IAMJ

INTERNATIONAL
AYURVEDIC
MEDICAL JOURNAL

Case Report ISSN: 2320 5091 Impact Factor: 5.344

AYURVED APPROACH TO DIMINISHING OVARIAN RESERVE (DOR) IN FEMALE INFERTILITY - CASE STUDY

Divya Pawar[1], Sameer Gholap[2]

[1]Post Graduate Scholar, [2]Associate Professor and Guide;
Department of Prasuti Tantra Avum Striroga, SMBT College and Hospital, Nandi Hills, Dhamangaon, Igatpuri, Nashik, Maharashtra, India

Corresponding Author: divi.pawar94@gmail.com

https://doi.org/10.46607/iamj4408082020

(Published online: August 2020)

Open Access

Article Received: 14/07/2020 - **Peer Reviewed:** 03/08/2020 - **Accepted for Publication:** 04/08/2020

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ABSTRACT

According to *Ayurveda* Having no Baby is described as *Vandhyatva* and Infertility in Modern science. Infertility is a main issue in today's era. Many couples go for IVF, Surrogacy and many more with very little benefits. Nearly 10-14% of individuals are belonging to the reproductive age group are affected by Infertility. Infertility caused by Diminished Ovarian Reserve (DOR) results from an endocrinological imbalance. The rise in follicle stimulating hormone (FSH), decrease in Anti Mullerian hormone (AMH) and Antral follicle count (AFC) etc. for women age more than 35 years can lower pregnancy rates to less than 5 % and increases miscarriage rates to more than 75%. *Ayurveda* explained wide range of protocols and medicines for the management of *Vandhyatva*. In *Ayurveda* its appropriate correlation can be done with *Dhatukshaya Vandhya* explained in *Harita Samhita*. *Ayurveda* states four factors are mentioned *Rutu, Kshetra, Ambu, Beeja* should be in proper state in order to achieve conception and complete the pregnancy successfully.

Aim & Objectives: To evaluate the efficacy of *Shamana Aushadhi, Yog Basti, Uttarbasti* in the management of Diminishing Ovarian Reserve (DOR) induced Female Infertility.

Materials & Methods: It is the single arm, open labelled case study of the subject of 35 yrs age with primary infertility of Diminishing Ovarian Reserve (DOR) from *Ayurveda* College who has been treated with *Shodhana Chikitsa* as *Yog Basti, Uttarbasti* and *Shamana Chikitsa* simultaneously.

Results & Discussion: There was improvement in hormonal assay with increase in Anti Mullerian hormone (AMH) and Antral follicle count (AFC) followed by conception later on. The Patient delivered with full term normal healthy female baby. *Samshodhana* and *Shamana Aushadha* helped to pacify *Vata Dosha* by *Dhatukshaya Vandhya Chikitsa* thus restored the fertility.
Conclusion: The selected treatment protocol i.e. *Samshodhana* and *Shamana Aushadha* is very effective in the management of Diminishing Ovarian Reserve (DOR) induced Female Infertility.

Keywords: Diminishing Ovarian Reserve (DOR), *Dhatukshaya Vandhya*, *Yog Basti, Uttarabasti, Shamana Aushadhi* etc.

INTRODUCTION

Infertility is a condition in women's life which indicates inability to procreate. Infertility is generally defined as one year of unprotected intercourse without conception. Sub-infertility is described as Women or Couples who are not sterile but exhibit decreased reproductive efficiency[1] Decreased ovarian reserve (DOR) refers to the size of the non-growing or resting primordial follicle population which presumably determines the number of growing follicles and the quality which presumably determines the number of growing follicles and the quality or the reproductive potential of their oocyte. The oocyte related decline in fertility is known as "Decreased ovarian reserve (DOR)" [2] Conception depends on the fertility potential of both the Female and Male partner. The major cause in Infertility is Female factor which is 40-55% [2]. Female factors are Ovarian, Tubal, Cervical, Uterine and Endometrial factors (FIGO). Many factors are responsible for Female Infertility which are Tubal Factors about 40% [3], Ovarian factor 0.5%, Cervical factor 20% And Uterine factor 10%. Also 30-40% in female [4] and 10-30% in male are the causative factors seen. According to *Shabdakalpataru* a woman who has hindrance of any kind in normal process of conception is termed as *Vandhya*. For healthy progeny *Pumbeeja* (*Shukra*) and *Streebeeja* (*Artava*) are important [5] *Artavakshaya*, *Artavanasha* are due to *Dhatukshaya* and *Avarana* in *Artavavaha Srotasa* [6].

