



CASE REPORT

AYURVEDIC MANAGEMENT OF OLIGOASTHENOTERATOZOOSPERMIA (OAT) SYNDROME: A CASE REPORT

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Abstract

In oligoasthenoteratozoospermia (OAT), a semen sample presents teratozoospermia (abnormal sperm morphology), asthenozoospermia (poor motility), and oligozoospermia (low sperm count). Testicular abnormalities or disorders that are idiopathic are the cause of most occurrences of severe oligoasthenoteratozoospermia. 7-10% of males whose sperm count is less than 5 million/ml have abnormal genetic tests. Antibodies, chronic prostatitis, or uncommon recessive intrinsic abnormalities of the sperm tail associated with sinopulmonary illness (e.g., Kartagener's syndrome or Young's syndrome) can all lead to severely reduced sperm motility. Semen quality is rarely improved by treating severe oligoasthenoteratozoospermia; nevertheless, intracytoplasmic sperm injection is often effective, even if the ejaculate contains only a small number of weakly motile spermatozoa.

The World Health Organization believes that between 60 and 80 million couples worldwide are affected by infertility, while exact statistics are currently unavailable. The level of infertility varies across populations in different places. Over the span of a decade, males from India noticed a 30.3% fall in sperm count, a 22.9% decline in sperm motility, and a 51% decrease in morphology.

This is case study of a 26-years old male patient who came to the Panchakarma OPD of Govt. Ayurveda College and Hospital, Kannur, Kerala with the following history of unable to produce progeny despite having an unprotected sexual life for three years. This case can be correlated with the *Ksheena shukra* or *Shukrakshaya* in ayurveda. This patient was admitted for ayurvedic management at Govt. Ayurveda College, Kannur, Kerala, India. The patient got complete improvement in all the semen analysis parameters without any complication after 19 days of treatment protocol. So, in this case study the scope of Ayurvedic management in Oligoasthenoteratozoospermia is discussed.

Introduction

In present world, infertility is one of the serious problems in which male factor is responsible in 40 to 50 percent cases alone. Oligozoospermia is a medical condition in men with low sperm count as stated by WHO, if the

sperm count is less than 15 million sperm per milliliter. It is the one of the major etiological factors of male infertility. More than 90% of cases of male infertility are caused by oligospermia and poor-quality sperm. The main causes for Oligozoospermia includes malnutrition, genetic abnormalities, pollution and side effects of some medications. In 40% of the cases the cause is idiopathic. Male infertility affects 1 out of 20 men and is contributory factor which is affecting the quality of life.

The etiology of oligospermia is frequently idiopathic, in comparison with azoospermia, which has a relatively narrow range of possible diagnosis. Typically, oligospermia is linked to abnormalities in motility and shape and is infrequently observed as a standalone seminal anomaly.

Asthenospermia or teratospermia, respectively, refer to isolated deficiencies in motility or morphology, whereas oligoasthenoteratospermia (OAT) describes faults in the overall quality of sperm.¹ A prolonged period of abstinence or delayed processing in the laboratory could be the cause of asthenospermia, which could be iatrogenic. Although idiopathic in most cases, persistent asthenospermia in a well-processed specimen can also be observed alongside with immunologic infertility in association with antisperm antibodies, varicoceles, genital tract infections, and anomalies of the ultrastructural cilia, such as immotile cilia syndrome.²

Teratospermia is frequently observed, particularly when using the stringent morphologic criteria (Kruger or Tygerberg) that are used by many andrology labs. Undoubtedly, abnormal sperm head morphologies, such as pinhead, multiheaded, or round-headed sperm, which indicate acrosome deficiency, have clinical significance. However, there is growing debate about the predictive value of abnormal morphology in general, partly because the test is subjective and therefore difficult to standardize (Agarwal et al, 2008). Recurrent spontaneous miscarriages or anomalies in the progeny have not been linked to aberrant sperm morphology (Rosenbusch et al, 1992; Hill et al, 1994). Another possible contributing reason to subfertility is low ejaculate volume. The most prevalent cause of a reduction in ejaculate volume is inadequate specimen collection; however, CBAVD, along with associated hypoplasia of the seminal vesicles, hypoandrogenism, retrograde ejaculation, and ejaculatory duct obstruction, can also be linked to this condition. The absence of a seminal vesicle contribution to the semen is shown by the somewhat acidic seminal pH and low fructose levels in the semen, which suggests that CBAVD or EDO are the most likely reasons of subfertility.

