



Case Study

AN AYURVEDIC APPROACH IN THE MANAGEMENT OF FEMALE INFERTILITY CAUSED DUE TO UTERINE FACTOR

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ABSTRACT

Infertility due to multiple factors is one of the predominant health issues faced by married couples nowadays. It is common in 10-15% of couples. Both male and female factors contribute to the infertility. Ayurvedic approach is helpful in these steps to improve the overall health of the women. *Shodhana* therapy like *Virechana* and *Basti* work as the *Garbha Adhana Shodhana* procedure in the female and brings the *Doshas* in the *Sama Avastha* which will eventually help in conception. **Materials and Methods:** The case presented in the study is of a married couple who have been anxious to conceive for 9 years. She was started on Ayurvedic *Shamana* therapy to regularize her menstrual cycles last year. Later, she was admitted to the IPD for the *Virechana* and *Yoga Basti* procedure. **Results:** During the treatment, the patient regained regular menstrual cycles. She also has initiation of regular ovulation and has improvement in endometrial proliferation and layering. **Conclusion:** It is a case of infertility that includes multiple female factors such as uterine fibroids, uterine synechiae, irregular menstrual cycles, anovulation, and low AMH levels. Based on the parameters of Ayurvedic science this case was diagnosed as *Vandhyatwa* (infertility) The treatment included *Shamana* therapy to suppress the vitiated *Vata* and *Kapha Dosha*, and *Shodhana* to improve the *Stroto Shuddhi* for ovulation indication and adequate formation of endometrial layering. Hence, Ayurveda treatment can be used in patients with infertility with better outcomes.

INTRODUCTION

Infertility is one of the predominant health issues faced by married couples nowadays. Infertility is defined as the inability to conceive after 1 year of uninterrupted intercourse of reasonable frequency^[1]. It is common in 10-15% of couples^[2].

In Ayurveda, authors have included *Ritu* (ideal time for conception), *Ksetra* (physiologically adequate and healthy internal organs of reproduction), *Ambu* (the proper nutrition to fetus) and *Bija* (healthy gametes) among the important factors of formation of *Garbha*. Abnormality in any of these can cause infertility^[3].

Acharya Kashyapa has explained *Rutu Kala* as the *Beeja Kala* which is a period of ovulation^[4]. Well-functioning both anatomically and physiologically represents *Kshetra* and a well-prepared endometrium for implantation. *Beeja* refers to *Antahpushpa*^[5].

Acharya Charaka says "*Vayu Yantra Tantra Dharah*" in *Vatakalakaliya Adhyaya*^[6] which means *Vata Dosha* controls all the physiological activity of the body in the context of female reproductive system. Acharya Vagbhata describes that when *Beeja* is in *Pushpibhuta*, its *Pravartana* occurs every month^[7]. The most important function of *Vata* is *Vibhajan* which is *Vayu Vibhajati*^[8].

Kshetra i.e., uterine factors such as congenital anomalies, fibroids, polyps, uterine synechiae, inadequate secretory endometrium and tubercular endometritis contribute for the ineffective nidation and growth of the fertilized ovum^[4]. Uterine leiomyomas can interfere with implantation leading to infertility and more commonly causing recurrent

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pregnancy loss^[9]. Surgical management in some cases may sometimes cause adhesions, tissue reactions, infection, or irregular uterine bleeding^[10] during the healing of the endometrium and the muscle layers of the uterus. These adhesions or uterine synechiae formed usually post-abortion and post-surgical intervention^[11]. These adhesions can be treated conventionally by adhesiolysis which may cause irregular scarring of the endometrium which may cause abnormal uterine bleeding due to irregular formation of the endometrium^[12]. The irregular menstrual bleeding caused due to these factors can be ovular or anovular^[13]. Due to such anovulatory menstrual cycles, the endometrium remain proliferative or, at times, hyperplastic. This results in insufficient stromal support and a fragile endometrium^[14]. This results in difficulty in implantation of the fertilized embryo. Additional therapy for endometrial proliferation may help to improve endometrial quality and thickness to aid in accurate nidation of the fertilized conceptus following such surgical procedures^[15].

