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#### Research Article

# Exploring the Role of Ardhamatrika Basti in Anovulatory Female Infertility: A **Clinical Evaluation**

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#### Abstract

Introduction: The difficulty to conceive or subfertility represents major social and psychological burden amongst couples. Anovulation, fallopian tube disease, pelvic adhesions, endometriosis, and unexplained infertility are the major causes of female infertility. Initial treatment for women with anovulatory infertility involves a sequential approach, moving from less to more resource-intensive therapies. Anovulation is dominant factor, which comprises 30-40% of female infertility factor. Aim: To evaluate the efficacy of Ardhamatrika Basti in the management of female Infertility with special reference to Anovulatory factor. Methods & Materials: The study was conducted on 18 female subjects of anovulation with primary or secondary infertility, fulfilling the inclusion criteria and diagnosed by Transvaginal sonography for 2 consecutive cycles. Patients received Ardhamatrika Basti (through rectal root, after cessation of menstruation) for 16 days till ovulation occurred. The observations and results were assessed by follicular study conducted from 8th-9th day of menstrual cycle till 20th day for three consecutive cycles. Statistical Analysis: The results were drawn after analysing nonparametric data statistically by means of Wilcoxon signed-rank test. Results: In the study, ovulation was achieved in 81.25 % of the patients including 25 % conceptions within follow up period. Conclusion: As a result, it has been concluded that Ardhamatrika Basti is effective treatment modality in infertility owing to anovulatory factor.

**Keywords:** Ayurveda, Anovulation, Female Infertility

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### Introduction

A condition of the female or male reproductive system is referred to as infertility when it results in the inability to conceive a clinical pregnancy following 12 months of regular, unprotected sexual intercourse activity (1). It is estimated to affect 15% of reproductive-aged couples worldwide (2). In the female reproductive system, infertility may be caused by fallopian tube disease, Anovulation, Uterine disorders, pelvic adhesions, disorders of endocrine system, and unexplained causes, etc. Anovulation is dominant factor, which comprises 30-40% of female infertility factor According to International Federation of Gynecology and Obstetrics (FIGO) manual (3).

Differentiation, separation and then expulsion are the function of *Vata.* So, Process of folliculogenesis and ovulation have influence

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of Vata Dosha. Vata Dosha plays a significant role for normal physiological functions of reproductive system and also generation of pathologial conditions of the same (4). So, in anovulation cases Vata may be disturbed and Basti is believed to be the prime treatment for the same (5). Yapana Basti is one of the type of the Niruha Basti, which is specifically indicated to infertile female also (6). Acharya Vrundmadhava have stated Ardhamatrika Basti(7). It is one type of Yapana Basti and having Deepana (local Appetizer), Pachana (digestive), Brihana (nourishing), Sarvarogahara (capacity to destroy all diseases), etc. Objective of this study is to evaluate the efficacy of Ardhamatrika Basti in the management of Vandhyatva (female Infertility) w.s.r. to Anovulation along with Menstrual Abnormalities. As taking into consideration, it has been ploted to evaluate effect of Ardhamatrika Basti (A special medicated enema) on Anovulatory factor.

### **Materials and Methods**

Study Design and Setting: This study was single-arm, interventional prospective study trial was organized during years 2017–2020. The study had a due clearance from the Institutional Ethics Committee (IEC). IEC No.PGT/7/-A/Ethics/2018-19/2638 (Dated 18/12/2018). Written consent was taken from each patient prior to beginning of the study. The demographic profile, personal history, and history of past illness were recorded in the Clinical proforma. The Trail drug was given for 2 cycles. During the follow up, ovulation study and occurrence of conception were recorded.

