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CLINICAL ASSESSMENT TO EVALUATE THE EFFICACY OF BALA TAILA MATRA BASTI IN THE MANAGEMENT OF VANDHYATVA (INFERTILITY)

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ABSTRACT

Introduction: Vandhyatva is defined as the inability of a couple to achieve conception after 1 yr of unprotected coitus. Acharya Susruta equating germination of a seed with achievement of conception says that if ritu (season or period near ovulation or ritukaala), beeja (seed i.e. ovum and sperms), kshetra (field i.e. female reproductive system) and ambu (water i.e. nourishing substances) assemble together, the conception will definitely occur. Vitiation in any of these factor cause infertility. He mentioned that in cases of vandhyatva (sterility) basti(enema) should be prescribed to women with bala taila who has undergone evacuation as described under Mudhagarbaha chikitsa. Aacharya Charak says that all the gynaecological disorder is because of vitiation of Vata. Vatadosha is the prime causative factor of any yoniroga including infertility. Acharya Charak also says that BASTI is the ardhha chikitsa of vata. Considering this, it has been planned to evaluate the significance and impact of Matrabasti with Bala taila in cases of vandhyatva because it is Brimhaniya, Balya as well as Prajasthapana. **Methodology:** A total of 30 patients unable to conceive even after a year of unprotected coitus, were registered for an Open Randomised Clinical Trial conducted at the *Outpatient* and *Inpatient Department* of Prasuti Tantra Evum Stree Roga Department Government Ayurvedic College and Hospital, Ghy-14, Assam. **Result:** Only 1 patient out of 30 patients conceived, where statistically no comment can be made. **Discussion:** The trial drug was found effective after the first follow up i.e. one month from

the starting of the clinical study incase of Ritu. But in case of Kshetra and Beeja, the effect was seen only after the completion of treatment. Due to the relatively short duration of the treatment, the results regarding conception have been limited. A longer treatment period is necessary to achieve more definitive outcomes and to allow for a more thorough evaluation.

KEYWORDS: Vandhyatva, Matrabasti, Infertility, Bala Taila, Ritu.

INTRODUCTION

प्रीर्तिर्बलं सुखं वृत्तिर्विस्तारो विपुलंकुलम् ।

यशाो लोकाः सुखोदर्कास्तुष्ठिश्चापत्यसंश्रिता ।।

(Charak Samhita Chikitsa sthana 2/1)

Motherhood, has been considered a boon since time immemorial. The significance of a woman is often seen in her ability to give birth to a new life, which is considered almost as divine. When this ability is delayed or challenged, it is referred to as Infertility. The social stigma is attached to the barren people in earlier period as well as today.

In Ayurveda, inability to conceive is described under the heading ‘Vandhyatva'. Vandhyatva is defined as the inability of a couple to achieve conception after 1 yr of unprotected coitus. Infertility is an agonizing problem in the reproductive age of couples, often disrupting both their personal and social lives.

Ayurveda offers a range of treatment modalities for Vandhyatva including Ahara-Vihara, i.e, Ushna and Agneya dravyas (Ahara) and Life style modifications (Vihara) for maintaining normal menstrual cycle. Vata dosha is the prime causative factor of any Yoni roga including infertility. Moreover, Basti is considered to be the Ardhachikitsa of Vata. So, Bala Taila Matra Basti is studied in this work. Bala Taila has Vatashamak and Brimhaniya properties thereby, creating normalcy of Apana Vayu However, many patients come to our hospital after exploring all available modern medical options with little success. They arrive with renewed hope seeking relief through Ayurvedic treatments, which have proven to be highly effective in addressing their struggles. Therefore, this study is completed to re-evaluate the effect of Bala Taila Matra Basti in infertility in scientific way following subjective parameters.

The present study has been divided into various chapters for a clear understanding as follows-

1. Introduction
2. Review of literature in both Ayurvedic and modern perspective, related to *Vandhyatva*.
3. Detailed description of the trial drug and its pharmacological actions.
4. Clinical study including methodology.
5. Results and Analysis of the study.
6. Discussion.
7. Summary and Conclusion
8. References and bibliography.

AIM AND OBJECTIVES

Aim

- To evaluate the efficacy of Bala taila matrabasti in the management of Vandhyatva.

Objectives

- Conceptual study (both Ayurvedic and Modern point of view) of Vandhyatva.
- Standardization of Bala Taila Matra Basti in the management of female Infertility.

HYPOTHESIS

- Bala taila is effective in the treatment of Vandhyatva.

