



A CLINICAL STUDY TO EVALUATE THE EFFICACY OF GUDUCHYADI TAILA MATRABASTI IN VANDHYATWA W.S.R. TO ENDOMETRIAL RECEPTIVITY

[Reemalakshmi. M](#)¹, [Mamatha. K.V](#)², [Arpana Jain](#)³

¹PG Scholar, ²Professor, ³Assistant Professor

Department of PG& PhD studies in PT&SR, SDM college of Ayurveda, Udupi, Karnataka, India

Corresponding Author: reemalakshmi91@gmail.com

<https://doi.org/10.46607/iamj0909092021>

(Published Online: September 2021)

Open Access

© International Ayurvedic Medical Journal, India 2021

Article Received: 25/08//2021 - Peer Reviewed: 04/09/2021 - Accepted for Publication: 05/09/2021



ABSTRACT

Infertility is a public health issue in India and many other developing countries because of its high prevalence and especially due to its serious social implications. According to the data of WHO, more than 180 million couples in developing countries agonise from primary or secondary infertility. The social stigma of childlessness still leads to isolation and abandonment in many communities. Although there is a lot of advancement in infertility care, the availability, affordability and effectiveness are still very low. *Ayurveda* described the disease *vandhyatwa* as equivalent to infertility. In *Ayurveda*, the management of *Vandhyatwa* mainly focuses on the correction of *garbha sambahava samagris*. *Kshetra* which is one among them is considered as the prime factor for conception. *Kshetra* can be taken as the female reproductive system, a well-prepared endometrium for implantation. Optimal endometrial receptivity leads to proper implantation of the embryo, which is the foundation of a healthy pregnancy. Implantation failure due to reduced endometrial receptivity is one of the major causes of infertility. In this present study, the endometrial receptivity was assessed with Applebaum's uterine score and *Guduchyadi taila matrabasti* has been administered to increase the receptivity of the endometrium. After the intervention, the results obtained showed significant improvement in endometrial receptivity.

Keywords: *Vandhyatwa*, Applebaum's scoring, *Matrabasti*, *Guduchyadi taila*

INTRODUCTION

Infertility is a disease characterized by the failure to establish a clinical pregnancy after 12 months of regular and unprotected sexual intercourse. It is reported that 1 in 8 couples have difficulty getting pregnant or sustaining pregnancy¹. This has been accompanied by a major shift in childbearing age, delay in age of marriage, increase usage of contraception etc. The aetiology of female infertility is divided into ovulation disorders, uterine abnormalities, tubal and peritoneal factor². Description of Infertility is available in most of the *Ayurvedic* classics; however, it is not described as a disease anywhere in *Brihatrayees* rather *vandyatwa* is mentioned as a complication of all the *yonirogas* and *arthava dushti*. *Vandyatwa* and its *bheda* are mentioned in *Haritha Samhitha*³, but further details like aetiology, prognosis and treatment references are not available. *Acharya susruta* states, *Ritu, Kshetra, Ambu and Beeja* are the essential factors for conception⁴. If there is *dushti* in any of these, it will lead to infertility. *Kshetra* can be considered as the female reproductive system, a well-prepared endometrium for the implantation. Fertility in human beings and other mammalian species is determined by coetaneous events that take place during the development of blastocyst and implantation. Uterine receptivity is defined as a restricted period when the uterus can receive the blastocyst and assist implantation⁵. Infertility due to endometrial factors can be considered as *kshetra dushti* in *Ayurveda*. Researchers on this endometrial factor are least explored in infertility assessment. *Kshetra dushti* can be considered as a *vata* predominant *tridoshaja* condition; any abnormalities in *tridosha* are collectively responsible for the defective endometrial formation. Normalization of *vata dosha* is the primary management in *Vandyatwa*. *Basti* is said to be *paramoushadhi* for treating *vataja roga*⁶. *Matrabasti* is highly beneficial for woman those who are infertile⁷. *Guduchyadi taila* which is mentioned in *Bhavaprakasa vatarakthadhikara* says it is *streenaam garbada, pumsavana* and *vatahara*⁸. *Guduchi* is the main ingredient which is having *rasayana* property and it is proved to be a powerful immunomodulator. Hence this clinical trial

has been taken to understand the efficacy of *Guduchyadi taila* to enhance endometrial receptivity.