However, Ayurvedic *Shamana* therapy includes medications to suppress the vitiated *Vata* and

*Kapha Dosh*a, and *Shodhana* therapies to improve the *Stroto Shuddhi* and encourage the formation of adequate endometrial as well as regularizing the irregular menstrual cycles. It also helps in initiation of ovulation for natural conception. In cases where multiple factors are present, treating infertility necessitates an integrative strategy^[16]. This case study consists of several of these factors which hamper her conception.

Patient Information

Case Report

A 36-year-old married female patient, obese-built, anxious to conceive for 9 years, presented to the OPD with chief complaints of irregular menstrual cycles with an increased interval between two menstrual cycles, mild abdominal pain, and body heaviness for one year. She had irregular menstrual cycles with an interval of 60-70 days between cycles lasting for 1-2 days with scanty bleeding. She also had moderate loss of appetite, sleep disturbances, tiredness, and dysmenorrhea. She denies any nausea, leg pain, or back pain during her menstrual cycles.

HPI: The history of present illness is as follows:

Table 1: History of present illness

Date	Event
At age 13 years	Menarche Had regular menstrual cycles since menarche with an interval of 30 days with 3 days of menstrual bleeding. K/c/o asthma and was on treatment since childhood.
17/03/2016	Diagnosed with multiple fibroids and underwent laparoscopic myomectomy for removal of right cornual subserosal pedunculated fibroid of 12 x 12 cm as well as left anterior intramural fibroid of 4 x 5 cm.
2017	Had multiple cycles of OI+ TI (ovulation induction-timed intercourse)
2017	1 cycle of IUI (Intrauterine insemination) through which she did not conceive.
08/2018	AMH assessment revealed very low ovarian reserve.
04/08/2018	Underwent embryo preservation with the donated ovum for further treatment out of which 13 eggs were retrieved with embryo formation out of which 5 were expanded blastocyst and 4 were hatching blastocyst.
06/08/2018	Underwent adhesiolysis hysteroscopy with endometrial curettage for fundal adhesions.
10/12/2018	Later she underwent ICSI with embryo transfer with the cryo-preserved embryo through which she conceived.
02/2019	Had a missed abortion at 8 weeks of gestation for which she had DNC (dilatation and curettage). She started experiencing irregular menstrual cycles after the missed abortion.
	After one month of DNC, she had amenorrhea for 2 months and started having Mepurate within 1 week and decreased menstrual bleeding of 1-2 days and irregular menstrual cycles of 30- 60 days.
02/2019- 08/2019	She was also diagnosed with NKB cell deficiency along with lupus anticoagulant being weakly positive during the assessment for the cause of the abortion and was started on HCQS for 6 months before planning her next embryo transfer.

12/2020	Embryo transfer planned on 24/2/2020. Health screening review revealed was found to have decreased endometrium thickness and presence of multiple fibroids as well as Candida infection. She was started on allopathic medications for the vaginal infection with benefits.										
01/2022 - 11/2022	Had Ayurvedic treatment for irregular menstrual cycles with benefits.										
12/2021	She later underwent Laparoscopic myomectomy with hysteroscopy with removal of 3 intramural fibroids, multiple subserosal fibroids, and a total of 16 fibroids varying from seedling fibroids to a maximum size of 6 cm.										
08/2022	She was again scheduled for embryo transfer which was postponed due to decreased endometrial thickness.										
06/2022-10/2022	She was then referred to PRP therapy and hormonal treatment for endometrial proliferation thickness. Had 4 cycles of PRP therapy as follows: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Date of PRP done</th> <th>ET Thickness</th> </tr> </thead> <tbody> <tr> <td>6/2022</td> <td>5.5 mm</td> </tr> <tr> <td>07/2022</td> <td>6.0 mm</td> </tr> <tr> <td>08/2022</td> <td>6.2 mm</td> </tr> <tr> <td>10/2022</td> <td>5 mm</td> </tr> </tbody> </table>	Date of PRP done	ET Thickness	6/2022	5.5 mm	07/2022	6.0 mm	08/2022	6.2 mm	10/2022	5 mm
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6/2022	5.5 mm										
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08/2022	6.2 mm										
10/2022	5 mm										
05/01/2023	She approached PTSR OPD for Ayurvedic treatment.										