Shukra kshaya and *shukra dusti* are the two

pathological conditions which are described in ayurvedic texts. All the classical texts have mentioned total 8 types of *shukra dusti*.^{3,4,5,6} In the condition in which *shukra* is decreased especially in middle age due to undefined etiology is known as *Ksheena shukra*. *Sushrutha* and *Vagbhata* has mentioned *Ksheen shukra* as one of *asthavidha shukra dusti* and is due to the vitiation of *vata* and *pitta dosha*.

Shukradusti is a debilitating disease with both subjective and objective symptoms that can be thought of as an acquired quantitative and qualitative abnormality of *shukradhatu* brought on by poor dietary, psychological, traumatic, and other factors.

According to Ayurvedic classics, vitiated *vata* and *pitta dosha* are the primary causes of *ksheena shukra* or *shukrakshaya*. *Ksheena Shukra* or *Shukrakshaya* also has an impact on *Shukradhatu's* possibility for conception. These symptoms fall under the category of qualitative vitiation of *shukradhatu*. Due to the consumption of different etiological factors and the development of pathology in *shukravaha srotas*, *ksheena shukra* deteriorates due to diminished ejaculate volume and insufficient *shukradhatu* production.⁷ This is *ksheena shukra's* quantitative vitiation of *shukra*. *Ksheena shukra*, to put it briefly, is one type of *shukradusti* in which both qualitative and quantitative vitiation of *shukradhatu* occurs due to *vata pitta kopa*.

The two main treatment principles are *sodhana* and *shamana*. *Sodhana* therapy is considered superior because it helps in the complete elimination of dosha and prevents the recurrence of disease. *Vasti* is considered supreme among all the *sodhana* procedures. Ayurveda classics emphasized the importance of *Sodhana* procedure before administering the *Vajikarana* drugs. Only then *Brimhana* and *Balya* effect of *Vajikarana* or *Shukrajanana* drugs are achieved. It is clearly stated that without *Sodhana*, *Vajikarana* treatment will not be beneficial. The *Sodhana* procedures mainly *Virechana* and *Niruha Vasti* are described for the management of *Shukra Dosh*. *Acharya Sushrutha* has mentioned *Sodhana Poorvaka Uttara Vasti* for the treatment of *Shukradoshaja vikaras* in *Shareera Sthana* 2nd chapter.⁸

According to *Chakrapani*, *vasti* administered through the *Uttara marga* and has a *shrestha guna* is known as *uttara vasti*.⁹ *Uttara marga* means the *mutra* and *shukra marga* in males and *mutra* and *yoni marga* in females. According to *Sushrutha*, *uttara vasti* alleviates *shukra dusti*, *mutraghata* and other diseases of *mutra*, *ashmari*, *sarkara*, *vasti shula*, *mehan shula*, *shukrotseka* and other diseases of *vasti*.¹⁰

CASE INFORMATION

A 26-years old male patient came to the Panchakarma OPD of Govt. Ayurveda College and Hospital, Kannur, Kerala with the following history -

Presenting Chief Complaint :

- Unable to produce progeny despite having an unprotected sexual life for three years.

History of Chief Complaint :

According to the patient he got married at the age of 23 years and staying together with his wife from last 3 years. They were trying to beget child from last 3 years of marriage but his wife was not able to conceive even after this much period of time. 2 years ago, he was diagnosed with severe oligoasthenoteratozoospermia (OAT). He had consulted various allopathic doctors within last 2 years for the treatment of oligoasthenoteratozoospermia (OAT) but didn't get result.