REVIEW OF LITERATURE

Historical Review

History is the foundation of all scientific inquiry. When tracing the history of Vandhyatva, it is necessary to consider various historical eras because in antiquity, a fertile woman was praised and a barren woman was disintegrated. Since, Reproductive system is very complex system because it gives life to a lifeless body. Therefore, its study is found in all vedic literatures from Rigveda to Atharvaveda. But Atharvaveda has gone into detail and Charak made a serious effort to solve the disease related to reproduction. Most intense and detailed study of Vandhyatva was done by Harit Samhita in Samhita kala.

Table 1: Samhita Kala.

Sushruta Samhita	Charaka Samhita	Vagbhata Samhita	Harita Samhita	Kashyap Samhita
-Vandhyatva is described under the heading Vandhya yonivyapad[1]	-It has been included in the indications of Panchakarma.[2]	-Both Vagbhatas described key fertility factors, noting that Vandhya results from abnormal Beejamsa.[3]	-Only Harita has classified Vandhyatva[4] -Prognosis has been mentioned.	-Pushpaghni in Jataharini chapter addresses anovulatory infertility and other conditions causing childlessness.[5]

REVIEW OF FEMALE REPRODUCTIVE SYSTEM

Anatomy of female reproductive system and description of yoni with its *Traya-avarta* concept is unique to Ayurveda.

Etymology

The word ***Yoni*** is etymologically derived from the verbal root yu (join, unite, fasten or harness) from which derived the english word **'yoke'**; ni is added to the root word to form a noun with active meaning. Thus, *yoni* means 'what joins or unites'.[6,7]

Yoni is a Sanskrit word which connotes the female sexual organs such as vagina, vulva, and uterus.[6,7]

ANATOMICAL CONCEPT OF YONI IN AYURVEDA

Shape of *yoni*

- *Yoni* resembles *sankhanabhi* in shape and has three *avartas*. *Garbhashaya* is in 3rd *avarta.*[6]

Nadis of yoni

There are mainly *3(three) nadis* namely *samirana, candramasi* and *gauri.*[7]

Shroni (Pelvis)

- Sushruta mentioned 5(five)- one *gudasthi*, two *nitambasthi* and one *trikasthi.*[8]
- Vagbhata wrote 4(four) *asthis*- one *bhagasthi*, one *trikasthi* and two *nitambasthis.*[9]
- Joints of *Shroni* are three in number and they are of *tunnasevani* type. In *guda*, *bhaga* and *nitamba, sandhis* are of *samudga* type.

***Bhaga*- Vulva**

द्वादशाङ्गुलानिभगविस्तार:……. (Su.Su. 35/12)

Acharya Sushruta mentioned the measurement of *bhaga* as 12(twelve) *angulas*.

Apatyapatha

The passage through which the offspring comes out is called *apatyapatha*. This term is mentioned in the context of *Mudhagarbha, Arsha* and *Pradara* meaning vaginal canal.

Garbhashaya

Woman possess one extra ashaya as *Garbhasaya*, situated in third *avarta of yoni*, behind urinary bladder, in between *pakwashaya* and *pittasaya*; or in between *utpalakanda* of *srotas*, covered with coils of intestine.It resembles mouth of *rohita fish*. Arundatta mentioned that it is made from essence of *rakta* and *mamsa* and is derived from intestines.[11,12,13,14]

***Dhamani* (arteries)[15,16]**

Two types of *Dhamani* are mentioned:

a. *Urdhwagamani:* Urdhwagama dhamanis are present which are meant to carry *stanya* from breasts.
b. *Adhogami*: These carry *artava.*

***Siras* (veins)**

Sushruta described 2(two) veins situated in root of each breast.

PHYSIOLOGICAL CONCEPT OF FEMALE REPRODUCTIVE SYSTEM

Artava

- ***Nirukti***

ऋतोभवमार्तवम्स्त्रीणांयदपत्यमार्गातशुद्धमोषत्कृष्णंविगम्धं

चवायुप्रेरितंलोहितंप्रवर्ततेतदार्तवमुच्यते। (A.H.Sa.1/1 Arunadutta)

Ritu indicates particular period or season. *Bhavam* means to happen or to occur. The entire thing indicates that *artava* flows out on specific period or time by action of *vayu.*

Paryayas

In different context, the word '*artava*' has been used in Ayurvedic classics to denote menstrual blood, ovum, bleeding during pregnancy, ovarian hormones etc. such as

- *Artava*[17]
- *Shonita*[18]
- *Asrik*[19]
- *Rakta*[20]
- *Lohita*[21]
- *Rudhira*[22]
- *Puspa*[23]
- *Bija*

Paribhasa

मासि मासि रजः खीणां रसर्ज स्रवति त्र्यहम् ।

वत्सराद् द्वादशादूर्ध्वं याति पञ्चाशतः क्षयम् ।। *(A.H.Sa.1/7)*

That which is produced from *rasa* and flows every month for three days in woman, is called *artava.* The process starts from 12 years of age and ceases after 50 years. It flows out from *apatyamarga* without any association of pain, burning sensation and sliminess.

