

AYURVEDIC MANAGEMENT OF INFERTILITY DUE TO REDUCED AMH -A CASE REPORT

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ABSTRACT

Infertility caused by low AMH results from an endocrinological imbalance. The rise in follicle stimulating hormone (FSH), decrease in Anti Mullerian hormone (AMH) and Antral follicle count (AFC) etc. can lower pregnancy rates to less than 5 % and increases miscarriage rates to more than 75%. Anti-Mullerian hormone (AMH) produced by granulosa cells of preantral and antral follicles acts as a potential marker for ovarian reserve useful in predicting ovarian response to controlled ovarian stimulation. Its strong correlation with follicle number and recruitment make it an attractive tool in infertility. Women undergoing *in vitro* fertilization (IVF) with low AMH has poor success rate and ultimately the couple is left with the only option of IVF with a donor egg. Ayurveda includes wide range of protocols and medicines for the management of Vandhyatva. Ayurvedic management gives a new hope in women by strengthening body's own self-healing and balancing mechanism and also helps to improve the quality of oocytes. Here by presenting the case of primary infertility with low AMH treated with shodhana yoga basti, followed by Matra basti and Uttara basti. The result of intervention was patient had conceived after the treatment.

KEYWORDS: Infertility, Shodhana, AMH, Basti.

INTRODUCTION

Infertility though not a physically disabling disorder has far reaching psychological and social consequences.^[1] The success rates of *in vitro* fertilization (IVF) techniques depend largely on the ovarian response at the time of oocyte retrieval which eventually reflects on the ovarian reserve.^[2] Anti-Mullerian hormone (AMH) is a promising marker of ovarian reserve that is produced by the granulosa cells of preantral and antral follicles.^[3] Reports suggest that patients with a diminished ovarian reserve have the only option of IVF with a donor egg.^[4] The clinical symptoms observed in the present case report resembles to *Dhatukshayajanya Vandhyata* (infertility due to depletion of body tissues), that has been already explained in Ayurveda. The role of an effective Ayurvedic treatment protocol to improve the AMH level to a satisfactory level to have a better response to ovarian stimulation. The present case report is an attempt on the same.

CASE REPORT

A female patient of age 29 years who is not a known case of Diabetes Mellitus, Hypertension, Thyroid Dysfunction and other systemic illness with Regular Menstrual cycle of 26-30 days and 4-5 days of menstrual flow with no clots and dysmenorrhea was apparently normal 4 years before. She started noticing dryness of vagina, severe pain during coitus for which she was unable to continue the coital act since 4 yrs of married life. She consulted near by hospital where investigations done in which AMH level was low (0.29ng/ml), FSH level was high (14.7mIU/ml), so they suggested for IVF treatment. Patient was not willing for the same. So she consulted Sri Kalabyraveshwara Ayurveda Hospital and Research Centre for further management.

Past history- No significant history.

Occupational history- Software engineer.

Family history- Her fathers sister attained menopause at 32 year of age and her mother, sister, cousins had premature ovarian failure and low amh levels.

Personal history

- Diet- VEGETARIAN
- Appetite- good
- Bowel- once daily, regular
- Micturition- 4-5 times/day
- Sleep- sound
- Habits- nothing specific

Menstrual History

- Age of menarche- 14 yrs
- D1- 2-3pads (fully soaked)
- D2- 3-4 pads (fully soaked)
- D3- 1 pad (halfly soaked)
- d4, d5- 1 pad (halfly soaked)
- Clots- ABSENT
- Dysmenorrhea - ABSENT
- Foul smell- ABSENT

Coital history

- Dryness- present
 - Dyspareunia- present
 - Husband had erectile dysfunction
- (Taken treatment for the same)

General examination

- Height-145cm
- Weight-55kg
- BMI- 18kg/meter square
- Pulse rate-72/mim
- Bp- 110/70mmhg
- Respiratory rate-18/min
- Temperature-98 degree farhenheit
- Tongue- no abnormality detected

Ashta sthana pareeksha

- NADI- 72/min
- MALA- Once dail
- MOOTRA- 4-5 times/day
- JIHWHA- Prakrita
- SHADHA- Prakrita
- SPARSHA- Prakrita
- DRIK- Prakrita
- AKRITI- Madhyama

Systemic examination

CVS- S1, S2 heard, no murmur
 CNS-Concious, oriented
 RS-B/L NVBS heard, no added sound
 P/A-Soft, non tender, no organomegaly