History of Previous illness and Treatment :

- H/o Varicocele, Recurrent Tonsillitis

Personal History :

- Bowel - Normal
- Appetite - Normal
- Micturition - Normal
- Sleep - Disturbed (Occasionally)
- Diet- Predominantly Mixed
- Habits (Smoking, Tobacco, Alcohol) – Nil
- Allergy – Nil

Clinical Findings

General examination

- Pulse rate - 69/min, Heart rate - 74 beats/min, Respiratory rate - 17 breaths/min,
- Blood pressure - 132/80 mm Hg, Temperature - 98.5 OF.
- Height - 5.6-inch, Weight - 68 kg

Astha Sthana Pareeksha

- *Nadi - Sadharanam*
- *Mootram -Anavilam*
- *Malam – Prakrutham*
- *Jihwa – Anuplitam*
- *Shabdham – Vyaktam*
- *Sparsham – Anushansheetam*
- *Drik – Vyaktam*
- *Akruthi – Madhyam*

Local Examination

Scrotum :

- Inspection - Normal
- Discoloration / Pigmentation / Scar - Nil
- Palpation - Normal
- Nodules / Swelling / Tenderness – Nil

Testes :

- Position - Normal
- Size – Reduced size of B/L testes
- Surface - Smooth, Nodular – Nil

Penis :

- Skin texture - Normal
- Inflamed / Scabies / Burrows / Scar / Ulcer – Nil
- Shaft - Normal
- Curved / Shrunken / Erected / Scar / Plague / Warts – Nil
- Prepuce -Normal
- Phimosis / Smegma / Circumcised - Circumcised
- Glans - Normal
- Balanitis / Balanoposthitis / Ulcer / Scars – Nil

Diagnostic Assessment

After relevant examination and investigations, it was diagnosed as oligoasthenoteratozoospermia (OAT).

Semen Analysis Report before Treatment -

Test Name	Result	Normal Value
SEMEN ANALYSIS		
MACROSCOPIC EXAMINATION		
VOLUME	1.5 ml	
COLOUR	OPAQUE GREY	
REACTION	ALKALINE	
LIQUIFACTION TIME	30 MINUTES .	
MICROSCOPIC EXAMINATION		
TOTAL SPERM COUNT	ONLY SEEN 3-5 SPERM IN UNDER HIGH POWER FIELD	20-200 million/ml
MOTILITY		
PUS CELLS	NUMEROUS /hpf	
RBC	1-2 /hpf	

MRD. # SC-82969
Lab Code SC-82969
Doctor: Dr. SINDHU PRASANTH MBBS, DGO
Bill Date : 27/09/2021 10:01AM
Bill No : 022710
Age & Sex : 24Y Male
Result Date : 27/09/2021 12:12PM

Verified By: [Signature] 24/9/21
LAB TECHNICIAN

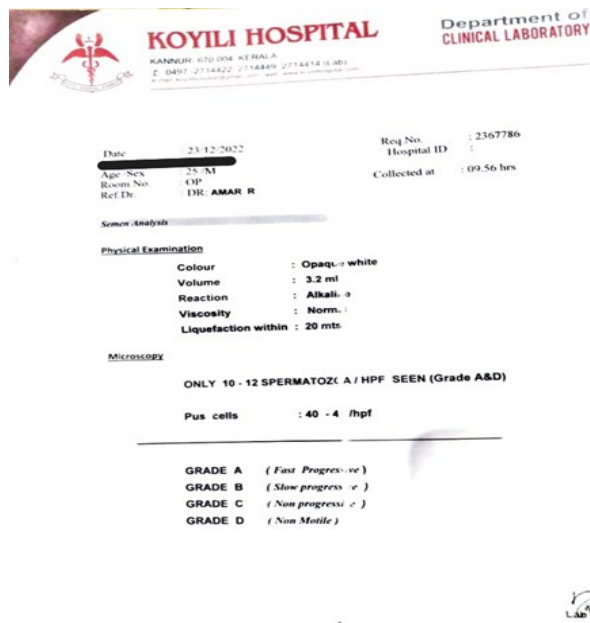
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Irikur: hnc multi speciality family c Ph: 0460 3-7-7777

Date - 27/09/2021



Date - 13/05/2022



Date - 23/12/2022

Therapeutic intervention

The present patient was given a comprehensive treatment plan once it was made evident that the known case had a history of oligoasthenoteratozoospermia (OAT). Internal and external *panchakarma* therapies were given during the whole treatment protocol.