Formation of Artava

रसात्स्तन्यंततोरक्तं……।

रसादेवस्त्रियांरक्तंरजःसंङ्ग्य *(Ch.Chi.15/17)*

In classics the origin of *artava* has been mentioned as: Rasa dhatu, Rakta dhatu, Aharasa, Upadhatu of rakta.

Parimana of Artava

स्त्रीणांरजसोअन्जलयच्चत्वार (A.S.Sa. 5/98)

चत्वारोरजस: स्त्रिया:।। (A.H.Sa. 3/81)

-It is four *Anjali* (approx. 4 ounces)

Artavavaha srotas

आर्तववहेद्वे, तयोर्मूलंगर्भाशयआर्तववाहिन्यच्चधमन्य:,

तत्रविद्धायांवन्ध्यात्वंमैथुनासहिष्णुत्वमार्तवनाच्च। (Su.Sa. 9/12)

- These are two in number, having roots in *garbhashaya* and *artavavahi dhamanis*.
- Any trauma or injury to these srotas can cause *vandhyatva*, *maithuna asahtwa* and *artavanasha*.
- These may be considered as uterine arteries, especially their capillary bed, because these arteries are responsible to carry *artava (artavavahi dhamanis*) and have attachment with uterus and injury to these vessels may result in infertility and amenorrhea due to absence of proper blood supply to uterus along with endometrium.
- Dyspareunia may also occur due to associated inflammation caused during injury and psychological upset due to amenorrhea etc.

***Rituchakra*[20] (Menstrual cycle)**

Entire period of one month (candramasa=28 days) is divided in three phases i.e.

i) *Rajahsrava* (menstruation): 3 to 5 days

ii) *Ritukala* (proliferative phase including ovulation): 12-16 days

iii) *Rtuvyatitkala* (post-ovulatory phase or secretory phase): 9-13 days.

***Shuddha Artava Lakshanas*[21,22,23,24]**

- Intermenstrual period of one month.
- Duration of blood loss is 5 days.
- Is not associated with pain or burning sensation.
- Excreted blood is not unctuous, not very scanty or excessive in amount.
- Colour resembles the red juice of lac, red lotus flower, fruit of jequirity or rabbit's blood.

According to Sushruta[23]

- Colour resembles blood of rabbit or like laksha Ras.
- Does not stain cloth.

DISEASE REVIEW

VYUTPATI

Vandhya:

बन्ध्य् (धातु) + ण्यत् (प्रत्यय) = बन्ध्य

Then बन्ध्य + टाप् (प्रत्यय) = बन्ध्या

बन्धत्व

बन्ध (धातु) + त्व (प्रत्यय) (Shabdakosh)

The word Vandhya is derived from the root "Vandh" with "Yak" Suffix, which means barren, unproductive, fruitless and useless. Hence, Vandhyatva is a condition where the female is unable to conceive even after unprotected intercourse.

Table 2: Classification.

Charak	Harita[28]	Rasa Ratna Samuchchaya[29]	Bala Tantra[30]
• Sapraja[26] • Apraja[27 • Vandhya[25]	• Kakavandhya • Anapatya • Garbhasravi • Mritavatsa • Balakshaya • Dhatukshayaja	• Adivandhya • Vataja • Pittaja • Kaphaja • Sannipataja • Bhutaja • Daivaja • Raktaja, • Abhicharaj	• Tripakshi • Subhrati • Sajja • Trimukhi • Vyaghrini • Baki • Kamali • Vyaktini • Vandhya

Harita samhita[29]

Harita has described six types of Vandhya with special clinical features.

1. Kakavandhya: one child sterility
2. Anapatya: - woman who has never conceived. or primary infertility.
3. Garbhasravi: - The woman with repeated abortions.
4. Mritvatsa: - The woman who has repeated still births.
5. Balakshaya: - Infertility due to loss of Bala (strength)
6. Balya/Dhatukshayaja:- Infertility due to balaya avastha, garbhakosabhanga, dhatukshaya avastha i.e congenital disorder, chromosomal or genetic abnormalities.

Bala Tantra[30]

Eight types of Vandhya are described according to the causes

1. Tripakshi: Menstrual cycle of 45 days.
2. Subhrati: Dystrophy of genital organs and skin discoloration.
3. Sajja: Irregular menstrual cycle.
4. Trimukhi: Excessive watery discharge during coitus.
5. Vyaghrini: hardly conceives once due to old age
6. Baki: white discharge per vaginum at around 8^{th} or 10^{th} day, incurable.
7. Kamali: Continuous watery discharge from yoni, incurable.
8. Vyaktini: In this type of Vandhya, the patient suffers from prameha

FACTORS ESSENTIAL FOR CONCEPTION

Four essential factors for garbha formation described by **Acharya Sushruta**[31] are as follows:

1) Ritu (Rajah Samay)
2) Kshetra (Garbhashaya)
3) Ambu (Rasa dhatu obtained from ahara rasa)
4) Bija (Shukra and Artava)

When the four factors come together, conception is bound to occur. If anyone of these factor is not functioning properly, it leads to Vandhyatwa.