**Trial interventions:** In present study, *Ardhamatrika Basti* was selected as trial drug. *Tila Taila*, *Saindhava*, *Madanphala Choorna* and *Dashmoola Kashaya* were acquired from Pharmacy of Gujarat Ayurved University, Jamnagar. Rest of raw drugs were purchased from local market of Jamnagar on 28/2/2019. The classical method of *Niruha Basti* preparation will be used for the preparation of *Ardhamatrika Basti*. Ingredients of *Ardhamatrika Basti* are given as per Table 1. *Basti* preparation was done as per classical *Basti* preparation method. With 480ml quantity of *Ardhamatrika Basti* was given through Rectal route for 16 days after cessation of menses for 2 consecutive cycles at morning 8:30am to 10:00am time.

**Study Participants**: Patients were chosen from the Out-Patient Department of Prasutitantra and Streeroga Department, PG Ayurveda Hospital, ITRA, Jamnagar who are fulfilling the criteria of diagnosis and inclusion criteria. They were enrolled for study, irrespective of their caste, religion etc.

**Inclusion Criteria:** Female patients of child bearing age from 20-40 years, Patients, who possess active married life minimum 1 year and suffering from Infertility with 2 or more consecutive anovulatory cycles diagnosed by Transvaginal sonography, Primary and secondary both types of infertile patients having anovulatory cycle or with unruptured follicle, Patient eligible for administration for *Basti*, Patient who were having any body mass index will be included for Study. Patients were included after 3 month of washout period of hormonal therapy.

**Exclusion Criteria:** Female patients of age less than 20 years and more than 40 years, Congenital deformities and infectious diseases of reproductive tract like tuberculosis, Sexually Transmitted Diseases and carcinoma, Patients with PCOS, Chronic systemic diseases like Diabetes, Hypertension, HIV, TB etc., Patient not eligible for *Basti*, Patient with Hormonal medication will be excluded for the study.

Laboratory Investigations: Before starting the course of treatment, every patient were examined by routine haematological examination {Haemoglobin%, Total WBC Count, Differential Blood Count, Pack Cell Volume (PCV), Erythrocyte Sedimentation Rate (ESR)} and Urine examination {Routine and microscopic} to rule out any type of general pathology. Also, Serum Follicular Stimulating Hormone, Serum Luteinizing Hormone, Serum Thyroid Stimulating Hormone and Serum Prolactin have been carried out before and after treatment.

**Statistical estimation of results:** Statistical analysis was performed using the Sigma State for Windows version 3.5 software (8). Baseline characteristics were reported as mean  $\pm$  standard deviation (SD) and frequency in percentage. Wilcoxon signed-rank test was used to the nonparametric statistical data for assessing the difference between before and after treatment. A value of P < 0.05 was marked as a statistically significant.

**Criteria of Assessment:** The result was evaluated on the basis of follicular study (ovulation study).

**Objective Parameter:** Follicular study was assessed by Trans Vaginal Sonography before and after treatment. According to size of follicle, special scoring method was followed. A special validated scoring pattern for objective parameters was used from

concluded Randomized trial. Scoring Pattern for objective parameter can be seen as per Table 2.

**Subjective Parameter:** A special proforma was prepared incorporating the associated complains related to anovulation like menstrual abnormalities. Scoring Pattern for Subjective criteria is mentioned in Table 3.

#### **Observation and Results**

Total 18 patients were enrolled in this study, among them 16 patients completed the total protocol of treatment and only 2 patients dropped out during treatment. Participant's flow chart has mentioned in Figure no 1.

The demographic data of this trial have shown that mean age of participants is 28.2 years. The majority of patients were housewives (82.35%) and literate (41.17%). 88.23% patients belonged to lower middle class and 64.70% patients belonged to joint family. 76.47% patients came from urban habitat. All (100%) patients were Hindu. 82.35% patients were vegetarian. 17.64% of patients were having BMI (18.5-24.9), 76.47% of patients with (25-30) BMI and 11.76 % of patients were having (>30) BMI.

In this study, primary infertility and secondary infertility had seen in 50%-50% of total patients. 100% of patients were having anovulatory cycles. 44.44% patients had 1-5 years chronicity. 72.22% patients had used hormonal treatment for infertility. 82.35% of patients were having irregular cycle of menstruation. 47.05% patients were having scanty menses. 23.53% had painful menses. 5.88% patients had duration of menstrual period of <2 days. 82.35% of patients were having >35 days interval of cycle. 41.17% patient's husbands were reported with undesirable semen report.