Treatment modality selected for this case study was *Shodana poorvaka uttrara vasti* told in Samhita's was done for total 6 days including rest for 3 days in between after first 3 days then followed by last 3 days. The qualities attributed for this *Uttara vasti* are *vrishyatama* (excellent aphrodisiac) and *balavarnajanana* (imparts strength and complexion).

Mridwikadi ghritam is taken as the drug of choice for *Uttara vasti*. *Arogya Raksa Kalpadrumam*¹¹ and *Sahasrayogam*¹² has mentioned *Mridwikadi ghrita* with *Shukrajanya* properties which helps in improving quantity and quality of semen.



Date - 01/03/2023

Table No. 1 - Semen Analysis before Treatment

Date	27/09/2021	13/05/2022	23/12/2022	1/3/2023
Colour	Opaque Grey	Opaque Grey	Opaque White	Opaque Grey
Volume	1.5 ml	1 ml	3.2 ml	1.5 ml
Reaction	Alkaline	Alkaline	Alkaline	Alkaline
Liquefaction Time	30 minutes	30 minutes	20 minutes	30minutes
Total Sperm Count	Only 3-5 sperm/ hpf	Only 4-5 sperms/ hpf	Only 10-12 sperms/hpf	Only 8-10 sperms/hpf
Motility	0	0	0	2-3 %
Pus Cells	Numerous/ hpf	25-30/ hpf	40-45/ hpf	10-15/ hpf
RBC	1/ hpf	0/hpf	0/ hpf	2-3/ hpf

Table No. 2 - Treatment Protocol

S.No.	Procedure	Days
1	<i>Sadyosnehapana & Svedana</i>	1 st , 2 nd , 3 rd day
2	<i>Virechana</i>	4 th day
3	<i>Samsarjana Krama</i>	5 th , 6 th , 7 th day
4	<i>Niruha Vasti</i>	8 th , 9 th , 10 th day
5	<i>Uttara Vasti</i>	11 th , 12 th , 13 th day- Uttara Vasti 14 th , 15 th , 16 th day- No procedure 17 th , 18 th , 19 th day- Uttara Vasti

Drugs & Formulations

- *Sadyosnehapana – Goghritam*
- *Virechana – Avipathi Churnam*
- *Niruha Vasti – Ardhamatrika Vasti*
- *Uttara Vasti – Mridwikadi Ghritam*

Procedure -

⇒ **Sadyosnehapana & Svedana**

- After ensuring the *agnideepthi Sadyosnehapana* with plain *Goghrita* was given for initial 3 days.
- During *Sadyosnehapana* patient was advised to take plain *Goghrita* (50ml) twice a day with rice porridge.
- Along with *Sadyosnehapana*, *Sarvanga Ushma sveda* was done for 3 days.

⇒ **Virechana**

- After *Sadyosnehapanam*, on the 4th day *Virechana* with *Avipathi choorna* (10-20 g) according to *kostha* was given in the morning at 9 AM in empty stomach.

⇒ **Samsarjana Krama**

- After *Virechana karma*, the participant was advised to follow a strict diet schedule (1-3 days) according to *kostha shuddhi*. This *samsarjana krama* is followed for attaining proper digestive power.

⇒ **Niruha Vasti**

- After *samsarjana krama*, *Niruha Vasti* was administered for 3 days with *Ardhamatrika Vasti*.