The personal history of the patient is mentioned in Table no 2.

Table 2: Personal History

Diet	Vegetarian	Habits	None
Appetite	Moderate	Addiction	None
Bowel	Regular (1 time/ day)	Allergies	Groundnut, Corn, house dust mix, sunflower, house dust mite
Micturition	Normal	Height	149 cm (4 feet 11 inches)
Sleep	Sound	Weight	68 kg
Pallor	Absent	BP	130/90 mmHg
Cyanosis	Absent	Heart rate	72/min
Icterus	Absent	Temperature	Afebrile
		BMI	30.6 kg/m ²

M/H: Table 3 explains the menstrual history of the patient.

Table 3: Menstrual history

	7 years ago	After missed abortion
LMP		Irregular after missed abortion since 02/2019
Interval between cycle	28-30 days	45-60 days
Regularity	Regular after menarche	Irregular (was on Meprate and initially on estrogen and progesterone)
No. of days of bleeding	3 days	2 days
Quantity of flow	Moderate	Scanty
Flow	D1, D2: 3-4 pads, D3: 2-3 pads, D4: 1 pad	D1: 2 pads D2: spotting
Symptoms	Breast tenderness before menstrual cycle initiation +ve Clots -ve	Clots -ve Dysmenorrhea +ve Breast tenderness before menstrual cycle initiation +ve

Dysmenorrhoea -ve	Tiredness +ve
Tiredness -ve	Sleep disturbances +ve
Sleep disturbances -ve	Loss of appetite +ve
Loss of appetite -ve	

Reports: Blood reports Table 4: Dated 07/01/2023

HbA1c	6.10%	T3	1.20 ng/ml	Hb	13 gm/dl
AMH	0.13 ng/ml	T4	8.90 mcg/dl	RBC	4.7 million/cum
		TSH	3.21 mcIU/mL	Plt	3.20 laks/cumm
		Creatinine	0.76 mg/dl	WBC	8220 cells/cumm

Table 5: USG report

99. Report	Parameter	Date: 07/01/2023
USG Pelvis Abdo	Liver	Enlarged in size (18.8 cm)
	Kidneys	Right: 8.9 x 1.2 cm Left: 9.1 x 1.2 cm
	Urinary bladder	Partially distended, no evidence of diverticulitis.
	Uterus	Anterverted, normal size and shape 7.3 x 3.8 x 4.8 cm Multiple fibroids noted Posterior wall intramural fibroid: 1.9 x 1.2 cm Anterior wall intramural fibroid: 0.8 x 0.5 cm Tiny myometrial cysts are also noted.
	ET	6.8 with tiny cystic areas within. No abnormal vascularity within the endometrium.
	Right ovary	1.9 x 1.2 x 1.5 cm Vol 2.0 cc
	Left ovary	3.4 x 4.3 x 2.9 cm Vol 12.1 cc and shows simple cyst measuring 0.7 x 0.5 cm
	POD & Adnexa	Free
Impression		Small uterine fibroids Tiny cysts within the endometrium and myometrium Left ovarian simple cyst Small left para ovarian cyst Hepatomegaly with fatty infiltration of the liver

Diagnostic Assessment

On detailed evaluation of subjective and objective parameters patient was diagnosed with secondary infertility associated with uterine fibroid. From an Ayurvedic perspective, this could be considered as *Vandhyatwa*.

Therapeutic Intervention/Follow-Up

She was treated with the following medications for irregular menstrual cycles as mentioned in Table 6, 7. *Virechana* was planned with admission on 17/6/2023.