निपातादेव गृह्णति रागं वासोयथाऽमलम्। ध्रुवं गर्भ तथा बीजं क्षेत्रं बीजमुपस्कृतम्।। (As.Sh. 1/68)

Acharya Vagbhata says that just as clean cloth absorbs any dye on contact, similarly a well prepared field quickly receives the purified seeds & sustains the garbha.

Healthy garbhashaya (uterus), marga (vagina, follopiantube), Rakta, Sukra, Anil (Apanvayu), hridaya (mind) all in a healthy state produces a healthy progeny.

1) Ritu: explained by Sushruta, Dalhana, Bhavamishra, as tabled below:

Table 3.

Sushruta	Dalhana	Bhavamishra	Indu
Susruta says ritukala is on 12th day from onset of menstruation.[32]	Dalhana explains the duration of ritukala as 16 and 12 days.[33]	Rtukala is on 16th day from menstruation[35,36]	Bija deposited during ritukala is sure to bear fruit, hence called so.[34]

Significance of ritukāla is explained as follows[37,38]

Acarya Susruta and Vagbhata have explained that like a lotus flower which closes after sunset; similarly the cervical opening closes after ritukala, hence it is hostile to sperm entry.

2) Kshetra (Garbhāśaya or Uterine cavity)[41,42]

इदं शरीरं कौन्तेय! क्षेत्र इत्यभिधीयते। (भगवद्गीता) क्षेत्रं गर्भाशयः। (डल्ह.टी.)

Ksetra denotes our body in general and to be very specific especially in relation to prasuti-tantra it is garbhasaya or the uterine cavity. Hence kṣetra in strisarira is garbhasaya. As tabled below**:**

Table 4.

Charak	Bhela
Unvitiated sukra-sonita and a healthy uterus can produce a healthy progeny.[39]	सुकृष्टक्षेत्रे (Decidua) i.e. endometrium which is well prepared for conception. Bija when embedded in well prepared, unvitiated, healthy uterine cavity results in pregnancy, like the paddy or barley sown in well ploughed field sprouts readily.[40]

It can also be explained as Kshetra means Yoni, Garbhashaya & Yoni Marga (Shthana of fertilization and fetus development) where Garbha formation and development takes place. Success of conception and development of Garbha depends upon health status of Garbhashaya.

Shuddha Garbhashaya is required for safe conception and development of fetus but it also protects the Garbha from external shock. Therefore, abnormality of the uterus can lead to infertility. The Garbhashaya abnormalities, mainly affect power of implantation. Garbhakoshabhanga (prolapse of uterus or its displacement) can also cause infertility and pregnancy loss. Impairment in Garbhashaya can lead to improper implantation and loss of pregnancy.

3) Ambu[43,44] (Nutrition/Nourishment)

Ambu, resembling Rasa dhatu, is crucial for nourishing the fetus. Upasneha and Upasveda are processes that support fetal development in early and later stages, respectively. Nutrients are transported from the mother to the fetus via the Rasavaha nadi to the Nabhinadi. Proper nourishment through Ambu is essential to prevent fetal deformities, miscarriages, and stillbirths.

Acharya Charak and Sushruta explained it as mentioned in the table below

मातुस्तु खलु रसवहायां नाड्यां रसवहायां नाड्यां गर्भ नाभि नाडी प्रतिबद्धा, साऽस्य मातुराहार रस वीर्यमभिवहति। तेनोपस्नेहेनास्याभिवृद्धिर्भवति। असञ्जाताङ्गप्रत्यङ्गप्रविभागमानिषेकात् प्रभृति सर्वशरीरा- वयवानुसारिणीनां रसवहानां तिर्यग्गतानां धमनीनामुपस्नेहो जीवयति। (सु० सं० शा० ३/३१).

Table 5.

Sushruta	Charak
• From rasavahasrotas of mother, the nutrition is passed to the foetus via garbha nadi. By circulation of these potent nutrients the foetus grows. • Conception to conspicuousness of the body parts the foetus is nourished by upasneha and upasweda through the dhamani which travel obliquely throughout the body.	• The Gametes are nourished by rasa (ahara rasa) which provides mahabhuta also. • Rasa is predominantly ap mahabhūta, hence this factor is called ambu.Qualities of rasa dhatu are drava, sara, manda, snigdha, picchila, by which it causes the function of prinanam, raktapusti, dharana, tusti.

