

Efficacy of *Amalaki Churna* in the management of Oligozoospermia- A Case Study

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ABSTRACT:

Infertility cases are the major burning issue in the modern world, which is affecting people's emotional and social well-being on a global scale. One pair in every 6 couples encounters infertility during their life. Infertility in men is 7%. Worries and tensions have a significant impact on a person's overall health in today's technologically advanced society, along with changes in diet and lifestyle. These factors have a negative impact on the lifetime and quality of the sperm produced. It's time to investigate reproductive aids derived from traditional medicines. Oligozoospermia is a condition when a man's sperm count in his semen is below 15 million/ml. In classics, the situations described under *Kheena Shukra* -vitiating of *Shukra Dhatu* (reproductive fluids) by *Vata* and *Pitta* Dosha. Here a case of 27-year-old, healthy male patient visited the OPD of Kayachikitsa with complaints of unable to conceive her partner even after having 4 years of married life. Semen analysis of this patient revealed a low sperm count 4 million/mL with no other abnormalities. This patient was treated with *Virechana* and followed by administered *Amalaki Churna* 3 gm twice a day morning and evening empty stomach with 1 cup of luke warm milks for 6 weeks. After this treatment, sperm count increased to 35 million/ml. The detail of this case highlights the role Ayurveda modalities in the management of oligozoospermia.

KEYWORDS: Amalaki Churna, Ayurveda, *Embelica officinalis*, Infertility, Oligozoospermia, Shukra Kshaya, Virechana.

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INTRODUCTION

Worries and tensions have a significant impact on a person's overall health in today's technologically advanced society, along with improper diet habit and lifestyle modification. These factors have a negative

impact on the male reproductive system includes seminal parameters. Infertility is defined as the failure of a couple to achieve a clinical pregnancy with regular unprotected sexual intercourse after 12 months or more^[1]. An average of 8% to

12% of couples worldwide experience infertility, making it a problem of global importance^[2]. According to the available data, male factors are also fully to blame for infertility in about 20% of couples and contributory in another 30–40%; male factors are inherently implicated in more than 50% of couples trying for a child^[3]. Although there are other treatments including hormone therapy, intrauterine insemination, test-tube babies, they are not always affordable and there is no surety. Herbal and herbo-mineral drugs of Ayurveda comes with successful management for infertility that works for complex infertility issues. That is the reason today to explore Ayurveda remedies to treat this type of condition^[4]. A low sperm count where a man has fewer than 15 million per millilitre of semen is called oligozoospermia^[5]. Ayurveda also provided in-depth explanations of infertility, its causes, pathophysiology, and treatments under *Vajikarana*(aphrodisiac) one of the branches of Ayurveda. Disorders like *Shukra Dosha* and *Shukra Doshjaj Kliabya*, *ksheena Shukra*, *Alparetasa* can be compared to infertility^[6]. According to classics excessive intake of sour, salty, bitter taste diet, excessive coital activity, stress, disturbed sleep are the primary factors can affect the seminal parameters^[7]. Apart from medicine and yoga, *Rasayana* (rejuvenation) and *Vajikarana* (aphrodisiac) are equally significant in the present day. *Vajikarana* (aphrodisiac) is a therapy that permits one to engage in sexual activity with women and provides sexual stimulation. Creating healthy offspring is *Vajikarana*(aphrodisiac) therapy's main goal. *Vajikaran Dravya* has an impact on *Shukra Dhatu* (reproductive fluid) and raises the amount of sperm that results in healthy offspring after proper bio-cleansing of the body. In the present case study, a patient suffering from Oligozoospermia has been treated with

Virechana(purgation) procedure followed by administration of *Amalaki churna* for 6 weeks.

CASE REPORT:

A 27-year-old male patient from New Delhi's urban lower middle class visited CBPACS' Kayachikitsa OPD and complained of being unable to conceive his partner since 4 years of his married life. After a thorough history was taken, Patient was asked to do semen analysis. The report came with sperm count 4 million/ml. The patient was asked to report for 3 times following 3 days without having a sexual act. After examination and a thorough history-taking, the patient was diagnosed with *Ksheena Shukra* (Oligozoospermia). Patient was treated with *Shodhana* (Purification) therapy followed by *Shaman Chikitsa*(palliative treatment) for 6 weeks.. After that again semen analysis was done and with the advice of diet and lifestyle modification the patient was kept under observation for further period.