Diminishing Ovarian Reserve (DOR)- Diminishing Ovarian Reserve (DOR) is a condition in which the ovary loses its normal reproductive potential compromising fertility and causing early menopause. It comes out with reduction of oocyte quantity, quality and reproductive potential [7]. According to *Ayurveda* it is correlated with *Dhatukshaya Vandhya* explained in *Harita Samhita* [8].

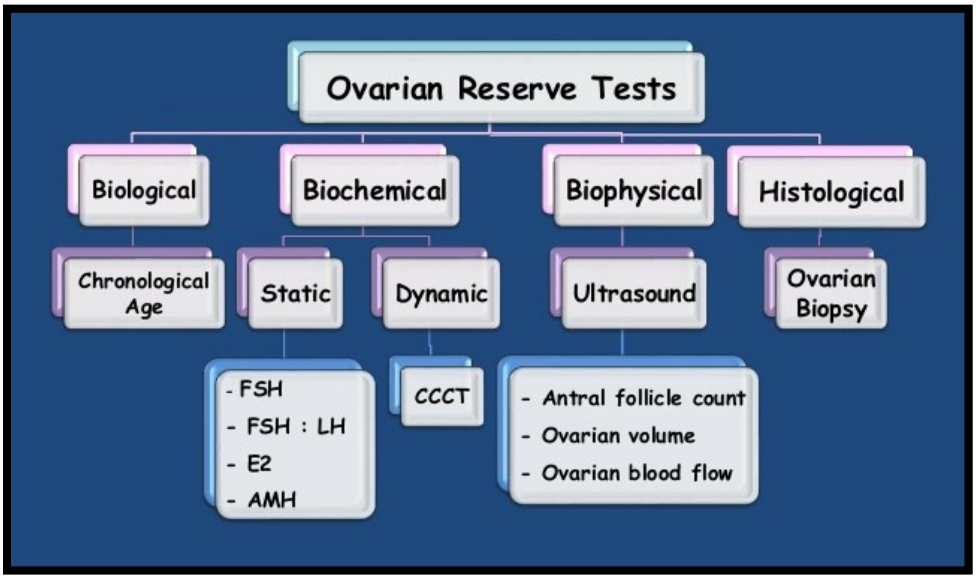
Causes –

Autoimmune	Organ, non – organ specific auto antibodies bind gonadotrophins and receptors
Iatrogenic	Chemotherapy, Uterine artery embolization, Ovarian drilling
Infection	Varicella, Tuberculosis shigellosis, Malaria, Cytomegalovirus
Oxidative stress	ROS induced DNA damage, Chromosomal abnormalities, Poor oocyte quality
Environmental toxins	Tobacco, Polycyclic aromatic hydrocarbons
Autosomal genes	FSH, LH, Oestrogen receptor mutation, CYP19A1 mutation etc
Chromosomal defects	Monosomy, Turner Syndrome, Trisomy, Fragile X syndrome

Pathogenesis - The exacts pathology is obscure but it can be due to, Decrease in Primordial follicle pool, Accelerated atresia of follicles, Defective maturation, Recruitment of Primordial follicle

Clinical Features - primary / secondary infertility, menstrual irregularities, osteoporotic changes. Vaginal dryness thus dyspareunia, hot flushes, sleep disturbance, mood swings, weight gain, uterine prolapse etc.

Ovarian Reserve Test –



Assessment –

1) AMH < 1.5 ng/dl
2) Basal FSH between > 10 – 15 IU/L (on 3rd day)
3) AFC < 10 Bilateral ovaries

Case Report –

Name – Xyz, **Age –** 35 Yrs., **Occupation –** IT Job, **Socioeconomic Status –** Middle, **Chief complaint –** Unable to conceive, **Present Menstrual History (Since 1 & ½ year)** LMP – 2/6/2018, 2- 3 days / 30 - 40 days, 1 pad / day, Irregular, Scanty flow , No dysmenorrhoea

Past Menstrual History (Before 1 & ½ year) - 4- 5 days / 28 - 30 days, 2 - 3 pad / day, Regular, Moderate flow, No dysmenorrhoea

Obstetric History - Married for 5 years, Score = G1 P0 A1 D0**,** A1 – 1-month spontaneous abortion (April 2017)

General Examination

Pulse – 76/min, Blood pressure – 126/82mmHg, Respiration rate – 20/min, Height -160 cm, Weight - 62 kg, BMI – 24.22 (Normal), Temperature – 98.6, Body Build -Average, No Pallor, No Oedema

Systemic Examination

RS / CVS / CNS – Normal, **Per Abdomen –** Soft, Nontender, L0 S0 K0, **Per Speculum-** Cervix – Parous, Normal size, No Nebothian cyst / polyp / erosion / fibroid, Vagina Healthy, No Bleeding, No Discharge