Analyzing the results, it was found that 13 patients (81.25%) had ovulated after treatment. Total 85.41% of relief was found. So, statistically highly Significant (P= <0.001) improvement was noted as placed in Table 4. While during 1st follow up month, 13 (81.25%) of patients got ovulated. In 2nd follow up month, 11 (68.75%) of patients had ovulation, as mentioned in Table 5. Seeing the Overall Effects of Therapies, normal Ovulation was seen in 81.25% of the patients. 6.25% were remaining unchanged as given data in Table 6. Effect of therapy on follicular size and growth described as per Table 7. While discussing effect of *Ardhamatrika Basti* on hormonal level, statistically significant changes were observed in S.PRL level (P=0.009) as given in Table 8.

### **Discussion**

As a one of the world's oldest medical systems, Ayurveda also contributes treatment protocol for female infertility broadly. *Tridhosha*(three governing factors of body) are the root cause for each and every process or phenomenon occurs in our body. *Vata Dosha* is responsible for functions like differentiation, separation and then expulsion in all systems of body. So, Process of folliculogenesis and ovulation have influence of *Vata. Basti* is believed to be the prime treatment for *Vataja* diseases (9).

As per numerous clinical studies that are conducted throughout country, it was concluded that when *Basti* was given under classical criteria, maximum efficacy was observed. Support to this conclusion one Randomized clinical trial has been reported that *Madhutailika Basti* is a type of *Yapana Basti*, which is most effective to induce ovulation (10). Another study has stated that *Narayana Taila Matrabasti* is also highly significant to induce ovulation (11). Analyzing our observation, *Ardhamatrika Basti* is also effective for ovulation induction.

Ardhamatrika Basti is one type of Yapana Basti performs dual function of both Anuvasana and Niruha; hence these Basti are Brihana and Srotoshodhaka at a time (12). Anovulation is condition where, significant loss of the body elements for proper growth of follicle supervened by obvious Vatapradhana Tridoshaprakopa. Such conditions demand Brihana and Tridosha Shaman. Yapana Basti can achieve both the goals at a time.

Maximum drugs used in Ardhamatrika Basti like Tila Taila (oil of Sesamum indicum Linn.), Madhu, Purana Guda, Masha Yusha are Ahara Dravya. Hence, these are wholesome and do not act adversely. As an Ahara Dravva, their most importance function is to keep nourishment of All *Dhatus* and *Upadhatu*. *Artava*(Ovum) must be nourished by this Basti and as a result timely ovulation occurs. Phytoestrogenic property of ingredients of Ardhamatrika Basti like Shatapushpa (Anethum sowa Linn.), Tila Taila regulates neuropeptide Y activity, which in turn regulates the activity of gonadotropin secretion (13, 14, 15). Masha Yusha is aphrodisiac (16). Dashamoola Kwatha has Anti-inflammatory action (17). They are working indirectly through nourishment of all *Dhatus*. After LH Surge, secretion of steroids, prostaglandins, chemokines, and cytokines takes place, which are also mediators of inflammatory processes (18). It can be assumed that Basti ingredients as a synergistic and cumulative effect may help to disintegrate the pathogenesis of Anovulation. Timely recruitment and selection of follicle, proper folliculogenesis and ovulation

Also, during trial it has been observed that Ardhamatrika Basti is highly significant in cases of hyperprolactinemia, as mentioned in Table 6. It may be due to Phytoestrogenic property Shatapushpa and Tila Taila. It acts in both high oestrogenic and low oestrogenic condition. Thus, it corrects hypoestrogenic condition due to hyperprolactinemia. By virtue of Deepana, Pachana, Srotoshodhana, Anulomana properties, Ardhamatrika Basti leads to Amapachana, Vatakaphashamana and Garbhashaya Shodhana which may remove Sanga and Avarana leading to proper function of Vayu regulating function of Beejakosha and Beejotsarga (Ovulation) as well as corrects menstrual abnormalities. Hence, the growth and rupture of follicles were observed in Ardhamatrika Basti group. It nourishes the Dhatu which are vitiated due to Vata Prakopa.