4) Beeja[45,46] (Gametes)

Beeja refers to sperm (Shukra) in men and ovum (Artava) in women. The union of sperm and ovum results in Garbha (fetus). Any issues with Beeja can impact conception and progeny. Male infertility conditions such as oligospermia, azoospermia, and aspermia affect fertility. Acharyas emphasize the importance of Shuddha Shukra and Artava for successful conception.

Table 6.

Dalhana	Charak
Bija means ovum and sperm from female and male respectively	Bija means gametes (sukra and shonita).

Anil Vata[47,48]

1. Reproductive Functions and Vata: Reproductive organs depend on Vata; without it, Yoni cannot function properly. Vandhyatva (infertility) is linked to Vata disorders and is detailed in eighty types of Vatavyadhi, as noted in Bhela Samhita.

- **Shadbhavas[49] (Six Factors)**

1) Matrutaha and Pitrutaha: Normalcy of Shonita (blood) and Shukra (sperm).

2) Atma and Satvatah: Atma (soul) and Satva (mind faculty) are essential for Garbha (embryo) formation.

3) Satmyataha and Rasataha: Satmyataha refers to wholesomeness, while Rasataha pertains to nutrition., respectively; Rasa (nutritional essence) is crucial for both maternal health and embryo survival.

VANDHYATVA NIDANA

As described by

A) Charaka
B) Sushruta
C) Vagbhata
D) Bhel Samhita
E) Bhavaprakash
F) Kashyap Samhita
G) Harita samhita
H) Other Nidanas

A) Charaka: If the Yoni is vitiated due to Yonivyapad, it fails to receive Shukra, preventing proper conception. Moreover, a diseased Yoni impedes the reception of Shukra, disrupting fertilization. Even if fertilization occurs, impaired implantation hinders successful conception.

योनिप्रदोषान्मनसोऽभितापाच्छुक्रास्गाहार विहारदोषात्।

अकालयोगाद् बलसंक्षयाच्च गर्भं चिराद्विन्दति सप्रजाऽपि।। (च.सं.शा. 2/7)

1) Yonipradosha
2) Manasik dosha
3) Sukra dosa
4) Ahara dosa
5) Asrig dosha
6) Vihar dosha
7) Akal yoga
8) Bala sankshaya

All these are the causes responsible for delay in conception even in a sapraja lady. They can be considered as factors influencing fertility of primary and secondary infertility.

1) YONI PRADOSHA

The complete reproductive system is referred to as "Yoni". Therefore, diseases affecting the anatomical parts of the reproductive system, such as the vagina, cervix, uterus, and fallopian tubes, whether inherited or acquired, can be included under this topic. It includes,

Yoni Vyapad[50]

- **Yonivyapad Overview**: Yonivyapada encompass a broad range of diseases affecting

female genital organs. If not properly treated, all twenty types of Yonivyapad can lead to infertility (Abeejata)

- **Asruja Yonivyapad**[51]: Characterized by excessive bleeding during early pregnancy, this condition leads to pregnancy loss and is associated with secondary infertility.
- **Vamini**[52,53]: This disorder involves the forceful expulsion of Shukra (sperm) with Artava (ovum) within six to seven days, preventing pregnancy continuation. It corresponds to a Luteal Phase Defect in modern medical terms, leading to implantation failure and infertility.
- **Putragni Yonivyapad**[54]: Causes repeated pregnancy loss due to Artava Dosha (disorder of the menstrual blood), resulting in infertility.
- **Shandi Yonivyapad**[55]: Arises from Beeja Dosha (sperm or ovum disorder), leading to sterility and inability to conceive.

2) **MANASIKA DOSHA:** Psychological well-being is crucial for achieving pregnancy. Factors such as fear of sex, marital discord, and infrequent coitus can impact fertility. Intercourse with a psychologically disturbed partner—whether due to fear, sorrow, anger, or digestive issues—can be ineffective. Negative emotions like fear, sorrow, and anger vitiates Vata, increasing hypothalamic Corticotropin Releasing Hormone (CRH) activity. This disrupts normal GnRH (Gonadotropin Releasing Hormone) secretion and leads to anovulatory cycles, affecting fertility.

3) **SHUKRA DUSHTI**: Infertility is brought on by both quantitative and qualitative abnormalities in sperm and spermatic fluid. Sperm carries Pitruja Bhavas, which is categorized under six elements, to the embryo.

4) **AHARA DOSHA:** Infertility is brought on by dietary disorders in two ways:

- They affect hormones by generating Dhatukshaya.
- By depleting Doshas, which result in a range of gynecological conditions that impair fertility.