Per Vagina- Cervix – at the level of ischial spine, Uterus – Normal size, AVAF, Non mobile, Bilateral fornices – free, non-tender, No palpable adnexal mas / ovaries, Cervical motion - free, non-tender

Table 1: Investigation – (21/1/2018)

Hb	11.8gm/dl	T3	91.13 ng/dl
TLC	9,600/cumm	T4	7.34 ng/dl
RBC	4.01 Mill/uL	HIV/VDRL/HBsAg	Non - Reactive
ESR	22 mm in 1 hr	Montoux test	2 x 2 mm (N)
PLT	2,77,000/cumm	LA	31.51 (N)
Blood group	A + ve	ACL	4.2 (N)
FBS	98 mg/dl	Urine Pus cells, Epi cells	Nil, 1 – 2 /hpf
Sr TSH	4.02 Ulu/ml	---	---

doi: 10.46607/iamj4408082020 | IAMJ August 2020 | www.iamj.in

USG (TVS) on (4/6/2018)

Uterus – AV measuring 6.8 x 3.4 x 4.6 cm, endometrial thickness – 5mm, Ovaries and tubes are normal LMP – 2/6/2018, DAY 3, FSH -15.2 mlU/ml, AMH -.8 ng/ml, AFC- Left ovary = 3, Right ovary = 2, Total 5 impression – Diminished (Low) Antral follicles count *5.*

Treatment

1. Counselling of the patient and her husband done
2. According to *Dosha, Koshtha, Kala* and *Dosha Avastha, Deepana, Pachana* done.
3. *Shodhana Chikitsa*
4. *Shaman Shikitsa*

Table 2: *Shodhana Chikitsa* (From 10/06/2020 till 11/09/2020)

Drug	Dose	Duration	*Anupana*
Phalasarpi	1 tsp	Morning after breakfast	Warm Milk
Hingwashtaka churna	1 gm BD	Before meal	Warm Water
Shatavari Churna with *Goghrita*	5 gm BD	After Breakfast	Warm Milk
Manasaitravataka	1 tab	Before Bed	Normal water

Above treatment given for 3 months

Table 3: *Shodhana Chikitsa* (From 10/06/2020 Till 11/09/2020)

Basti	**Drug**	**Quantity**
Yog Basti- Sthanik Snehana with *Bala Taila* and *Swedana* With *Dashamoola Kwatha*		
Anuvasana Basti	*Shatapushpa Taila*	120ml
Niruha Basti	*Mustadi Yapana Basti*	960ml
Uttarabasti	*Phalasarpi*	20ml

All 3 *Bastis* are given on 5th day of menstrual cycle for consecutive 3 cycles.

Follow Up: Monthly Follow Up Taken

Observation and Result

Ultrasonography and hormonal study was repeated on 3rd day of menstrual cycle in 4th cycle, Transvaginal sonography (6/10/2018) DAY 3 of Menses, LMP – 4/10/18, Uterus – AV measuring 7 x 3.4 x 4.4 cm, Endometrial thickness – 5.1mm, Ovaries and tubes are normal, FSH -7.83 mlU/ml, AMH -1.2ng/ml, AFC -Left ovary = 9, Right ovary = 5, Total 14 impression – increased Antral follicles count. Later on, patient came with 1 month 5 days Amenorrhoea on 11/1/19. Urine pregnancy test was positive. Sonography done on 8 March 2019 showed regular gestational sac with 13 weeks and 1 day of gestational age. Placenta anterior, amniotic fluid normal. Patient delivered on 13 September 2019, full term normal delivery with healthy female baby of 2.9 kg.

DISCUSSION

According to *Ayurvedic* approach to *Dhatukshayajanya Vandhya* in terms of diminishing ovarian reserve (DOR) following events takes place.

Nidana Sevana → Vata Prakopa → Agni Vaishamya → Rasa Dushti → Artava Dushti → Sthana Sanshraya in Garbhashaya → Pariksheena of Dhaturupi Artava → Dhatukshayajanya Vandhya