Ardhamatrika Basti through rectum goes instantly into systemic circulation thus has faster absorption. The Enteric nervous system (ENS) is a collection of neurons in the gastrointestinal tract (GIT) that constitutes 'brain of gut' and can function independent of

CNS (19). It is well established that the ovarian cycle is regulated through the feedback of hormones on the neural tissue of CNS. *Ardhamatrika Basti* may have an effect on endogenous opioids within the ENS particularly endorphins ((β-endorphin). They are stimulated to have an effect on GnRH release and reduction of the release of follicle-stimulating hormone(FSH) and luteinising hormone(LH) to regularizing HPO axis regulating proper folliculogenesis and ovulation (20, 21).

It has also been seen that, no any complications, adverse effects, side effects are detected in any patients during this clinical trial. No any study has been done on efficacy of *Ardhamatrika Basti* on Anovulation. Other studies have been conducted on the clinical safety and efficacy of *Ardhamatrika Basti* suggests that clinical trials did not found any adverse drug reactions. Also, it is clinically effective and reliable in the management of *Janu Sandhigatavata*, *Amavata*, *Shukrakshaya* (22, 23, 24).

**Limitations:** However, this trial was conducted for 16 days after cessation of menstruation for 2 consecutive cycles only and it may require an extended duration of treatment to note ovulation. To evaluate the effect of *Ardhamatrika Basti* in relation to menses abnormalities, same trial can be planned with longer study duration.

### Conclusion

Basti is the best treatment for Vataja disorders. Some components of Basti possess phytoestrogenic constituents also. So, in nut shell Ardhamatrika Basti may help to enhance quality of reproductive organs by local purification and to regularize hypothalamus-pituitary-ovarian axis. This corrected hormonal orchestra supports the proper folliculogenesis, regular ovulation and provide healthy atmosphere within uterus, which helps to achieve conception.

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**Ethical Statement:** Institutional Ethics Committee (IEC) approval was taken in accordance with the Declaration of Helsinki. Informed Written Consents have been received according to rule of Institutional Ethics Committee (IEC), ITRA, Jamnagar

**Conflicts of interest:** There are no conflicts of interest.

	KwathaDravya							
No	Drug (Yavakuta)	Latin Name	Part used	Quantity				
1	Bilva	Aegle marmelos corr.	Stem bark					
2	Shyonaka	Oroxylum indicum vent.	Stem bark					
3	Patala	Stereospermum	Stem bark					
4	Gambhari	Gmelina arborea linn.	Stem bark					
5	Agnimantha	Premna mucronata Roxb.	Stem bark	Total 192 ml				
6	Kantakari	Solanum surattense	Whole plant	Total 192 IIII				
7	Brihati	Solanum indicum linn.	Whole plant					
8	Gokshura	Tribulus terrestris linn.	Fruit					
9	Shalaparni	Desmodim gangeticum	Whole plant					
10	Prushniparni	Uraria picta Desv.	Whole plant					

Table 1: Ingredients of Ardhamatrika Basti

	Kalka Dravyas								
11	Shatapushpa	Anethum sowa linn.	Seed	12gm					
12	Madanaphala	Randia dumetorum lam.	Dry Fruit	1 dry fruit=10gm (Appr.)					
13	Madhu	Honey		48g					
14	Saindhava	Rock salt		12g					
15	TilaTaila	Sesamum indicum linn.		96ml					
16	Purana Guda	Jaggery		48g					
17	Masha Yusha	Phaseolus mungo Linn.		96 ml					