Dietary deviations affect the body's ability to absorb nutrients or lead to a loss of Dhatus, which affects the hormones. People are drawn increasingly to packaged and manufactured foods these days, even if they have lower nutritional value. This is turning into one of the main reasons for illness. According to a research study, genetically modified foods are starting to pose a serious threat to fertility and are driving up the rate of infertility globally.

5) **ASRIGA DOSHA:** Ovum, menstrual blood, and ovarian hormones are all referred to by the word "artava."Because beejarupi artava is destroyed, artava vitiated by various doshas results in infertility. Anovulation and irregular menstruation are caused by defective folliculogenesis

6) VIHARA DOSHA

Abnormal lifestyle can cause infertility in two ways:

1. Vitiation of Doshas: Faulty lifestyle habits, such as excessive alcohol, smoking, and suppression of natural urges, aggravate Doshas, leading to gynecological disorders.
2. Impaired Sperm Entry: Abnormal coital practices or improper deposition of semen, such as non-supine postures or semen discharge outside the vagina, prevent proper sperm entry into the uterus, causing infertility.

7) AKALA YOGA

Other than during ritu kala, sexual activity is typically unsuccessful for conception. Another way to conceptualize Kala is as the age factor for both genders. Males are considered totally developed by Ayurveda at the age of 25 and females at the age of 16. Thus, they should try to conceive. Harita believed that infertility is the result of having sex with a female before she menarches, which constricts her cervix.

8) BALA KSHAYA

Bala refers to physical strength and capacity to become pregnant. Here, probably Bala refers to infertility due to unknown cause or premature aging or any systemic disorder.

When normal semen is introduced into the healthy vagina during a well developed proliferative phase which is accompanied with ovulation, then the coitus thus becomes fruitful resulting in conception.

Also Acharya Charak says that a vata rogi stree does not conceive inspite of all the other factors being favourable.

अतिस्थूलस्य तावदायुषो ह्रासो जरोपरोधः कृच्छ्रव्यवायता दौर्बल्यं दौर्गन्ध्यं...। Ch..Su. 21/3

Maithunasahatwa plays an important role in female infertility due to atisthulyata.

B) Sushruta Samhita

वातपित्त श्लेष्म शोणित कुणपगन्धि गृन्थि पूतिपूय क्षीण मुतृपूरीष रेतसः पृजासादने न समर्था

भवति।।

(Su.Sh. 2/3)

Women suffering from vatadi astaartavadusti is unable for prajautpadan.

स्थिकं स्थितं हन्ति गर्भ पुतृध्नी रक्तसंस्रवन। (Su.Utt. 38/1)

Due to bleeding in putraghniyonivyapad conception does not occurr.

C) Vagbhata

तत्रात्यशिता क्षुधिता पिपासिता भीता विमनाः शोकार्ता कुद्धाऽतिमेदुराऽन्यकामाऽव्यवायकामा वा न गर्भ धत्ते विगुणं वा। तथापुरुषोऽपि। (As.Sharir. 1/58)

To be avoided from sexual relation

1) Women who eats more
2) Women who has not eaten
3) Thirsty
4) Frightened
5) Sorrow
6) Angry
7) Soka
8) Meda
9) Desire for other man
10) Desire for sex (herself)

In all above conditions, conception does not occur.

D) Bhel Samhita[58]

- The sukra which falls on bahyanadi does not conceive.
- Women who is afflicted with vata dosha does not conceive

E) Bhavaprakash[57]

- Sukra which falls on samirananadi does not bear fruit.

F) Kashyap Samhita[56,59,60,61]

- Girls & boys passing quivering stream of urine remain infertile.When high dose sodhan drugs is given in mridukostha individuals following Snehan and swedan, it may cause

excessive bleeding leading to vata and kapa dosha vitiation. These causes destruction of beeja and artava resulting in vandhyatva.

- Kashyap describes Jataharini as a force that destroys the progeny of women who engages in unrighteous, non-religious, or inauspicious activities, or who are unclean, harbor hatred, or disrespect sacred entities such as gods, cows, Brahmins, teachers, and elders. Additionally, in the condition of Puspaghnijataharini, women may menstruate without ovulation, exhibiting corpulent cheeks and excessive facial hair.

G) Harit Samhita[68,69]

- Harita mentions that constriction of uterus or vulva as a result of coitus with a girl before menarche also causes infertility.
- In Vandhyatva, the milk-carrying channels are obstructed, resulting in absence of milk secretion and increased blood loss during menstruation.