AIM AND OBJECTIVES

To evaluate the efficacy of *guduchyadi taila matrabasti* in *vandhyatwa* w.s.r. to endometrial receptivity.

METHODOLOGY

The present study was carried out on 20 patients attending OPD of Shri Dharmasthala Manjunatheswara Ayurveda Hospital, Udupi.

Aims and Objectives of the study

To evaluate the efficacy of *Guduchyadi Taila Matrabasti* in *Vandhyatwa* w.s.r to endometrial Receptivity.

SOURCE OF THE DATA

A minimum of 20 patients suffering from primary and secondary infertility, thoroughly interrogated and analysed based on the diagnostic criteria were selected for study from OPD and IPD of Sri Dharmasthala Manjunatheswara Ayurvedic Hospital Kuthpady, Udupi.

STUDY DESIGN

It is a single-blind clinical study with pre-test and post-test design.

METHOD OF DATA COLLECTION

20 patients suffering from unexplained infertility were administered with *guduchyadi taila matrabasti*. A special case proforma was prepared including case history, physical examination, laboratory investigations, USG and HSG report. Patients were thoroughly evaluated and selected for the study.

INCLUSION CRITERIA

- Females aged between 20-40years
- Patients with unexplained infertility
- Patients with normal ovulation study and HSG
- Patients with the regular menstrual cycle.
- Patients with partners having normal semenogram

EXCLUSION CRITERIA

- Uterus with congenital anomalies
- Patient with active pelvic infection
- Patient presenting with dysfunctional uterine bleeding
- Patients suffering from genital tuberculosis
- Patients with hydrosalpinx and tubal block

- Patients with a bad obstetric history
- Any other systemic illness
- Patients with partners having a male cause of infertility including coital problems.

Ethical clearance: The study was cleared by the institutional Ethical Committee before the initiation of the study and written consent was obtained from the patient.

INVESTIGATIONS

- Blood routine-HB, TC, DC, ESR, RBS
- Trans vaginal/Abdominal USG
- Ovulation study/ HSG
- Colour Doppler study for Applebaum scoring system.
- Hormonal assay & Urine Routine if necessary

INTERVENTION

Guduchyadi taila matrabaсти was administered in the dosage of 60ml for 7 consecutive days from the 6th day of the menstrual cycle. This procedure was repeated for 2 consecutive cycles.

Duration of the study

Intervention: 2 months

Follow up: 1 month

Total Duration: 3 months

ASSESSMENT CRITERIA

Signs and symptoms will be evaluated based on subjective and objective parameters.

A. SUBJECTIVE PARAMETERS

Early signs of pregnancy

B. OBJECTIVE PARAMETERS

Evidence of endometrial receptivity by Applebaum's scoring (USSR)⁹

Patient conceived as evidenced by UPT and USG

OBSERVATION AND RESULTS

Table 1: Showing Results

Table no.	Criteria	BT –mean	AT – mean	P-value	Inference
1	Quantity of bleeding	1.08	0.41	0.01	Significant
2	colour of menstrual blood	1.23	0.61	0.005	Significant
3	Vaginal discharge	1.17	0.42	0.02	Significant
4	Dysmenorrhea	2.12	1.00	0.009	Significant
5	Endometrial Layering	0.85	0.70	0.18	Non-significant
6	Myometrial echogenicity	1.00	0.13	0.00	Highly Significant
7	Myometrial contractions	0.87	0.25	0.05	Non-Significant
8.	Uterine artery doppler	1.00	1.50	0.16	Non-Significant
9.	Endometrial thickness	7.31	10.58	0.00	Highly Significant
10.	Endometrial blood flow in Zone -3	1.7	2.20	0.04	Significant
11.	Total USSR score	10.40	12.15	.003	Significant

- The statistical analysis revealed that the mean score of the quantity of bleeding 1.08 (BT) changed to 0.41 (AT) and this was statistically significant with a P-value of 0.014.
- The statistical analysis revealed the mean score of vaginal discharge BT is 1.17 and AT is 0.42, which is statistically significant with a P-value of 0.02.