# **Table 2: Scoring pattern of follicle**

Scoring Number	Size of follicle
3	<12 mm
2	12-19 mm
1	>19-23 mm
0	Ovulated

# **Table 3: Scoring Pattern for Subjective criteria**

Subjective criteria	Score	Subjective criteria	Score
1. Interval between two cycles		3. Quantity of menstrual Blo	od
21 to 35 days	0	4 or more than 4 pad use/cycle	0
>35-40 days	1	3 pad use/cycle	1
>40-45 days	2	2 pad use/cycle	2
>45 days	3	1 pad use/cycle	3
		Spotting bleeding without pads	4
2. Duration of men	strual cycle	4. Pain during Menses	
4-7 days	0	No Pain	0
3 days	1	Mild Pain	1
2 days	2	Moderate Pain	2
1 day	3	Severe Pain	3

# Table 4: Effect of Ardhamatrika Basti in Follicular Size (Sign Rank Test)

N	N M		Mean diff	% of Relief	W	7	D	Significance		
1	B.T	A.T.	Mean un	70 Of Keller	vv	L	r	Significance		
16	2.5	0.43	2.06	85.41	-120.00	-3.520	< 0.001	HS		
	(n=number of patients, HS- Highly significant)									

# Table 5: Follicular sizes in follow up period (n=16)

Size of Follicle(mm)	No. of Patients	1st month	No. of patients	2nd month
0-12	3	18.75	4	25.00
>12-19mm	0	0.00	1	6.25
>19-23	0	0.00	0	0.00
Ovulation	13	81.25	11	68.75

# **Table 6: Overall Effects of Therapy**

Parameters	No. of patients	%	
Conceived	4	25	
Normal Ovulation	13	81.25	
Markedly Improved	0	0.00	
Moderately Improved	2	12.50	
Unchanged	1	6.25	

Table 7: Effect of Ardhamatrika Basti on Follicular Growth and Ovulation (n= 16)

Size of follicle	Size of follicle B.T.		D.T.(1st Cycle)		D.T.(2nd Cycle)		A.T.	
(in mm.)	No. of patients	%	No. of patients	%	No. of patients	%	No. of patients	%
0-12	18	100	4	25.00	2	12.50	2	12.50
>12-19	0	0	3	18.75	2	12.50	1	6.25
>19-23	0	0	0	0.00	0	0.00	0	0.00
Ovulation	0	0	11	68.75	12	75.00	13	81.25

Table 8: Effect of Ardhamatrika Basti on Hormonal Level

	n Investigation	Mean	Score	% Relief S.D. (±)	S.E.	49	D	
n	Investigation	B.T.	A.T.	70 Kellel	S.D. (±)	(±)		ľ
16	S. FSH	6.407	5.836	8.92	4.062	1.173	0.448	0.635
16	S. LH	7.004	7.657	34.24	5.664	1.635	1.467	0.170
16	S.PRL	18.371	12.293	33.08	6.711	1.937	-0.749	0.009
16	S.TSH	1.740	2.655	52.54	3.849	1.111	-0.823	0.428