***Chikitsa* is based on following 3 Sutras–**

1) वमनं विरेचनं चैव वस्तिरा(मा)स्थापनं तथा ।

तस्मात्तत् कारयेत स्त्रीणां प्रसिद्धाः प्रसर(व)न्ति वै ॥ **(भे० सं० शा० २)**

2) तत्र बस्तिदानं वातरोगोपशमनार्थम् । **(तिसटाचार्य)**

3) वृद्धिः समानैः सर्वेषां विपरीतैर्विपर्ययः।' **(अ.ह.सू. १/१३)**

In First Shloka *Acharya Bhela* states that *Shodhana* is necessary in *Vandhya*. Second one is *Basti Chikitsa* (Enema) is best for aggravated *Vata Dosha*. Third Shloka states states as similar things increases and opposite of that decreases the output. *Ayurveda* states the

doi: 10.46607/iamj4408082020 | IAMJ August 2020 | www.iamj.in

holistic remedy which is alternative to hormonal therapy for infertility. *Ayurvedic* approach to *Dhatukshayajanya Vandhya* in terms of diminishing ovarian reserve (DOR) is gaining importance. The case presents with *Vata Dosha Vikriti* (alteration of *Dosha*) progressing towards *Dhatu Kshaya* thereby affecting *Artava Upadhatu Kshaya Lakshanas* [9]. The treatment protocol aims for a *Shamana* of *Vata Dosha* and correction of *Agni* thereby creating equilibrium of *Doshas* in *Madhyama Vayavastha* (Elderly female). The *Dhatupushti* itself can be attributed for the physiology of *Artava*. The oral administration of *Hingwashtakachurna* has *Deepana* and *Pachana* properties. Also, *Hingu* possess *Stripushpajana* [10] It also works on *Annavahasrotasa* which is a main base of any disease through it *Agnideepana* leads to formation of healthy *Ahararasa* results in good nutrition to *Rasa Dhatu* and later on *Raja* and *Stanya Upadhatus*. Oral and Internal administration of *Phalasarpi* owes its *Vatahara, Dhatuvardhaka, Vandhyatvahari, Balya* and *Brimhana* properties helps in improvement of *Artavakshaya* through *Dhatupushti* thus creating a satisfactory improvement in hormonal assay. *Shatavari* is a *Pushpaprajakari* which helps in formation of follicles, ovulation and thereby a healthy progeny. It has Phytoestrogens. Pathogenesis of gynaecological disorders always involves *Vata Dosha*. **तत्र बस्तिदानं वातरोगोपशमनार्थम् । (तिसटाचार्य)** Hence *Basti Karma* (enema) which is the prime treatment modality in *Vata Vyadhis* [11]. It is considered as *Ardha Chikitsa* [12]. *Mustadi Yapana Basti* [13] is specifically indicated as a superior line of treatment in the condition of *Vrishya Karma*. Its effect on Anti mullerian hormone (AMH) as well as on FSH etc. thus helps in *Balya, Rasayana* and *Garbhashaya Shodhana Karma*. *Acharyas* says *Phalasarpi* helps the woman to achieve conception and cures female genital tract disorder. It is *Vatahara, Balya, Brimhaniya, Garbhada* and *Rasayana* thus helps in nourishment of reproductive organs and baby later. It works as *Prajasthapaka* (maintains pregnancy) and *Yonipradosha Shamaka* (reduces diseases of Uterus and vagina) properties. It also helps in proper development of endometrium, follicles result in healthy progeny. All three *Bastis* have potency to get absorbed and creates osmotic pressure which enhances absorption of drug administered through intrauterine *Uttarbasti*. It promotes drug action through endometrium then to internal iliac vein passes into the systemic circulation and exerts its positive action on hypothalamo- pituitary – ovarian axis, which helps in promotion of primordial follicles under control of FSH and regulates function of other hormones. *Manasamitravatakam* is a *Tridosha Shamaka*, potent anti-stress, antiolytic and anti-depressant. According *Acharya Charaka* for *Garbhadhana* the most important thing is **"सौमनस्य गर्भधारणानाम ।"** (soundness of mind or peaceful mind). Adding to this not having child gives stress to patient hence added in the prescription.

CONCLUSION

There are many causes of female infertility but diminishing ovarian reserve is much common cause in elderly patients. The long-term treatments with hormonal imbalance results from many untoward effects like weight gain, stress, depression and premature menopause if not treated well. *Ayurveda* gives major spotlight on *Panchakarma Shodhana* as well as *Shamana*. In this case important consideration was given to *Vata Anulomana, Deepana* and *Pachana* because proper functioning of *Vata Dosha* is necessary in every aspects of fertility means proper functioning of hypothalamo-pituitary – ovarian axis.

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Source of Support: Nil
Conflict of Interest: None Declared

How to cite this URL: Divya Pawar & Sameer Gholap: Ayurved Approach To Diminishing Ovarian Reserve (DOR) In Female Infertility - Case Study. International Ayurvedic Medical Journal {online} 2020 {cited August, 2020} Available from: http://www.iamj.in/posts/images/upload/4297_4302.pdf