- The statistical analysis revealed the mean score of dysmenorrhea BT is 2.12 and AT is 0.75, which is statistically significant with a value of 0.09.

Endometrial Parameters

- The statistical analysis revealed while comparing the Endometrial Layering, before treatment (mean 0.85) to after treatment (mean 0.70) with Wilcoxon signed-rank test, 4 subjects showed negative

ranks, 1 subject showed positive ranks and 15 subjects showed no change with z value -1.342 and p-value 0.180 which is statistically not significant.

- The statistical analysis revealed the myometrial contractions, before treatment (mean 0.87) to after treatment (mean 0.25) with Wilcoxon signed-rank test, 6 subjects showed negative ranks, 1 subject showed positive ranks and 1 subject showed no change with z value -1.89 and p-value 0.05 which is statistically not significant.
- The statistical analysis revealed the myometrial echogenicity, before treatment (mean 1.00) to after treatment (mean 0.13) with Wilcoxon signed-rank test, 13 subjects showed negative ranks, 00 subjects showed positive ranks and 2 subjects showed no change with z value -3.60 and p-value 0.00 which is statistically highly significant.
- The statistical analysis revealed the uterine artery Doppler, before treatment (mean 1.00) to after treatment (mean 1.50) with Wilcoxon signed-rank test, 6 subjects showed negative ranks, 11 subjects showed positive ranks and 3 subjects showed no change with z value -1.37 and p-value 0.168 which is statistically not significant.
- The mean of Endometrial thickness before the treatment was 7.31mm after the treatment was 10.05mm and the mean difference is 3.27mm, which is statistically highly significant with a p-value of 0.000
- The mean of Endometrial blood flow in zone 3, before treatment, was 1.70 and after the treatment was 2.20 and the mean difference is 0.50, which is statistically significant with a 0.04 p-value.
- The total score of USSR means before the treatment was 10.40 after the treatment was 12.15 and the mean difference is 2.36, which is statistically significant with a p-value of 0.52

DISCUSSION

DISCUSSION ON DISEASE CONDITION

The birth of a new human life is one of the most miraculous inventions of nature and marks completeness to a couple's life. Therefore, infertility can cause a lot of psychosocial impairments including stress,

anxiety, depression, diminished self-esteem, declined sexual satisfaction and reduced quality of life. Infertility has been increasing enormously for the last few decades due to unhealthy diet habits, undue stress, bizarre sleep routine, environmental pollutants and late marriages. According to a survey by the Indian Council for medical research, 20 million couples in India are infertile. Despite the advancement in the medical department and has improved outcomes for infertile couples, treatment attempts remain largely unsuccessful. According to *Ayurveda*, a normal conception takes place when *Ritu*, *kshetra*, *Ambu* and *Beeja* unite in their normalcy. Hence *Ayurveda* aims to correct these four factors for infertility management. *Vata dosha* is one of the prime causes for this abnormality according to different references along with *dhathuksaya* and *Agni mandhya*. *Guduchyadi taila*, mentioned in *Bhavaprakasa Madhyama Khanda* describes in *phalasaruthi* that it is *streenaam garbada* and *vatahara*. *Guduchi* being the main ingredient having *rasayana* property and it is already proven as a powerful immunomodulator. This study was taken up to assess the efficacy of *Guduchyadi taila matrabasti* in the management of *stree vandhyatwa* after considering all the above aspects and also the prevalent rate of infertility.