Table 6: Medications for irregular menstrual cycles

01/2022 11/2022	-	<i>Sukumara Kashayam</i>	20ml with 40ml of warm water half an hour before food	3 months
		<i>Kumaryasava</i>	20ml with 20ml warm water BD after food	3 months

Table 7: Virechana follow-up

	<i>Panchakola Paniya</i> 10gm in 1 litre of water		
	<i>Maha Shankha Vati</i>		1-1-1 before food
17/6/2023	<i>Utsadanam</i>	<i>Kolakulathadi churnam + Dhanyamla</i>	3 days
20/06/2023	<i>Snehapana</i>	<i>Kalyanaka Ghrita</i> 38 ml with 2 gm <i>Saindhava</i> 76 ml with 3 gm <i>Saindhava</i> 114 ml with 4 gm <i>Saindhava</i>	4 days
23/06/2023	<i>Sarvanga abhyanga</i>	<i>Mahanarayan tailam</i>	4 days
	<i>Bashpa Swedan</i>		4 days
26/06/2023	<i>Virechana</i>	<i>Trivritta Leha - 55 gm</i> <i>Sharkara - 10 gm</i> Warm water - <i>Anupana</i>	1 day

Patient had *Madhyama Suddhi Lakshanas* with 19 *Vegas* and followed by *Sansarjana Krama* for 5 days. Later, *Yoga Basti* was administered as per the following as mentioned in Table no 8 - Date of admission 05/08/2023.

Table 8: Yoga Basti procedure

<i>Niruha Basti</i>	<i>Erandamooladi Kashaya Basti</i> : The contents are as follows <i>Erandamooladi Kashaya</i> - 240ml Honey- 80ml <i>Saindhava</i> - 5gm <i>Murchita Tila taila</i> - 100ml <i>Shatapushpa churna kalka</i> - 30gm	6 days
<i>Anuvasana Basti</i>	<i>Dhanwantaram tailam</i> - 60 ml	9 days
<i>Sarvanga abhyanga</i>	<i>Mahanarayan tailam</i>	7 days
<i>Bashpa Swedana</i>		7 days

5/8	6/8	7/8	8/8	9/8	10/8	11/8	12/8	13/8
AB	NB	NB	NB	NB	NB	NB	AB	AB
	AB	AB	AB	AB	AB	AB		

On discharge medications prescribed are as follows:

<i>Kalyanaka ghrita</i>	½ tsp on empty stomach with hot water	3 weeks
<i>Varunadi Kashaya</i>	20ml with 40ml of warm water after food twice a day	3 weeks
<i>Anu taila</i>	1 drop in each nostril	3 weeks
<i>Vayu gulika</i>	1-0-1 after food	3 weeks

RESULTS

During the treatment, the patient regained regular menstrual cycles of around 28-30 days with 3-4 days of moderate menstrual bleeding. Menstrual cycles decreased from 60 days to 45 days to 30 days. Table no 7 explains the menstrual pattern change before and after treatment. She started having menstrual bleeding for 3-4 days and had a menstrual cycle for 30 days. Her dysmenorrhea and breast tenderness during the menstrual cycles resolved. Her body heaviness and sleep pattern was improved as opposed to disturbed sleep in the past. She was also able to manage her asthma symptoms without any medications compared to a consistent treatment regime since childhood. The patient also reduced weight and her appetite improved. The presence of ovulation was also seen after the treatment. There was a proliferation of the endometrial lining and layering was adequately formed. Table no 8 explains the improvement in the symptoms after treatment.

Table 8: Menstrual pattern changes after treatment

	7 years ago	After missed abortion	P/M/H	P/M/H	M/H
LMP		Irregular after missed abortion since 02/2019	16/05/2023	15/06/2023	17/7/2023
Interval between cycle	28-30 days	45-60 days	28-30 days	28-30 days	28-30 days
Regularity	Regular after menarche	Irregular (was on Meprade and initially on estrogen and progesterone)	Regular	Regular	Regular
No. of days of bleeding	3 days	2 days	3 days	3 days	4 day
Quantity of flow	Moderate	Scanty	Moderate flow	Moderate	Moderate
Flow		D1: 2 pads D2: spotting	D1- D3: 2 pads (Partially soaked)	D1, D2, D3:2 pads (Partially soaked)	D1, D2:3-4 pads, D3: 2-3 pads, D4: 1 pad
Symptoms		Clots -ve Dysmenorrhea +ve Breast tenderness before menstrual cycle initiation +ve Tiredness +ve Sleep disturbances +ve	Dysmenorrhea -ve	Clots -ve Dysmenorrhea -ve Breast pain - ve Diarrhoea, Nausea -ve	Dysmenorrhea (lower abdominal pain) +ve on D1 and D2 Diarrhoea -ve Breast pain - ve
		Loss of appetite +ve Nausea -ve leg pain -ve back pain -ve		Burning micturition - ve White discharge -ve P/V itching ve	Nausea -ve

After the treatment body weight of the patient reduced to 60 kg and the BMI was found to be 27 kg/m². Her menstrual cycle frequency improved substantially.