⇒ **Uttara Vasti Procedure**


- In the *Poorva Karma* of *Vasti*, *Sthanika Snehana* was done with *Tila Tailam* followed by *Svedana*.
- The patient was advised to have breakfast around 8.00-8:30 AM.
- A course of *Uttara Vasti* for 3 consecutive days with *Mridwikadi Ghrita* in a dose of 24ml, 36ml and 48ml was administered around 10 AM followed by rest for 3 days.
- Again, a course of *Uttara vasti* for 3 days with

Mridwikadi Ghrita in a dose of 24ml, 36ml and 48 ml was administered.

- Strict aseptic precautions were maintained throughout the procedure.

Follow up and Outcomes

Semen Analysis Report after Treatment -



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MRD # : SC-129756	Bill Date : 02/08/2023 11:57AM
Lab Code : SC-129756	Bill No : 015043
Doctor : Dr. OUTSIDE REFERENCE	Age & Sex : 26Y Male
	Result Date : 02/08/2023 02:47PM

Test Name	Result	Normal Value
SEMEN ANALYSIS		
VOLUME	1.5 ml	
COLOR	OPAQUE GREY	
REACTION	ALKALINE	
LIQUIFACTION TIME	35 MINUTE .	
TOTAL SPERM COUNT	14 million/ml	20-200 million/ml
ACTIVELY MOTILE	10 %	
SLUGGISH MOTILE	30 %	
NON-MOTILE	60 %	
PUS CELLS	15-20 /hpf	
RBC	0-1 /hpf	
NORMAL	95 %	
IMMATURE	02 %	
PIN HEAD	01 %	
DOUBLE HEAD	01 %	
OTHER ABNORMAL	01 %	

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Date - 02/08/2023



www.hnc-hospitals.com

MRD # : SC-131975	Bill Date : 11/09/2023 10:49AM
Lab Code : SC-131975	Bill No : 021127
Doctor : Dr. OUTSIDE REFERENCE	Age & Sex : 26Y Male
	Result Date : 11/09/2023 01:35PM

Test Name	Result	Normal Value
SEMEN ANALYSIS		
MACROSCOPIC EXAMINATION		
VOLUME	1.5 ml	
COLOR	OPAQUE GREY	
REACTION	ALKALINE	
LIQUIFACTION TIME	35 MINUTE .	
MICROSCOPIC EXAMINATION		
TOTAL SPERM COUNT	15 million/ml	20-200 million/ml
MOTILITY		
ACTIVELY MOTILE	14 %	
SLUGGISH MOTILE	36 %	
NON-MOTILE	50 %	
PUS CELLS	15-20 /hpf	
RBC	0-1 /hpf	
MORPHOLOGY		
NORMAL	95 %	
IMMATURE	01 %	
PIN HEAD	01 %	
DOUBLE HEAD	01 %	
OTHER ABNORMAL	02 %	

Verified By: [Signature] 11/9/2023
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Date - 11/09/2023

Table no. 3 - Semen Analysis After Treatment

Date	02/08/2023	11/09/2023
Volume	1.5 ml	1.5 ml
Colour	Opaque Grey	Opaque Grey
Reaction	Alkaline	Alkaline
Liquefaction Time	35 minutes	35 minutes
Total Sperm Count	14 million/ml	15 million/ml
Motility	Actively Motile – 10 %	Actively Motile – 14 %
	Sluggish Motile – 30 %	Sluggish Motile – 36 %
	Non-Motile – 60 %	Non-Motile – 50 %
	Normal – 95 %	Normal – 95 %
Morphology	Immature – 02 %	Immature – 01 %
	Pin Head – 01 %	Pin Head – 01 %
	Double Head – 01%	Double Head – 01%
	Other Abnormal – 01%	Other Abnormal – 02%
Pus Cells	15-20 / hpf	15-20 / hpf
RBC	0-1/ hpf	0-1 / hpf

Outcomes -

- Patient was hospitalized for 19 days for both internal and external panchakarma procedures.
- After 19 days of treatment patient was discharged. The patient received education about his condition upon discharge. He was told to stay away from meals and activities that might interfere with his treatment and follow up for three months.
- After one month of treatment, patient's semen analysis showed almost normal sperm count, motility of the sperms also got better and morphological features of the sperms were normal.
- After 72 days of treatment also, patient semen analysis was having normal sperm count, normal morphological characteristics and motility of the sperms also got better than last report.