In *Ayurveda*, the formation of the endometrium is not precisely defined, but *navina raja sthapana* can be considered as the regenerative phase of the endometrium. The endometrium is the innermost lining of the uterus, which plays an indispensable role in the menstrual cycle as well as pregnancy. Infertility due to implantation failure is not directly referred to anywhere in *Ayurvedic Samhita*. But the diseases in which we could assume that conception doesn't take place due to implantation defects are *Rakthaja*, *Arajaska*, and *vamini* and *vandhya yoni vyapads*^{10,11,12}. *Arthava* is the *upadhathu* of *rasa* and it works as *dhathuroopa* during fertilization by providing *poshana* and *Dharana* to the embryo. *Acharya kasyapa* and *chakrapani* considered *artava* as the eighth *dhathu*. *Vata* in its normal state of function sustains all the organs of the body. As explained by *Acharya Charaka*, *paramanu samyoga* and *vibhaga* is a function of

Vata dosha. Acharya Susruta mentions that the development of the fetus occurs by the rasa provided by the mother with the help of *Vata*. In the umbilical region, *garbha* lies in the seat of *jyothi (agni)*. *Vayu* and *agni* demarcate and dilate the *srothas* in all directions during the early stages of pregnancy. Apart from the above functions, *vata* is responsible for *sharira dhatu vyuhana karma*. Structural abnormalities like *sankocha* (constriction), *soursheerya* (pores formation), *shosha* (atrophy), etc. are seen in vitiation of *vata dosha*. The primary function of *pitta* is *pachaka karma*. ie transformation of one substance into another and is done by *paka karma*. Also, *Pitta* exhibits *ashraya ashrayi* relation with *rakta*. Thus, the reduction of *pitta* leads to the reduction of *rakta* as well. Furthermore, vitiated *pitta* causes *apakthi*- indigestion which leads to *ama* formation and causes *srothorodha* and it ultimately obstructs *Rasavaha srothas* and its *upadhathu artava*. The function of *kapha* is *upachaya* which means development. *Kapha* is predominant of *pruthwi* and *aap mahabhutha*. Acharya susruta mentioned during *garbhakala pruthwi* and *aap* does the function of *samhanana* and *Kledana* respectively. And the fetus gets nourished by *upasneha* and *upaweda*. Hence vitiated *kapha* can hamper fetal nourishment. The process of cell division and regeneration from the basal layer of endometrium can be understood as *samyoga* and *vibhaga karma* of *vata*. During the early stage of pregnancy, there will be enlargement of uterine glands and blood vessels in the endometrium this can be correlated with the statement of *Sushruta* that the *parivrudhi* of *garbha* takes place by *purana* of *srothas* with the help of *vata*. *Pitta* is responsible for all *paka karmas* in the body. Also, with the *asraya asrayibhava pitta* influences *rakta* formation. Therefore, we can infer that angiogenesis of the spiral arteries is influenced by the *pitta dosha*. *Kapha* is similar in quality to estrogen (which is responsible for priming of the endometrium). Under the influence of estrogen, the stromal and epithelial cells proliferate and increase in vascularity. Similarly, *kapha* does *upachaya* function. All these above-said factors validate that the imbalance in these *doshas* can lead to a defective endome-

trial formation and functioning during the pregnancy. Moreover, Acharya have quoted without *vata*, *yoni* never gets vitiated, and here *yoni* can be taken as the whole reproductive system which includes endometrium. Hence, we can infer that vandyatwa due to reduced endometrial receptivity is understood as a *vata* predominant tridosha condition, the treatment also should be direct towards *tridosha shamana* having the prime focus on *vata*.