Table 9: Clinical comparison after treatment

Before treatment	After treatment
The interval between two cycles: 60-90 days	The interval between two cycles: 28-30 days
An increased interval between menses	The interval between menstrual cycles was normal
Irregular menses	Regular menses
Scanty menstrual bleeding	Moderate menstrual bleeding
Dysmenorrhea present	Dysmenorrhea absent
Breast tenderness before initiation of menstrual cycles	No breast tenderness before initiation of menstrual cycles
Body heaviness present	No body heaviness
Loss of appetite present	Has moderate appetite
Sleep disturbances present	Sleep pattern normalized
Fatigue present	Fatigue improved
Was on treatment for the management of asthma	Discontinued asthma medications as the patient did not have any asthma symptoms

Single layered endometrium	Triple-layered endometrium formation
Decreased endometrial thickness	Moderate endometrial thickness
Inadequate endometrial layering	Improvement in endometrial layering

The following changes were observed after treatment

	Before treatment	After treatment
Breast (cm)	93.9	90
Underbust (cm)	88.9	83
Hips (cm)	118	111
Waist (cm)	93.9	81
Mid arm (cm)	31.5	30
Mid-thigh (cm)	62	60
Weight (kg)	68	62

A follicular study done after the treatment revealed the presence of ovulation and triple-layered endometrium. Table no 9 reveals changes in the USG after treatment.

Table 10: Comparison of follicular study before and after treatment

Report	Parameter	Before treatment			After treatment		
Date		Date: 07/01/2023			Date: 29/08/2023		
Follicular USG	Uterus	Anterverted, normal size and shape 7.4 x 3.8 x 4.9 cm Multiple fibroids noted Posterior wall intramural fibroid: 1.7 x 1.2 cm Anterior wall intramural fibroid: 0.8 x 0.6 cm Fundal intramural fibroid: 22 x 17 mm			Anterverted, normal size and shape 7.3 x 3.6 x 4.7 cm Multiple fibroids noted Posterior wall intramural fibroid: 1.7 x 1.1 cm Anterior wall intramural fibroid: 0.8 x 0.5 cm Fundal fibroid: Not present		
	ET	6.4 (without any Triple layer)			5.4 (triple layered)		
	Right ovary	2.4 x 1.8 x 2.1 cm Vol 4.8 cc			3.2 x 2.2 x 2.2 cm Vol 8.4 cc		
	Left ovary	2.3 x 1.3 x 2.0 cm Vol 3.5 cc			2.2 x 1.5 x 1.9 cm Vol 3.5 cc		
	POD & Adnexa	Free			Free		
Ovulation	10 th day	Rt ovary follicle (mm)	Lt ovary follicle(mm)	ET (mm)	Rt ovary Follicle(mm)	Lt ovary follicle(mm)	ET (mm)
		14 x 12 2nd follicle present size not noted	3 x 2	6.4 (No layered zone)	17 X 14 13X 11	7 X 4	5.4 (Triple layered)
	12 th day	Rt ovary Follicle (mm)	Lt ovary Follicle(mm)	ET (mm)	Rt ovary Follicle (mm)	Lt ovary follicle(mm)	ET (mm)
		Ruptured	3 x 2	6.6 (Non layered zone)	Ruptured 13x 11	8 x 5	5.5 (Triple layered)
	14 th day	Rt ovary follicle(mm)	Lt ovary follicle (mm)	ET (mm)	Rt ovary Follicle(mm)	Lt ovary Follicle(mm)	ET (mm)
		-	-	-	Ruptured 13x 11	8 x 5	5.5 (Triple layered)

No other side effect of the medication has been noticed.