The patient had been married for 4 years and had been having active, normal sex without the use of a contraceptive for 3 years. The endocrinological and clinical evaluation of the patient's wife revealed her to be fully healthy. Despite having frequent, unprotected sex even on the 12th to 18th day of her menstruation for the previous 3 years, she had never been able to get pregnant. The patient had habit of smoking since 4 years and was also a habit of drinking alcohol occasionally. When questioned, the patient admitted to eating a lot of oily, spicy food and excessive salt. The patient was employee in the iron making meal by profession. Gonadal trauma, orchitis, Mumps, hydrocele, tuberculosis, or any other long-term attenuating diseases or fatal illnesses were not listed in the patient's medical history. He had no prior surgical history, such as herniorrhaphy or

vasectomy, and he had never taken any gonadotoxic medications. The patient has no history of premature ejaculation and erectile dysfunction. The male patient's sperm count, morphology, and motility were the only variables that changed. Following a proper 3-day abstinence, the patient was encouraged to have his semen evaluated. Prior to beginning the medication, The semen examination report revealed a sperm count of 4 million/mL. 4-5 pus cells, no epithelial cells and no RBC cells.

Examining the patient revealed no pallor, a coated tongue, and a non-vegetarian diet. The patient had disturbed appetite and often enjoys a diet high in salt and spice. Constipation was reported along with other abnormal bowel habits. The patient had disturbed sleep, and they urinated 5-6 times throughout the day and 1-2 times at night. The patient was suffered from stress and tension due to not having a child after 4 years of married life.

Methodology/Therapeutic intervention:

The details of methodology and treatment plan is depicted as below.(Table no 1)

The patient was instructed to consume gruel, milk, milk products, and cow ghee as part of a regular diet. The red type of rice, wheat, , *Kushmanda(benincasa hispida)*, banana, Phoenix sylvestre, coconut milk, supernated part of buttermilk, Sharkara, castor oil, honey, and old jaggery were also recommended for him to eat. Additionally, the patient was instructed to do massage over body regularly practise yoga, Surya Namaskar, light workouts, and meditation^[8].

The patient was instructed to limit their intake of *dolichos biflorus*, cicer arietinum, salt,pungent,bitter and other strong flavours in their regular diet. The patient should request that stress, anxiety, excessive exercise, excessive sexual activity, and the control of natural urges to be avoided.

Table1-Timeline:

April 2018	Married
April 2018-2022	Unable to conceive her partner
May 2022	Repetitive clinical and endocrinological examination of wife was done and found normal
June 2022	First visit in CBPACS, Kayachikitsa OPD
July 7 2022	Investigate for semen analysis and report came with 4 million/mL sperm count
July 8 2022	Treatment started with 3 days of <i>Deepana - Paachana</i> with <i>Haritaki churna</i> and <i>shunthi churna</i> 2gm before food with luke warm water
July 11 2022	<i>Snehapan</i> started with Phala Ghrita for 5 days in increasing dose as per Agni and Koshtha of patient
July 16 2022	<i>Sarvang Abhyang Swedan</i> was done with Bala Taila for 3 days
July 18 2022	<i>Virechana</i> was done with <i>Triphala Kwath</i> 100 mL, and <i>Trivrat Avleha</i> 60 g, <i>Madhyam</i> type of <i>Shudhi</i> (16 Vegas) done at the day of <i>Virechana</i> followed by <i>Samsarjana Krama</i> according to <i>Shuddhi Samsarjana Karma</i> (postprocedure of dietetics and behavioral restriction) done for 5 days
July 23 2022	Adminstration of <i>Shamana</i> drugs <i>Amalaki churna</i> 3 gm with 300 ml milk half an hour before meal twice a day
September 9	Investigate for semen analysis and report came with 35 million/mL sperm

2022	count
October 11 2022	Patient's wife first UPT test was found positive after 10 days of her missed menstruation