DISCUSSION ON TREATMENT PROTOCOL¹³

Ayurveda being the ancient system of medicines offers several therapies for the management of *vandhyatwa*. *Panchakarma* is the main line of treatment of *vandyatwa* as it removes *srothorodha* and maintains *tridosha Sathmyata*. *Basthi* is one of the systemic unique procedures of *Panchakarma* with a wide range of therapeutic actions. The advantage of *basti* is that it can act as *shodhana*, *shamana* and *sangrahaniya*. *Vayasthapana*, *sukra vardhana*, *sareeropachaya*, *balakara* are the added benefits of *basti karma*. As *Pakvashaya* is the main location for *Vata Dosha*, *Basti* is principally advised in *Vata* predominant diseases. It is classified as *niruha* and *anuvasana basthi*. *Anuvasana basthi* is highly beneficial for women those who are infertile. The action of *basti* is predominantly on *vata dosha* and *pakvashaya*. *Vasthi karma* is indicated in *alparaja* and *anarthava* conditions. It does the *dhathu pushti* by eliminating *dhushitha apana* and thereby achieves *avyapanna garbhsambhava samagri*. From the *pakvashaya basthi dravyas* are transmitted all over the body due to their *veerya* and pacifies the *doshas* which are aggravated and normalize *rasa raktadi dhathu nirmana*. *Mathra Basti* post absorption reaches into the Enteric Nervous System (ENS) and the endogenous opioids in the ENS especially endorphins (β -endorphin) get stimulated, and it helps in the release of GnRH and regularizes HPO axis function.

DISCUSSION ON DRUG

The drugs such as *Guduchi*, *Jeevaniya gana dravyas*, *Shathavari*, possess *Rasayana* properties, which helps in the proliferation and rejuvenation of endometrium. *Guduchi* being the main ingredient possess *Balya*, *Rakthashodhaka*, *Vrsuhya*, and *Sukradourbal-*

yahara properties. By these *gunas* it revitalizes all the *dhathus*, including *rasa dhathu* and its *upadhathu artava* also enhances follicular growth and blood supply towards the *garbhashaya* and regularizes *bi-jotsarga* by *Tridosha shamaka* property. It has been identified that failure of implantation is associated with reduced levels of immunomodulatory cytokine expression in the endometrium, because of the presence of phenylpropanoids and sesquiterpenes in *Guduchi*, it might show immune stimulation action, thereby helped in increasing the cytokine expression level. Besides, the phytoestrogenic content in *jeevaniya gana dravyas* exerts their effect on selective estrogen receptor modulators. Phytoestrogens can be beneficial in the hypoestrogenic state in the body, and it has a greater affinity towards estrogen receptors. The *deepana*, *Pachana*, *sangrahi* properties of *Guduchi*, *Himsra*, *Karkata srungi*, *shathahwa*, and *Trijatha* improve the *agni* which is vital for *dhathu parinama*. In that way *uttarothara dhathu* and *upadhathu poshana* take place. The *jivaniya*, *Brimhaniya*, *Balya*, *Ojovardhaka*, *Sukrajanaka*, *Abhishyanda karaka* and *Vata nashaka guna* of *Go-khseera* enhance the *rasa dhathu*. And *tila taila* has the quality of *garbhashaya shodhaka*, *Vrushya* and *yonishulahara*. Apart from this the presence of Vitamin E in *Tila taila* might have helped in endometrial growth. Hence, we can conclude that all of these properties collectively act in increasing the receptivity of endometrium thereby resulting in successful implantation.

Discussion on Results

QUANTITY OF BLEEDING:

This present study showed a significant effect on regularizing the bleeding. *Apana vata* which is responsible for *artava nishkramana* and *basthi* is said to be highly beneficial for *vatic* disorders. *Basthi chikitsa* acts on the endocrine level and thus corrects the formation of the endometrium during the early proliferative phase.

DYSMENORRHEA

At the end of the intervention, there was a significant improvement in dysmenorrhea and clinically also the severity of pain has been reduced in all the patients

who had dysmenorrhea. According to *Ayurveda*, *vata* aggravation leads to dysmenorrhea and it can be correlated to *udavarthini yonivyapat*. This *vata prakopa* was brought under control by *basthi chikitsa*.

VAGINAL DISCHARGE

In this study group, there was a statistically and clinically significant result obtained in case of vaginal discharge after the treatment. The outcome can be attributed to the antibacterial and antifungal properties of *guduchyadi taila*.