H) Other Nidanas are as follows

- **Injury to Artavavaha Srotas[62]**: Acharya Sushruta has included Vandhyatva under the clinical feature of injury to Artavavaha Srotas along with other symptoms i.e. dyspareunia and amenorrhea (anovulation).[33]
- **Yoniarsha[64]**: Yoniarsha produces infertility by destroying the Artava.
- **Garbhakosha bhanga[63]:** Word 'Bhanga" also refers to prolapse of uterus or its retro-displacement, one of the cause of infertility.
- **Bhaga sankocha[63]:** During coitus with a girl before her menarche (very young girl), deep lacerations or tear of vulva and vagina may take place. Healed scars of these ulcers may produce constriction of vagina; thus, hampering proper penetration of penis during coitus resulting into incomplete coitus, a cause of infertility**.**
- **Sphalita mutratva[56]:** Sphalitamutratva in girls, characterized by partial obstruction or spasm of the urethra, can contribute to Vandhyatva (infertility). A common cause of this condition is gonorrheal urethritis, where gonococci bacteria inflame both the reproductive and urinary systems. Gonorrheal salpingitis, resulting from this infection, is a frequent cause of infertility**.**
- **Utkshipta yoni[66]:** Upward displacement of cervix in cases of retro flexion of uterus is one of the cause of infertility.
- **Aticharana Yoni Yyapada[65]:** Acharya Sushruta says that this disease is caused by excessive coitus. The woman does not achieve conception. All the authors have accepted

excessive coitus as the cause of this condition. Charaka and Vagbhatta have described it to be Vataja, while Sushruta due to Kaphaja. In the initial stage, due to intense sexual desire, the woman may feel vaginal itching and due to repeated coitus may have excessive mucoid unctuous secretion from cervical and endometrial glands, which are the clinical features of Kapha as explained by Sushruta. Bhavaprakasha has explained that in this condition the woman discharges Raja before the ejaculation of male partner. It appears to be analogous to vaginal inflammation due to excessive coitus associated with infertility.

Probable Samprapti[67]

Although the Samprapti of Vandhyatva is not explained in the text, it makes sense in the following ways: Agnimandya arises from the numerous aharaja, viharaja, and Manasika nidanas, afflicting samana vata, pachakagni, which leads to kapha dushti, which in turn leads to Ama, resulting in Rasadushti. As a result, formation of upadhatu Artava is affected, which in turn causes Nashtartava leading to Vandhytva. On a deeper level, it is also understandable that Dhatvagni Mandhya in rasavaha Srotas leads to Artava Dushti, which in turn leads to Vandhyatva.

Samprapti Ghatakas

- Dosha: Vata Pradhana tridosha. Dushya: Rasa, Rakta, Artavava Srotas: -Rasavaha, Artavavaha Srotodushti: Sanga
- Rogamarga: Abhyantara
- Sadhya sadhyata: Krichra Sadhya

MANAGEMENT[70,71,72,73,74,75]

In classical texts, Acharyas described the diagnosis (Nidana) and treatment (Chikitsa) for Vandhyatva (infertility) within various contexts, tailoring the approach to the underlying causes. The treatment encompasses addressing the specific pathological conditions causing infertility, avoiding etiological factors through Nidana Parivarjana, employing basic treatment methods such as Garbhaprada Yogas, and adhering to regimens recommended for Garbhaadhana to support and enhance the chances of conception.

1) **Nidana parivarjana:** Numerous etiological reasons can lead to infertility. The first and most important step in treatment is determining those causes and sternly avoiding them.
2) The specific pathology should be diagnosed and treated accordingly:

a) **Panchakarm:** Use dosha-specific therapies such as Vamana (therapeutic emesis) and others.
b) **Sthanika Chikitsa:** Local treatments like Kalka (pastes), Pichu (cotton packs), and Yoni Prakshalana (vaginal cleansing).
c) **Shukradoshahara Chikitsa:** Therapies aimed at correcting Shukra dosha, including Rasayana (rejuvenation), Vajeekarana (aphrodisiac), and Mutra Roga Hara (treatment for urinary disorders).
d) **Treatment for Yonivyapad[76]:** After finishing the preparatory Purvakarma, Panchakarma Chikitsa should be carried out. Since, Vata is a major factor in Yonivyapad, effectively managing Vata vitiation is essential to prevent Yoni disorders. This includes using Lavana Taila, performing Swedana with Panda Sweda and Kumbhika Sweda, and applying Parisheka with Sukhoshna Jala. Additionally, incorporating Vatahara Ahara and, if suitable, administering Uttarabasti after Shodhana can be beneficial for the condition.

e) Treatment of Anartava[77]

Shatavari - Shatapushpa – was mentioned by Acharya Kashyapa in relation to Artava Nasha. Shada can even get a son

Basic treatment methods in vandhyatva

- The infertile women should be prescribed vamana, virechana and asthapana bastis by which she will conceive positively.
- Niruha basti is like a nectar to an infertile woman
- Anuvasana basti is an ideal treatment in beeja dosh asambandhi vandhyatva
- Yapana basti is very ideal in stree vandhyatva
- Ashwagandha sidda ksheerapaka every day in morning hours after ritu snana
- Lakshmana mula uprooted in pushya nakshatra, pounded with milk
- Lakshmana kalka with ghee or milk for nasya

Other yogas

- Narayana Taila, Shatavari Taila, Phala Ghrita, Lasuna Ghrita, Shatavari Ghrita, Kalyanaka ghrita, Kushmanda avaleha.