DISCUSSION

The diagnosis was confirmed as secondary infertility associated with multiple factors. According to Ayurveda, this disease is *Vandyatwa*. Acharya Charaka says that *Yoni Dosha*, *Mansika Dosha*, *Shukra Dosha*, *Asrika Dosha*, *Vihara Dosha*, *Akala Yoga*, *Bala Sankshaya* can be considered as the factors influencing fertility or causative factors of primary as well as secondary infertility^[17]. The *Nidana* attributed in this patient are *Mithya Ahara* and *Vihara*, *Adhyashana*, excessive intake of *Abhishyandi Ahara*, sedentary lifestyle leading to *Kapha Medo Dushti* and *Srotorodha*.

Acharya Sushruta has mentioned four essential factors to achieve the conception i.e., *Rutu*, *Kshetra Ambu* and *Beeja*. Any abnormality in these four factors interferes with the process of healthy conception and can be a causative factor of *Vandhyatwa*^[18]. The main reasons for *Vata* vitiation are *Strotorodha Dhatukshaya* and *Avarana*. On the other hand, vitiated *Kapha* causes *Apakti* which leads to *Ama* formation which is responsible for *Strotorodha* which further vitiates *Vata*. It also vitiates its *Ashraya Rasa Dhatu* and *Upadhatu Artava*. Thus, *Vata* and *Kapha* are the prime causes of formation of fibroids and anovulation.

Vitiated *Vata* etc., *Dosas* vitiating *Mamsa*, *Rakta* and *Medas* mixed with *Kapha* produce rounded, protuberant, knotty and hard swelling called *Granthi* due to its knotty or glandular structure. Here the movement of *Vata* especially *Apana Vata* got obstructed by the increased *Kapha* which in turn led to the formation of *Garbhashaya Granthi* and obstructed the natural functioning of *Arthava*. *Rasa*, *Rakta*, *Mamsa*, and *Medas* as considered as *Dooshya*. *Rasavaha*, *Raktavaha*, *Mamsavaha*, *Medovaha*, and *Artavavaha* are involved in the etiopathogenesis of the disease^[19]. The site of origin of the disease is *Koshtha* and the specific site of manifestation is *Garbhashaya* (uterus)^[20].

The function of *Vayu* is '*Pravartana*' i.e. expulsion. Because of this function, the ovum escapes from the ovary and ovulation takes place with the help of *Apana Vayu*. This also helps in the expulsion of the menstrual blood during *Rajaswala Kala*^[21]. The *Sthana* of *Vyana Vayu* is *Hrudaya*, which is considered the *Moola Sthana* of *Rasavaha Srotas* and *Upadhatu* of *Rasa* is *Artava*. *Vyan Vayu* performs the functions like *Gati* and *Rasa-Rakta Paribhramana*^[22]. If there is vitiation in *Vyana Vayu* it will lead to vitiation of *Rasa-Rakta Paribhraman* and this will affect the *Rasa Upadhatu* i.e., *Artava*. Hence if *Apana Vata* and *Vyana Vata* is vitiated it will ultimately result in the anovulation and inadequate formation of the endometrium.

Uterine fibroids managed by surgical intervention along with vitiated *Vata* and *Kapha Dosha*

further leads to formation of uterine adhesions in some cases. This formation of uterine adhesions leads to formation of inadequate endometrial layering and lining, hereby, causing irregular menstrual cycles. Also, *Apana Vata* and *Vyana Vata* vitiates ultimately resulted in the anovulation and inadequate formation of the endometrium. In Ayurveda, this condition can be correlated with *Agantuja Vrana* as it is formed due to formation of *Agantuja* causes.

According to Ayurveda disintegration of *Samprapti* (pathogenesis) is the way to treat any disease. In this case, we can consider *Kapha* and *Vata* as *Dosha*. The ultimate aim of the treatment was to release the obstructed *Vata* and to enable its normal functioning in the *Koshtha*, especially in *Garbhasaya*. The obstruction was because of the accumulated *Kapha* in the channels of *Vata* especially in *Arthavavavaha Srotas*. The treatment included *Shamana* therapy to suppress the vitiated *Vata* and *Kapha Dosha*, to improve the *Stroto Shuddhi* and to encourage *Artava Janana*. For *Avritta Apana Vayu* with *Kapha Dosha*, the treatment should be *Strotoshodhaka*, *Agnideepaka*, *Vatanulomaka* and *Pakvashaya Shuddhikara*^[23].

