second wife who is 35 years old. However, he has a son from his divorced first wife who is healthy. The patient did not report any problems with erections, orgasm, or ejaculation and he was not taking any medication for any systemic disorders like hypertension, diabetes mellitus etc. On physical examination, testes were in normal position. Rest of the physical examination was normal. Initial history of the female partner suggested regular

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ovulatory cycles and revealed no problems with her endocrine profile or the patency of her fallopian tubes. There was no history in the patient suggestive of sexually transmitted diseases, mumps, tuberculosis, filariasis, epididymo-orchitis, herniorrhaphy/herniotomy and chronic persistent genital infection, paraparesis and exposure to gonadotoxins, for example, cigarette smoke, alcohol, alkylating agent, gossypol and pesticides. Semen analysis from the laboratory revealed no sperm motility and on viability testing, it was shown that there was 100% necrozoospermia. As the patient could not afford, other investigations such as antisperm antibodies could not be carried out.

### On examination

Clinical examination revealed no abnormality (physical and systemic). During scrotal examination, temperature was found normal and no scar or swelling was noticed. Position and size of the testes was normal in nature. Epididymis was palpable with swelling, spermatic cord was thickened and prostrate was normal during the examination. Table 1 shows the details of physical examination of the patient.

### Assessment criteria

The patient was assessed based on sexual functional parameters and semen analysis before and three and half months after the treatment. Details of the investigations carried out before and after the treatment are given in Table 2.

### Treatment

According to Ayurveda, the patient was diagnosed as having *Vatika Shukra Dosha*, with investigations showing evidence of necrozoospermia. He was treated for a period of 3 ½ months.

### Plan of treatment

#### Shodhana (purification)

*Purva Karma* like *Langhana*, *Deepana*, *Pachana* and *Snehapana* were not followed as the patient was not having *Ama Lakshana* assessed during the examination. So, 50 ml of *Eranda Taila* (castor oil) was administered at 7.30 AM for the purpose of *Koshtha-Shuddhi* (purgation) along with warm water, and the patient reported six *Vegas* (passed stools six times) during that day. He was advised to take light semi-solid diet and avoid exertion for 3 days.

#### Shamana therapy

1. *Phala Ghrita* 15 ml with milk in the empty stomach once daily
2. *Chandraprabha Vati* – 500 mg, *Vati* one tablet twice daily after food with water
3. *Shilaprabang Vati* – (250 mg), one *Vati* twice daily after food with milk
4. *Arogyavardhini Vati* – (500 mg), one *Vati* twice daily after food with water.

*Chandraprabha Vati* and *Arogyavardhini Vati* were procured from IMPCL and dispensed through OPD. *Phala Ghrita* (Arya Vaidya shala, Kottakal) and *Shilaprabanga* (Sri Dhootapeswar Ltd) were prescribed from outside.

All the above medicines were given for 3 months. *Arogyavardhini Vati* was replaced by *Sarivadi Vati* after a month and continued for 2 months. No adverse drug reaction was reported during the treatment which was confirmed during follow up visits.

## Results

After the treatment, total sperm count was increased to 9 million from 2 million and there was also increase in sperm motility. Though 100% sperms were non-motile before treatment, only 45% remained non-motile after the treatment. It is observed that, 30% were actively progressive, 15% were slowly progressive and 10% were non progressive. USG reports suggest that, there was necrozoospermia with infection initially and which is changed to oligozoospermia with infection. Table 2 shows before and after results of semen analysis. Table 3 shows sexual functional parameters.

## Discussion

Necrozoospermia is the medical term for sperm that does not move at all. The sperm may be alive and just not moving or

**Table 1: Physical/local examination of the patient**

On examination	Observation	
Pubic hair distribution	Normal	
Examination of penis		
Texture of skin	Normal	
Body/shaft	Shrunken	
Prepuce	Normal	
Glans	Normal	
External urethral meatus	Normal	
Examination of scrotum	Right	Left
Pigmentation	Dark brown	Dark brown
Temperature	Normal	Normal
Rugae	Present	Present
Scars	No	No
Swellings	No	No
Examination of testes		
Position	Normal	Normal
Size	Normal	Normal
Surface	Smooth	Smooth
Consistency	Firm	Firm
Borders	Regular	Regular
Examination of epididymis	Palpable with swelling	
Examination of vas deferens	Not palpable	
Examination of spermatic cord	Thickened	
Examination of prostate (P/R)	Normal	
Investigations	Impressions	
Semen analysis	Necrozoospermia with infection	
USG abdomen and pelvis	Prostate is normal in contour (volume 13 cc) and echo pattern	
USG scrotal	Mild right varicocele Small left epididymal cyst (0.42 cm) Minimal left hydrocele	

USG: Ultrasound sonography

**Table 2: Effect of Ayurvedic management on semen analysis**

Semen analysis	Before treatment	After treatment
Volume (ml)	2	2
Color	Grayish white	Grayish white
Reaction	Alkaline	Alkaline
Liquefaction	Liquefied after ½ h	Liquefied after ½ h
Sperm count (millions)	2	9*
Motility (h)	1	1
Actively progressive (%)	0	30*
Slowly progressive (%)	0	15*
Nonprogressive (%)	0	10*
Nonmotile (%)	100	45*
Morphology		
Normal (%)	96	92
Abnormal (%)	4	8
Agglutination (%)	Absent	Present - 3%
Head to head	Absent	Present
Head to tail	Absent	Present
Tail to tail	Absent	Absent
Pus cells	4-6/hpf	4-6/hpf
RBCs	Nil	Nil
Epithelial cells	2-4/hpf	6-8/hpf
Impression	Necrozoospermia with infection	Oligozoospermia with infection*

\*Indicates noticeable improvement after 3½ months of Ayurvedic intervention. RBCs: Red blood cells

**Table 3: Effect of Ayurvedic management on sexual functional parameters**

Parameter	Score (before treatment)	Score (after treatment)
Sexual desire	3	4
Orgasm	1	3
Rigidity	0	2
Erection	2	3
Ejaculation	3	4
Total score	9	16

the sperm may be dead. Necrozoospermia is a potential cause of male infertility. Although there is no promising remedy for this ailment, Ayurvedic formulations have shown remarkable improvement in sperm count in isolated case reports<sup>[6]</sup>.