Per vaginal examination

Inspection of vulva

Pubic hair-Normal
 Clitoris-
 Labia-Normal
 Discharge-Nil

Redness-Absent

Swelling-Absent

Palpation

No palpable mass observed

Vaginal introitus- Narrow

Pinhole os

Nidana panchaka

AHARA-Katu, Rooksha Ahaara sevana

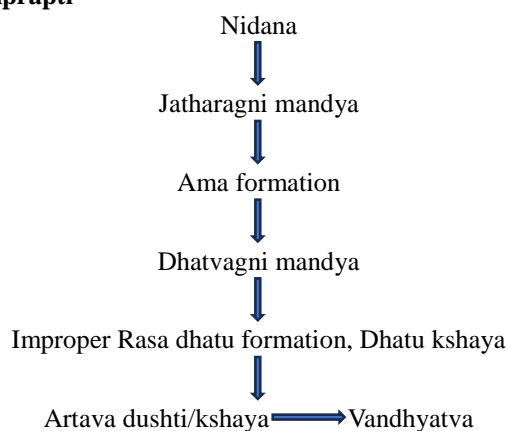
VIHARA-Nothing specific

ROOPA- Unable to conceive, Dryness and Pain in Vagina

UPASHAYA- Medications

ANUPASHAYA- Intercourse, excessive work.

Samprapti



Samprapti Ghataka

- Dosha- Vata Pradhana tridosha
- Dushya-Dhatu-Rasa

Upadhatu-Artava

- Srotas- Artavavaha, Rasavaha
- Srotodushti- Sanga
- Ama-Jatharagni, Dhatvagni janya
- Udbhava Sthana- Amashaya
- Sanchara Sthana- Garbhashaya
- Vyakta Sthana- Garbhashaya
- Adhishtana- Beeja Kosha, Yoni
- Vyadhi Marga- Abhyantara, Bahya
- Sadhya Sadhyata- Yapy Sadhya

Investigations

(15/6/22)

Hb%- 11.5g/dl

LH- 8.15mIU/ml

FSH- 14.7mIU/ml

RBS- 94mg/dl

TSH- 4.26mciu/ml

Serum Prolactin-19ng/ml

AMH- 0.29ng/ml

Follicular study(30/5/2022)

Uterus is normal in size measures 7*4.2*5cm

Myometrium shows normal appearance, no focal lesion seen
Both ovaries are normal in size

Right ovary measures-3.3*2.2cm
Left ovary measures- 3*2.3cm

Date	Date of cycle	Follicle in RO	Follicle in LO	ET	POD
30/5	12th	22*18mm	16*14mm	8.2mm	Nil
2/6	14th	28*14mm	17*14mm	8.9mm	Minimal fluid

Differential diagnosis- .Premature ovarian insufficiency, .Hypergonadotropic hypogonadism, Resistant ovarian syndrome, PID, Vulvodynia
Vataja yoni vyapath, Shushka yoni vyapath, Suchimukhi yoni vyapath

Diagnosis- Primary infertility due to decreased ovarian reserve

Apraja, Dhatu kshayajanya Vandhyatva due to Artava dushti

TREATMENT GIVEN

Date	Complaints	Treatment
18/6/2022 (LMP-14/6/22)	Complains of dryness in Vagina and severe pain during coitus	Yoni Abhyanga Yoni purnana Yoni pichu with Dhanwantaram Taila for 5 days
21/6/2022	Dryness, Pain reduced	1.Phalaghrita-1tsp-0-1tsp 2.Cap.Sujath-1-0-1 3.Stree Vyadhihara Rasa-1-0-1 for 10days
		Planned for Vamana Deepana Pachana with Agnitundi Vati-1-1-1(B/F)-1/7/22 Chitrakadi Vati-1-1-1(A/F)-2/7/22 Snehapana with Varunadi Ghrita- 25ml-3/7/22 75ml-4/7/22, 100ml-5/7/22, 150ml- 6/7/22, 175ml- 7/7/22 Sarvanga Abhyanga with Mahanarayana taila followed by bashpa sweda- 8/7/22 Vamana with Madana phala yoga on 9/7/22
16/7/22 (LMP-15/7/22)	Follow up	Auvasana Basti with Phalaghrita-75ml Niruha Basti with Dashamoola Ksheera Basti- Saindhava lavana-3g Madhu-60ml Taila- Mahanarayana Taila- 80 ml Kalka- Sarshapa kalka- 20g Shatavari kalka-20gm Kashaya- Dashamoola Kashaya- 150ml Ksheera- 100ml

DATE	COMPLAINTS	TREATMENT
11/8/22	Follow up	Planned for IUI as husband had erectile dysfunction