Table-2: Before and after semen analysis report

Seminal Parameters	Before Treatment	After Treatment
Physical Examination		
Volume	3 ML	2.5 ml
Colour	Milky white	Milky white
PH	Alkaline	Alkaline
Liquefaction time	30 mins	30 mins
Microscopic Examination		
Total Count	4 Million/CC	35 Million/CC
Sperm Motility		
Active Motile	Nil	50%
Sluggish Motile	Nil	35%
Non Motile	Nil	15%
MORPHOLOGY		
Normal	NIL	70%
Abnormal	NIL	30%
Pus cell	4-5/HPF	1-2/HPF
RBC's	NIL/HPF	NIL/HPF
Eepithelial cell	NIL/HPF	NIL/HPF

GANGA DIAGNOSTIC CENTRE
C-33, Ground Floor, Rajan Babu Road, Adarsh Nagar, Delhi-110033

Date: 07/07/2022
Sri No. 13
Age: 27 Yrs. Sex: Male

SEMEN EXAMINATION
SEMEN ROUTINE & MICROSCOPY

PHYSICAL EXAMINATION
VOLUME: 03 ML
COLOR: MILKY WHITE
PH: ALKALINE
LIQUEFACTION TIME: 30 MINUTES
DEPOSITS: NIL

MICROSCOPIC EXAMINATION
TOTAL COUNT: 04 MILLION / CC (50-100 MILLION/CC)
SPERM MOTILITY: NOT APPLICABLE
MORPHOLOGY: NOT APPLICABLE
PUS CELLS: 4-5 / HPF
RBC'S: NIL / HPF
EPITHELIAL CELLS: NIL / HPF

NOTE: Motility has been interpreted as the percentage of sperms showing ACTUAL PROGRESSIVE MOTION.

GANGA DIAGNOSTIC CENTRE
C-33, Ground Floor, Rajan Babu Road, Adarsh Nagar, Delhi-110033

Date: 08/09/2022
Sri No. 4
Age: 27 Yrs. Sex: Male

SEMEN EXAMINATION REPORT
SEMEN ROUTINE & MICROSCOPY

PHYSICAL EXAMINATION
VOLUME: 2.5 ML
COLOR: MILKY WHITE
PH: ALKALINE
LIQUEFACTION TIME: 30 MINUTES
DEPOSITS: NIL

MICROSCOPIC EXAMINATION
TOTAL COUNT: 35 MILLION / CC (50-150 MILLION/CC)
SPERM MOTILITY: 50% ACTIVE MOTILE, 35% SLUGGISH MOTILE, 15% NON MOTILE
MORPHOLOGY: 70% NORMAL, 30% ABNORMAL
PUS CELLS: 1.2 / HPF
RBC'S: NIL / HPF
EPITHELIAL CELLS: NIL / HPF

NOTE: Motility has been interpreted as the percentage of sperms showing ACTUAL PROGRESSIVE MOTION COLLECTION AT LAB SIDE.

**** End Of Report ****

LAB TECHNICIAN: B.Sc. MET (PATH)
Dr. S.K. GUPTA, MBBS, MD, Consultant Pathologist

Figure 1: Before treatment Semen Analysis **Figure 2: After treatment semen analysis**

RESULTS:

After performing *Virechan* (purgation) followed by internal administration of *Amalaki churna* with milk result of this case report show an increase amount of sperm count from 4 million/mL to 35 million/mL.[Figure 1-2](Table no-2)

DISCUSSION:

The Ayurvedic classics make it very clear that *Panchkarma* therapies should be used to properly cleanse the body before using Ayurvedic medication to treat infertility and sexual disorders^[9]. It facilitates the flow of substances through the body, boosts drug bioavailability, and enhances the impact of medication. This attempt at *Virechana Karma* (therapeutic purgation) before administering any medication done as a result.