ENDOMETRIAL RECEPTIVITY MARKERS

ENDOMETRIAL LAYERING

The morphology of the endometrium on ultrasound changes in a cycle-dependent manner. Normal triple line pattern (multi-layered or presence of midline echo) during the window of implantation has a positive predictive value for pregnancy. In this group majority of the subjects showed a hazy trilaminar pattern (85%) and 15% showed a distinct trilaminar pattern before the intervention. Post-treatment 70% had a hazy trilaminar pattern and 30% had a distinct pattern. That is improvement was seen in 4 patients, but it was not statistically significant with a p-value of 0.18. So, this reveals there is not much effect of treatment on endometrial layering.

MYOMETRIAL CONTRACTIONS

Contractions in the inner myometrial third are important for sperm transportation for implantation. These contractions can be detected throughout the menstrual cycle. Increased myometrial contractions to the fundus in the periovulatory period involved in sperm transport towards the tubes. In this study, 13 patients had normal contractions (> 3 contractions in 2 minutes) and 7 patients had less than 3 contractions in 2 minutes. After the intervention 6 patients showed improvement (>3 contractions in 2 minutes), As the Wilcoxon signed-rank test showed a p-value of 0.05. It can be concluded that there is a statistically insignificant difference in myometrial contractions before and after the intervention. This reveals no effect of treatment in increasing contractions in the myometrium. Myometrial contraction is regulated by both parasympathetic and sympathetic nerves via muscarinic cholinergic receptors. So, we can conclude that the

action of the drug at the muscular level is comparatively less.

MYOMETRIAL ECHOGENICITY

Myometrial echogenicity value was calculated as the hyperechoic area covering the whole endometrium. The echo pattern depends upon endometrial proliferation and stromal decidualization. The endometrial thickness and echo pattern are the most used parameter for evaluating the receptivity of endometrium in clinical practice. In this study, there was a noticeable improvement in echogenicity before and after the intervention with a p-value of 0.00 which is statistically highly significant. This helps in the homogeneous formation of the endometrial bed. Thus, maintains the normal iso echogenic pattern of the endometrium. The drug acted on the endocrine level to increase the myometrial echogenicity. So here we can understand that the mechanism of therapy appears to be more directed towards the endocrine level.

UTERINE ARTERY DOPPLER

Uterine artery indices have high sensitivity for the diagnosis of uterine blood flow impedance. Increased blood supply to the endometrium is seen during the phase when endometrium changes from mid-luteal to secretory, where uterine artery impedance is decreased resulting in an increased receptivity. In this study, analogizing pulsatility index before and after treatment showed no improvement statistically with a value of 0.168. It can be concluded that statistically insignificant difference between pulsatile index before and after the treatment. This shows there is no effect of treatment in correcting the pulsatility index.

ENDOMETRIAL THICKNESS

The uterine lining is important to conception since the embryo must implant into the endometrial lining to initiate the pregnancy. In this study, there was a remarkable improvement in endometrial thickness before and after the treatment with a p-value of 0.000, which is statistically highly significant. All the phytoestrogens present in the *guduchyadi taila* help in regulating endocrine function thereby forms a healthy endometrial bed. The drugs *jeevaneeya gana dravya*, *Shathavari* etc. have *brimhana* action, which nourishes the uterine lining. Bovine lactoferrin pre-

sent in the cow's milk which is the base of *guduchyadi taila* have the property of increasing mRNA expression of VEGF. So, we can conclude that the *taila* is stimulating angiogenesis activity thereby increased the thickness of the endometrium.

TOTAL SCORE OF USSR

Applebaum's scoring is a simple and invasive method for the prediction of pregnancy rates. A perfect score of 20 has been associated with 100% conception. Low USSR demonstrated decreased receptivity of the endometrium. i.e. Endometrial thickness, blood flow towards the endometrium and sub-endometrial areas are useful prognostic factors for a successful pregnancy. In this study, none of the patients had a total perfect score of 20. The total score of the USSR means before the treatment was 10.40 after the treatment was 12.15 and mean is the difference is 2.36, which is statistically significant with a p-value of 0.52. This reveals there is a significant effect of the treatment in increasing the USSR score.