Sukumara Kashaya given during irregular menstrual cycles contains main ingredients like *Bael*, *Bhadra*, *Shatavari* and *Punarnav* help treat indigestion, intestinal spasms, abdominal pains, hernia, menstrual disorders, female infertility, PCOD, ovarian cysts and uterine fibroids. It controls ovarian and endocrine functions while reducing the circulation of androgens^[24]. *Kumari Aasava*, which is indicated in *Strotodushti*, *Daurbalya* also acts on ovaries to correct the endometrial function and induce ovulation. It may also influence female hormones and help in the treatment of disturbed menstrual cycles. It contains *Kumari*, *Haritaki*, and *Jatamansi* as main ingredients which exhibit hepatoprotective activity, help in the proper metabolism of hormones in the liver, improve digestion. It acts as *Vata Kapha Shamak* and *Pitta Vardhak*^[25]. *Snehana* and *Swedana* are the two *Upakramas*, which can be adopted for the management of *Vata Vyadhi* which helps to collect the vitiated *Doshas* from the *Shakha* to the *Koshtha*.

Kalyanaka ghrita was used for *Snehapana*. The majority of the drugs of *Kalyanaka Ghrita* have *Tridosha Shamaka*, *Dipana-Pachana*, *Vrishya*, *Rasayana*, *Yoni Doshahara*, and *Garbha Sthapaka* properties. *Ela*, *Talisa*, *Vidanga*, *Amalaki* etc have *Dipana*, *Pachana* and *Ama Dosha Nashaka* properties so they regulate *Jatharagni*, *Dhatvagani* and *Bhutagni* which corrects metabolism at a cellular level which helps in the proper formation of *Dhatu*s and *Upadhatu*s and *Stroto Shodhana* by removing *Ama*. *Triphala* and *Danti* have *Sara Guna* and *Virechaka* action that they regulate the *Dosha* by *Shodhna Karma*.

According to modern science, *Ghrita* is lipophilic, thus it diffuses rapidly across cell membranes which is also composed of bimolecular lipid matrix. *Ghrita* can also cross the blood-brain barrier and act on the central nervous system i.e., hypothalamus and pituitary gland and may correct hormonal imbalance. *Ghrita* contains cholesterol which is responsible for the synthesis of steroid hormones i.e. estrogen and progesterone^[26].

According to the *Shloka 'Vandhyanam Virechanam'*, *Virechana* works on the *Bahu Dosh* *Avastha* of the patient thereby improving the overall condition of the patient. *Trivrutta* being a *Sukha Virechaka*^[27] drug, is poorly absorbed from the GI tract and draws fluid into the intestine by osmosis causing intestinal distention and promoting peristalsis. Due to the predominance of *Prithvi* and *Jala*, the *Doshas* or morbid material get expelled through the downward tract^[28]. *Virechana* drug possessing *Vyavayi*, *Vikasi*, *Ushna*, *Tikshna* and *Sukshma* properties pervades the whole body through large and small *Srotas*. On virtue of its *Agneya* properties, it causes *Vishyandana* i.e., melting of the *Doshas* and by its *Tikshana Guna*, it can disintegrate the accumulated *Dosha*. Due to *Snehana*, *Dosha* smears easily without any hurdle and easily comes to *Amashaya* from where *Virechana* evacuates them^[29].