Effect of Virechana karma

The efficacy of *Shodhana Karma* (bio cleansing therapy) is noted in the texts of Ayurveda as disease is cured and normal health is restored by the administration of these therapies; the sense organs and the mind are clear; he acquires strength, plumpness, procreation, and virility^[10]. *Shukra* enhanced qualitatively and quantitatively with the *Shodhana* method^[11]. *Vata* and *Pitta* are the two most vitiated *Dosha* in *Ksheen Shukra*. To remove the vitiated *Pitta Dosha*, *virechana* (purgation) is used. Additionally, it eliminates *Srotoras Avrodha* and initiates *Dhatu's* conversion through *Dhatvagni Vyapara*, resulting in the formation of the most costly *Shuddha Shukra*. The entire process helps to eliminate free radicals (oxidants) that are present in the *Shukra Vaha Srotasa* (~channels carrying reproductive tissues) microcirculatory passage which interfere with the function of *Shukra*. This increases the activity of *Shukra* (motility), as well as *Shukra Vaha Srotasa* (channels carrying reproductive

tissues) and the respective *Dhatwagni* (metabolic factor located in *dhatu*), which makes it easier to produce more *Shukra Dhatu* (volume, count). Acharya Kashyapa has mentioned the role of *Virechana Karma* (purgation) for the *Shukravaha Srotoshodhana*, purification of the *Beeja* (sperm), as it makes *Beeja* effective in achieving fertilization. It additionally improves sexual vigor and aids in accomplishing sound progeny. A vital modality and outstanding bio-cleansing method for vitiated *Pitta Dosha* is *virechana.Srotoshudhi* (cleaning of channels) can be achieved through *Shodhana*^[12].

Deepana (enhancing metabolic fire) and *Pachana* (enhancing digestion) with *Haritaki churna* and *Sunthi Churna* induces *Deepana* and *Pachana* that corrects *jatharagni* (metabolic factors located in digestive tract) as well as *dhatwagn* (metabolic factors located in *Dhatu*). This induces *uttarottara dhatu* formation from *rasa dhatu* to *shukra dhatu*. In classics, *Phala Ghrita*^[13] has been indicated in the management of *Shukra Dosha* and has been attributed as *Ayushyam*, *Paushtika*, and *Pusanvana Karma*. Also, a clinical trial especially effects of *Phala Ghrita* in the management of *Oligozoospermia* has been done with significant results^[14].

According to classics *Amalaki* (*Embelica officinalis*. Gaertn.) has properties of *Vrishya* (promoter of spermatogenesis) and *Rasayana*^[15]. The chemical constituent of *Amalaki* is gallic acid, flavonoids (quercetin), chebulagic acid and it is richest source of vit -c^[16]. Oxidative stress is when levels of reactive oxygen species (ROS) reach harmful levels in the body. There's also some evidence that oxidative stress and excessively high levels of ROS may lead to infertility in men. Taking in enough Antioxidants, such as vitamin C, may help

counteract some of these harmful effects. There's also some evidence that vitamin C supplements may improve semen quality. The natural antioxidants with free radical scavenging ability has potential to treat oxidative stress. Antioxidants can directly scavenge ROS, inactivate them.

A study in infertile men showed that taking 1,000-mg vitamin C supplements twice a day for up to 2 months increased sperm motility by 92% and sperm count by more than 100%. It also reduced the proportion of deformed sperm cells by 55%. Vitamin C supplements also significantly improved sperm count and motility, while reducing the numbers of deformed sperm cells^[17].

An study with group of male Wistron rats treated with quercetin shown that there is improvement in sperm quality (viability, motility, and concentration). Quercetin has improve effect on plasma gonadotrophin especially on ICSH. ICSH stimulates Leydig cell to produce testosterone hormone and acts on FSH which stimulates Sertoli cells to synthesis androgen binding protein which carries Testosterone to the target sites in the spermatogonia and epididymis for development and maturation of sperm^[18].

CONCLUSION:

To sum up, our study demonstrated that sperm motility and count improved in male infertility patients with idiopathic Oligozoospermia with treatment based on Ayurvedic principles. To obtain more conclusive results, it may be a field of study and support for larger, more rigorous studies like randomised control trials. One of Ashtanga Ayurveda's eight primary specialties is Vajikarana, also known as *Vrishya Chikitsa*. Ayurvedic treatments can help infertile patients have fertile offspring.

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