#### References

- 1. https://www.who.int/news-room/fact-sheets/detail/infertility last accessed on 7/9/22 at 7.20 pm
- 2. Gerrits T, Van Rooij F, Esho T, Ndegwa W, Goossens J, Bilajbegovic A, *et al.* (2017) Infertility in the Global South: Raising awareness and generating insights for policy and practice, Facts Views Vis Obgyn.; 9(1):39-44.
- 3. Hiralal Konar (2016), DC Dutta's the text book of Gynecology, 7th edition, The Health Sciences Publisher Delhi, Chapter 17, Infertility, pg 188
- 4. Bhishgacharya Harishastri Paradkara Vaidya (editor), Vagbhata, Astangahrudaya, (2005) Reprint 9th ed., Uttar Tantra, 34/23, Varanasi: Chaukhambha Orientalia; p. 898
- 5. Jadavaji Trikamji Acharya(editor), Agnivesa, Charakasamhita (2016) 4th ed, Sutrasthana, 25/40, Varanasi; Chaukhambha Sanskrit Sansthan;, p. 132.
- 6. Jadavaji Trikamji Acharya(editor), Agnivesha, Charaka Samhita (2016) 4th ed, Siddhisthana, 12/22, Varanasi, Chaukhamba Sanskrit Pratishthana, p.735
- 7. Premvati Tewari(Editor), Vrundamadhava, Vrundamadhava or Siddha Yoga (2007) Reprint edition, 76/30-35, Varanasi, Chaukhambha visvabharati, 706-707
- 8. Donga KR, Donga SB, Dei LP. Role of Nasya and Matra Basti with Narayana Taila on anovulatory factor. Ayu. 2013 Jan;34(1):81-5.
- 9. https://sigmastat.software.informer.com/3.5 last accessed on 22/08/2022 at 7.05 pm
- 10. Dhiman KK, Pandya SS, Dei LP, Dhiman KS (2014) Role of Madhutailika basti in infertility WSR to anovulatory factor, Journal of Ayurveda and Holistic Medicine (JAHM). Jan 27;2(1):19-26.
- 11. Donga KR, Donga SB, Dei LP (2013) Role of Nasya and Matra Basti with Narayana Taila on anovulatory factor. AYU (An international quarterly journal of research in Ayurveda). Jan 1;34(1):81
- 12. Samhita, Jadavaji Trikamji Acharya(editor), Agnivesha, Charaka (2016) 4th ed, Siddhisthana, 12/21, Varanasi, Chaukhamba Sanskrit Pratishthana, p.735
- 13. Mesripour A, Rafieian-Kopaei M, Bahrami B (2016) The effects of Anethum graveolens essence on scopolamine-

- induced memory impairment in mice. Res Pharm Sci. Mar-Apr;11(2):145-51.
- 14. Wu WH, Kang YP, Wang NH, Jou HJ, Wang TA (2006) Sesame ingestion affects sex hormones, antioxidant status, and blood lipids in postmenopausal women. J Nutr;136:1270-5.
- 15. Speroff L, Fritz MA (2005) Clinical Gynaecologic Endocrinology and Infertility, Part I. 7th ed. Gopson Paper Ltd. Noida: Jaypee Brothers; p. 155.
- Premvati Tewari(Editor), Charaka, Charaka Samhita (2020)
  Second Edition, Sutrasthana, 27/24, Varanasi, Chaukhambha
  Vishvabharati, p. 431
- 17. Parekar RR, Bolegave SS, Marathe PA, Rege NN(2015) Experimental evaluation of analgesic, anti-inflammatory and anti-platelet potential of Dashamoola. J Ayurveda Integr Med. Jan-Mar; 6(1):11-8.
- 18. Duffy DM, Ko C, Jo M, Brannstrom M, Curry TE.(2019) Ovulation: Parallels With Inflammatory Processes. Endocr Rev. Apr 1;40(2):369-416.
- 19. John B. Furness (2014) The Enteric Nervous System and Gastrointestinal Innervation: Integrated Local and Central Control, Microbial Endocrinology: The Microbiota-Gut-Brain Axis in Health and Disease, Volume 817, page 37-71
- 20. Grossman A, Moult PJ, Cunnah D, Besser M(1986) Different opioid mechanisms are involved in the modulation of ACTH and gonadotrophin release in man. Neuroendocrinology;42(4):357-60.
- 21. Daniell HW.(2002) Hypogonadism in men consuming sustained-action oral opioids. J Pain. Oct;3(5):377-84
- 22. Indushree BS, Varsha Kulkarni (2021) Efficacy of *Ardhamatrika Basti* in the management of *Janu Sandhigatavata* vis-a-vis Osteoarthritis of Knee Joint A Clinical Study. Journal of Ayurveda and Integrated Medical Sciences, 6(3), 06 11
- 23. Ahmed Nasreen, Kajaria Divya (2018) Efficacy Of *Ardhamatrika Basti* In The Management Of Amavata- A Case Report, Indian Journal Of Applied Research, Volume-8, Issue-12, 51-53
- 24. Lande Prashant Adinath (2014) An Effect Of Ardha-Matrika Basti In The Mangement Of Shukra Kshaya W. S. R. To Oligospermia, IAMJ, Volume 2; Issue 5; 712-718

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