The *Anuvasana Basti*, administered through the rectum, can normalize the *Apana Vayu*, which aids in *Vata Anulomana* and the physiological function of *Vata*. This can help with the release of the ovum from the follicle and lead to ovulation. The *Basti Dravya* spreads throughout the body with the help of *Vyana Vayu*, leading to *Samyak Rasa-Raktadi Dhatu*. The *Sukshma Bhaga* of *Rasa* reaches the *Beeja Granthi*, which regularizes the *Beejotsarga* with the help of normal *Apana Vayu*^[30]. *Basti* stimulates the enteric nervous system (ENS) and generates stimulatory signals for the central nervous system (CNS). This causes stimulation of the hypothalamus for gonadotropin-releasing hormone (GnRH) and pituitary for follicle stimulating hormone (FSH) and luteinizing hormone (LH) with the aid of neurotransmitters^[31]. As mentioned by Charaka, *Erandamooladi Niruha Basti* is the most praised decoction for treating *Vata* disorders. *Erandamooladi Kashaya* contains *Erandamoola*, *Palasha*, *Laghu Panchamoola*, *Rasna*, *Ashwagandha*, *Guduchi*, *Punarnava*, *Aragwadha*, *Devadaru*, and *Madanphala* which brings back the *Vata* blocked by the *Kapha* or *Vata* vitiated by any other cause to a state of imbalance. It improves appetite, causes *Lekhana*, *Shoolhara* and relives *Mala Baddhata*^[32], *Dhanwantaram Tailam* has been included in the process of pacifying the *Vata*. A base of *Tila taila*, which is said the best to pacify *Vata* with its unctuousness and specific properties of

Vataharatwam. It also acts as *Brimhana* as it contains *Bala*, *Dashamoola*, *Kakoli*, *Ksherkakoli*, etc thereby nullifying *Vata*. The reason behind this could be *Vata* pacification through its action on *Vata* and as aromatherapy which activates the nervous system through peripheral nerve endings direct and indirect^[33].

*Anu taila*³⁴ contains *Shatavari*, *Ushira*, *Devadaru*, *Kamala*, *Madhuka*, *Tila taila*, goat milk, etc which works in *Vata Shamana* as it enters the *Shrigatak Marma* and enhances the *Indriyas*, *Gyan Indriyas* as well as *Karma Indriyas*. Nose is the gateway for the entire *Shiras*. In the disease, *Anu taila* cause *Vata Anulomana* by its *Sookshmasrotogami* property, *Brimhana* by its nourishing property and *Vata-Pittaharaha* property of *Anutaila* helps in *Samprapti Vighatana* of *Asthama*, and also reduces breathing difficulties^[35].

The symphony of the menstrual cycle is under the control of pituitary hormones which are situated at the base of the brain. *Nasa* is considered the gateway of *Sirah* i.e., the brain thus *Nasya* helps to regulate the hypothalamic-pituitary-ovarian axis and establishment of normal menstruation^[36].

Varunadi Kashaya mentioned in *Ashtanga Hrudaya* contains *Varuna*, *Sireyaka*, *Shatvari*, *Bilwa*, *Brihati*, *Pathya*, etc which is used for the treatment of *Kapha* aggravation. It works on obesity, polycystic ovarian disorder, cysts, and uterine fibroids as it shrinks cysts, tumours and fibroids. It is also useful in the treatment of bulky uterus, and painful menstrual cycles. It has cleansing and detoxifying properties^[37].

Vayu Gulika mentioned in *Sahasrayoga* contains *Trijata*, *Trikatu*, *Triphala*, *Ativisha*, *Jatiphala*, *Kantha*, *Yavak Kshara*, *Swarja Kshara* which balances *Vata* and *Kapha* at the level *Koshtha* and *Pakvashaya*. It is *Sarva Vyadhihara* in nature and is useful mainly in treating digestive and respiratory diseases. It is useful in the treatment of *Apachan*, *Aruchi*, asthma, rhinitis, cough, cold, bronchitis, and *Shoola*^[38].

Currently, the *Garbhashaya Gat Vrana* caused by surgical intervention is under treatment. She may also be planned for *Yoga Basti* after 3 months.

CONCLUSION

The objective of the present treatment included Ayurvedic management of irregular menstrual cycles, ensuring regular ovulation and thereby helping to develop healthy pregnancy and successful childbirth either naturally or through IVF procedure. Based on the parameters of Ayurvedic science this case was diagnosed as *Vandhyatwa* (Infertility) due to *Garbhashaya Granthi*, *Aniyamita Artava*, and *Artava Dosha*. The next step to focus on is endometrial proliferation to improve the chances of conception. Hence, Ayurveda treatment can be used in patients with infertility with better outcomes.

Informed Consent

Written consent was obtained from the couple for publication of their clinical details.

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