In Ayurveda, a separate branch has been devoted for aphrodisiac medicines (*Vajikarana*). The concept of *Vajikarana*, as described in the texts of Ayurveda, is a special category of treatment modalities which improve the reproductive system and enhance sexual functions. It offers a solution to minimize *Shukra* defects and to ensure a healthy progeny. *Vataja Shukra Dosh* can be compared with necrozoospermia where quality and quantity of semen is a vitiated by *Vata Dosh*.

*Vataja Dushti* (impairment of *Vata*) leads to defects in quantity due to *Rukshata* (lack of unctuousness) and *Kapha Kshaya* (depletion of *Kapha*) also causing defects in motility causing non-progressive and immobile sperms.<sup>[7]</sup> After the

treatment, it is observed that, 3% agglutination is seen in the semen analysis. Agglutination of spermatozoa suggests the existence of antisperm antibodies. But, other investigations such as antisperm antibodies could not be done, due to nonaffordability of the patient.

Aphrodisiac therapies are of three types:<sup>[8]</sup>

1. *Shukra Karaka* – Sperm generating or enhancing sperm count
2. *Shukra Rechaka* – Those which help in ejaculation of seminal fluid
3. *Shukra Karaka* and *Rechaka* – Medicines which serve both the above purposes.

Based on the above principles, multiple treatment modalities were applied in this case.

Acharya Kashyapa has emphasized on the role of *Virechana Karma* (purgation) for the purification of the *Beeja* (sperm), as it make *Beeja* (sperm) effective in achieving fertilization. It also improves sexual vigor and helps in achieving healthy progeny.<sup>[9]</sup>

*Koshtha-Shuddhi* (purgation) with *Eranda Taila* (castor oil) was given for detoxification and to pacify *Vata* which is the main cause for vitiation of *Shukra* (sperm).<sup>[10]</sup>

The medicated ghee (*Phala Ghrita*) was given early in the morning in empty stomach as *Shamana Snehana* (palliative mode of oleation), is indicated in *Shukra Dosh*.<sup>[11]</sup> It acts as an aphrodisiac medicine. *Chandraprabha Vati* is a herbomineral compound preparation, has action on major systems such as urinary system and reproductive system. It has been reported to have immense free radical scavenging activity.<sup>[12]</sup>

Inflammatory conditions in the entire genitourinary tract are amenable with administration of *Chandraprabha Vati*. It relieves the infection and acts as a spermatopoietic agent. In a nutshell, this is employed in male as well as female infertility. It is a choice of drug in urogenital diseases for treating the infection.<sup>[13]</sup>

Liver plays an important role in regulating the amount of free testosterone in the body. About 40%–50% of total testosterone is bound to a protein called sex hormone-binding globulin which is produced in the liver. The rest of the testosterone is bound to a protein called albumin which is also produced in the liver. With decreasing liver function, plasma testosterone concentrations decrease significantly.<sup>[14]</sup> With a view of improving the liver function, commonly prescribed classical Ayurvedic polyherbomineral formulation, *Arogyavardhini Vati*, was given. It contains drugs like *Abhraka Bhasma* (ash of mica), *Shilajatu* (*Asphaltum*), *Eranda* (*Ricinus communis* Linn.) and *Katuki* (*Picrorrhiza kurroo* Royle ex Benth). It has been tested and found to be safe in an experimental study. No appreciable toxicological effects were observed on the brain, liver, and kidney of the rats when administered up to 28 days.<sup>[15]</sup> Hence, it was prescribed to the patient for 1 month initially. It also has hepatoprotective action.<sup>[16]</sup>

*Sarivadi Vati* is a drug of choice in *Klaibya* (male infertility) and urogenital infections.<sup>[17]</sup> It mainly comprises *Sariva* (*Hemidesmus indicus* R. Br), *Madhuka* (*Glycyrrhiza glabra* Linn.), *Kushtha* (*Saussurea lappa* C. B. Clarke), *Abhraka Bhasma* (ash of Mica) and *Loha Bhasma* (ash of purified and processed iron).

*Shilapravanga* is well-known proprietary herbomineral aphrodisiac medicine which fights treats, exhaustion and debility and restores natural zest and is medicated in for male infertility.<sup>[18]</sup> It contains *Shuddha Shilajit*, *Pravala Pishti* (calx of coral), *Vanga Bhasma* (ash of Tin), *Mouktik Pishti*, *Suvarna Makshika Bhasma*, and other drugs; *Shilajatu* is a prominent *Vrishya* (aphrodisiac) drug as explained in *Bhavaprakasha*<sup>[19]</sup> and *Charaka Samhita*.<sup>[20]</sup>

## Conclusion

It is therefore evident that the treatment approach based on Ayurvedic principles can produce encouraging results in the management of *Shukra Dosha* (necrozoospermia) not only in improvement in sexual functional parameters<sup>[21]</sup> but also in increasing the quality and quantity of semen. Such encouraging results offer hope to many who are suffering from necrozoospermia and also instills confidence among new Ayurvedic physicians in handling male infertility without surgical interventions and managing with simple medication.

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## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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