11/8	12/8	13/8	14/8	15/8	16/8	17/8	18/8	19/8	20/8	21/8	22/8	23/8
5 th day	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th
Anuvasana	A	Matra	Matra	Matra	Matra	Matra	IUI		IUI	Matra	Matra	Matra
	Niruha	Uttara	Uttara	U	U	Yoni purana	Y.P	Y.P	Y.P	Y.P	Y.P	Y.P

Follicular study after treatment

DATE	LH	FSH
15/6/22(Before treatment)	8.5Miu/ml	14.7Miu/ML
8/8/22(After treatment)		5.758mIU/ml

DATE	AMH
8/8/22	1.8ng/ml

DATE	COMPLAINTS	TREATMENT
7/10/22	Follow up	IUI done on 13/9/22 UPT +ve on 30/9/22 1.Cap.Repromed- 2-0-2(B/F) with warm water 2.Cap.Sujath- 1-0-1(A/F) for 1 Month

DATE	DAY	Rt Ovary Follicle in mm	Lt ovary follicle in mm	ET	POD	Remarks
16/8/22	10th	15*12	10*6	8.5	-	
18/8/22	12 th	18*12	10*6	9.7	-	
20/8/22	14th	20*15	10*6	11	-	
22/8/22	16 th	ruptured	10*6	11.3	++	

DISCUSSION

The value of AMH in detecting the ovarian reserve for an IVF cycle has begun to be better understood in the recent years. It is so unfortunate that donor egg IVF would be the last option of them who have a low AMH value with poor ovarian reserve. To satisfy the needs of the present situation, there should be a better understanding regarding the importance of *Garbha Sambhava Samagri*^[5], thereby generating better treatment options. Although the Ayurvedic approach to *Dhatukshayajanya Vandhyata*^[6] in terms of low level of AMH is gaining importance, the lacuna of effective research works based on the integrated medical approach still exists. The present disease entity with a close resemblance to *Dhatukshayajanya Vandhyata* can be traced out as an attributing female factor in association with the male factor for infertility.

The case presents with a *Vata Dosha Vikriti* (alteration of *Dosha*) progressing toward a *Dhatu kshaya*, thereby affecting *Artava Upadhatu* which was evident from the *Artavakshaya Lakshana*, considering *Artava* as Beeja and here reduced hormonal levels of the patient. The treatment protocol aims for a *Shamana* of *Vata Dosha* and correction of *Agni*, thereby creating equilibrium of *Doshas* in the *Madhyama Vaya* (middle age) *Avastha*. The *Dhatu Pushti* itself can be attributed for the physiology of *Artava*.

Oral administration of *Chitrakadi vati*^[7] having *Dipana* and *Pachana* properties helps in *Agni Vardhana* (enhancing digestive fire), which in turn corrects *Dhatu Parinama* (transformation of *Dhatu*), as *artava* is *upadhatu* of *Rasa Dhatu*. *Phalaghrita* owing to its *Vatahara*, *Dhatuwardhaka*, *Vandhyatvahari*, *Balya* and *Brimhana* properties helps in the improvement of *Artavaksaya* through *Dhatupusti*, thus creating a satisfactory improvement in the AMH value.^[8] Furthermore, Contents of *Varunadi ghrita* exerts potent anti proliferative, pro-apoptotic effects, there by decreasing the oxidative stress of cells, further rejuvenation of healthy cells^[9] *Vamana karma* adopted here, helps helps in *Nirharana* of *Soumya dhatu further helps* in attaining *Agni Dipti* and *Sroto Vishuddhi* (purification of channels) and hence supports the proper *Dhatu Parinama*^[10] *Dashamula ksheera basti*

is selected for *Asthapana basti*. It is *kaphavatahara*, *Lekhaniya Deepaneeya*. Further helps in *Srotoshodhana* and *Vatanulomana* action. *Anuvasana basti* with *Phalaghrita* adopted here helps in *Beeja Pushti*, as *Phalaghrita* is indicated in *Beeja dushti*. *Anuvasana basti* is directly indicated in *Alpa pushpa*, *Pushpa Nashta*, *Beeja Akarmanata*, considering reduced AMH levels.^[11]

CONCLUSION

The psychosocial stigma related to infertility has provoked the need for an ART in spite of the time-consuming, expensive, and stressful strategies. Lack of awareness regarding the efficacy of an integrated approach to medical intervention in such cases to proceed with a donor egg IVF technique has grown up as a great challenge to the physicians as well as patients. Ayurvedic line of management which includes *Shodhana*, *Shamana* helps in *Kshetra Shuddhi* and balancing hormones to build healthy progeny. Here the same had been adopted, from which the patient AMH levels increased, Follicular development achieved, further more UPT was +ve after the treatment.

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