Each examination has been carried out again and showed no anomalies during follow up visits.

7. Discussion

Klaibya / Vandhyatva is another term for male infertility that can also refer to impotence, or the inability to conceive, *shukra kshayaja klaibya* or *ksheen shukra* to oligoasthenoteratozoospermia (OAT). A thorough treatment plan was designed for the current case while taking into consideration all of these effective ayurvedic treatment approaches. Here for this case a treatment plan for *shodhana* procedure was planned initially followed by *uttara vasti* procedure for 6 days.

Sodhana procedures before administering *Uttara vasti* has a cleansing action. The cleansing action of *sodhana poorvaka uttara vasti* clears the genital passage and restores the sexual functions and helps in treating *shukra dusti*/semen abnormalities.

The principle behind the treatment of any *ksheena dhatu* is administration of *dravyas* which are having similar

qualities of that dhatu (Ch.Su.1/51). So appropriate *sodhana* followed by *Uttara vasti* nourish all the dhatus and ultimately contribute to the *shukra* dhatu as well as boost sperm production. It might be because the *uttara vasti*, when performed with *mridwikadi ghrita* and the *sodhana* protocol, has *vrushya*, *brimhana*, *shukra vardhaka* properties, which improve the nourishment of the *shukra dhatu* and keep it in optimal condition.

Here *calaguna ksayam* and *snigdha manda avrtam* of *shukradhatu* is seen. The different clinical presentation of a same pathological process occurs according to the affliction of the vitiated *vata* on the various structural and functional attributes of *shukra*. Here aggravated *vata* afflicts the quality of *shukra*. Thus, they become weak and non-motile. So proper *sodhana* followed by *Uttara vasti* that nourish all the dhatus and so ultimately *shukra dhatu* and also increase the motility of the sperm.

Abnormal morphology is related with *vakrata* caused by *vata prakopam*. The *visama vayu* is treated with drugs that alleviates *vata* and also act on *shukra vaha srotas* and *shukra janana kriya*. This could be the result for a change in the *dhatuposhana prakriya*, which would keep the *shukra dhatu* in its original state.

Ksheenashukra is a *vata pitta janitha dhatu kshayakara vikara* in which both *vata* and *pitta* are vitiated due to their respective *ushana*, *tikshna guna* and *ruksha*, *khara*, *laghu gunas*. Therefore, *snigdha*, *sheetha*, *mrudu*, and *guru guna* should be utilised in the context of *ksheenashukra* treatment. In *shukravikara*, *Mridwikadi Ghrita* is especially mentioned by classical text. Analysing the ingredients in *mridwikadi ghrita* reveals that each one of them have a unique effect on *shukravaha srotas*. All of the drugs listed in *Mridwikadi ghrita* are *vata pitta shamana* and have *vrishya*, *balya*, *jeevaneeya* and *shukra vardhaka* qualities, which entirely supports to treat the underlying cause of this specific ailment.

Patient perspective

The patient was very happy to see that the changes in the semen analysis levels had reversed and was pleased with his treatment plan. He feels confident enough now to do regular, everyday tasks. In addition to curing him, the treatment enhanced his quality of life.

Conclusion

The WHO International Classification of Diseases (ICD)-11 defines infertility as "A disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse." Infertility is an indeterminate worldwide issue that affects humanity. Not having offspring's is considered as curse for couples in our society. Most of the diseases which are having poor prognosis by allopathic treatment have great hope in Ayurveda.

Thus, an ayurveda treatment protocol resulted a very effective in this case of oligoasthenoteratozoospermia (OAT). After three weeks of treatment, we were able to manage oligoasthenoteratozoospermia (OAT), which is a promising and appealing outcome for this case study.

Informed consent

The patient's informed consent was obtained for this.

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