CONCLUSION

Endometrial receptivity is an intricate mechanism, and it is very difficult to differentiate in each parameter. While assessing the parameters, Myometrial contractions and Pulsatile index is found to be more related to the neurological function. The formation of Myometrial echogenicity, endometrial thickness and endometrial blood flow is associated with the vascular and estrogen receptor action. By correcting the above three parameters we can understand that the drug is mainly acted on the vascular and endocrine levels. As this formulation is mentioned in *Vatarak-tadhikara*, we can assume that the drug combination will also have a role in the correction of *Vata* and *Rakta dushti*. Thus, this formulation can be effectively used to increase endometrial receptivity. A satisfactory result was obtained when we analyze the score of the USSR. Post-intervention 3 patients got conceived and an improvement in total score was seen in 13 patients. Thus, the success rate of the study based on conception is 15% and based on improvement in Applebaum's scoring is 65%.

REFERENCES

1. Fast Facts About Infertility. Available at: <http://www.resolve.org/about/fast-facts-about-fertility.html>. Resolve: The National Fertility Association. Accessed July 26, 2017
2. Hoffman L Barbara, Schorge O John, et al. Williams Gynecology, 3rd edition. New Delhi: Mc Graw Hill Education Pvt Ltd;2016. p.450.
3. Haritha. Haritha Samhitha, trutiya sthana, vandyaroga lakshana, Chapter 48, Verse 1-6. Edited by Jamini Pandey, Varanasi: Chaukamba Visvabharati;2010. p.558
4. Sushrutha, Dalhana, Sushrutha Samhitha, nibhanda sangraha, Edited by J T Acharya, Shareera sthana, sukrashonithasudhi sareeram, Chapter 2, Verse 33 Varanasi: Chaukambha Sanskrit Sansthan;2010. p.129
5. TandulwadkarSunitha R, The Art and Science of assisted reproductive technology, 1st edition, 2015. p.250.
6. VaidyaYadvajiTrikamji, editor. Commentary of chakrapani of charakasamhita, Sidhisthana; Kalpasidhiadyaya. Chapter 1, Verse 129. Varanasi; Choukambha Sanskrit sansthan;2013;P.68
7. VaidyaYadvajiTrikamji, editor. Commentary of chakrapani of charakasamhita, Sidhisthana; Snehavyapadsidhiadyaya. Chapter 4, Verse 24. Varanasi; Choukambha Sanskrit sansthan;2013;P.339
8. Shrimadbhisakabhushna (Bhavamisra), Bhavaprakasha, madhyamakhandha; vatarakthadhikara, Chapter 29, Verse 132, Chaukambha publications, Samskrutha bhavana;2010; P.311
9. Fritz A Marca, Speroff Leon. Clinical gynaecology and infertility, 8th edition, New Delhi: Wolters Kluwer India Pvt Ltd;2012. p.123-124
10. 94. Agnivesha, Charaka, Dridhabala, Charaka Samhita, chikitsa sthana, yonivyapad chikitsa adyaya, Chapter 30, verse 115. Edited by Jadavaji Trikamji Acharya, Chaukhambha Prakashan, Varanasi;2013. p.636. 95.
11. Agnivesha, Charaka, Dridhabala, Charaka Samhita, shareera sthana, atulyagotriyam, Chapter 2, Verse 14. Edited by Jadavaji Trikamji Acharya, Varanasi: Chaukhambha Prakashan;2013. p.308
12. Sushrutha, Dalhana, Sushrutha Samhitha, nibhanda sangraha, Edited by J T Acharya, Uttarasthana, Yonirogadyaya, Chapter 38, Verse 10, Varanasi: Chaukambha Sanskrit Sansthan; 2010. p.313.
13. Sharma Ram Nivas & Sharma Surendra, Sahasrayogam, Varanasi: Chowkhamba Sanskrita Pratistan, 2009, Pp-318, P-74,75

Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Reemalakshmi. M et al: A Clinical Study To Evaluate The Efficacy Of Guduchyadi Taila Matrabasti In Vandhyatwa W.S.R. To Endometrial Receptivity. International Ayurvedic Medical Journal {online} 2021 {cited September 2021} Available from: http://www.iamj.in/posts/images/upload/1984_1991.pdf