INFERTILITY

Infertility is defined as a failure to conceive within one or more years of regular unprotected coitus. According to WHO scientific group: “Having had consummated the marriage; without

the use of contraceptive, a couple fails to achieve a pregnancy for a period of one year or more is infertility Approximately 80% of couples conceive within 12 month, 93% will do so within 24 months, 8% remain infertile by the end of 24 month., Causes are identified in 90% of patients, Pregnancy results in 40% of those.

TYPES OF INFERTILITY

1) **Primary infertility**: It denotes those patients who have never conceived**.**
2) **Secondary infertility:** It indicates previous pregnancy but failure to conceive subsequently.

FACTORS ESSENTIAL FOR CONCEPTION

Fertilization, implantation and maintenance of pregnancy depend on a series of complex and inter-related events:

Table 7.

Sl. No.	Factors Essential for Conception	
1	Male factor	Healthy Spermatozoa should be deposited high up in the vagina or near the cervix.
2	Cervical Factor	Spermatozoa should undergo changes (capacitation, acrosome reaction) and acquire motility.
		Quality and quantity of cervical mucus must permit passage of spermatozoa
		Motile spermatozoa should ascend through the cervix in the uterine cavity and the fallopian tubes.
3	Ovarian factor	There should be ovulation
4	Tubal factor	The fallopian tubes should be patent
		Oocyte should be picked up by the fimbriated end of the tube and fertilized at the ampullary portion of the tube.
5	Endometrial factor	Endometrium should be prepared by estrogen, progesterone, IGF-I, cytokines, integrin‟s for implantation and corpus luteum should function adequately

CAUSATIVE FACTORS

Causes of Infertility

- Ovulatory dysfunction: 30-40%
- Tubal disease: 25-35%
- Uterine factors: 10%
- Cervical factors: 5%
- Pelvic Endometriosis: 1-10%

Common Causes of Female Infertility

Table 8.

Ovulatory dysfunction	**Tubal and peritoneal factors**	**Uterine factors**	**Cervical factors**	**Vaginal factors**
Anovulation or oligo-ovulation	Altered tubal motility	Uterine hypoplasia	**Chronic cervicitis abnormal.**	Atresia vagina (partial or complete)
Decreased ovarian reserve	Pelvic adhesions, tubal obstruction	Inadequate secretory endometrium	congenital elongation of cervix	Transverse vaginal septum
Corpus luteum insufficiency	Distortion of normal tube and ovarian relationship	Fibroid uterus	2nd degree uterine prolapse	**Septate vagina causing dyspareunia**
Luteinized unruptured follicle	Impaired pick up of oocyte by the fimbria	Tubercular endometritis	and acute retroverted uterus,	**vaginitis and purulent discharges**
PCOD(Polycystic Ovarian Disease)	Previous tubal surgery or sterilization	**Uterine synechiae or congenital malformation of uterus**	pinhole os,	Vaginismus
	Endosalpingeal damage, Salpingitis		cervical mucus, cervical polyp	

IMPORTANT FACTORS OF INFERTILITY

1) Age and Infertility

- Fecundity declines with age i.e, fertility decreases particularly after age 35.
- The rise in chromosomal abnormalities is not directly caused by the chronological age of the oocyte or its extended meiotic arrest. Instead, it occurs because the normal oocytes are ovulated and selected first.
- Aneuploidy caused by aging includes trisomy 21, down syndrome, the possibility of spontaneous miscarriage, and chromosomal abnormalities for X, Y, 18 and 21.

2) Fertility issues with obesity

- Periods that are irregular or infrequent.
- A higher chance of becoming infertile.
- An elevated miscarriage risk.
- A lower rate of success with reproductive remedies
- Dysfunctions in the secretion of pituitary gonadotropin, GnRH, and the hypothalamus

3) Smoking and Alcohol

- Infertility rates are higher and conception times are longer in women who smoke

compared to non-smokers, with passive smoke exposure having effects nearly as significant as active smoking.

4) Toxins in smoke can hasten follicular depletion and raise the risk of genetic mutations in gametes or early embryos. Alcoholism may cause amenorrhea and ovulation issues.

5) Strenuous Exercise

Research on exercise indicates that menstrual disruption results from a combination of calorie restriction and intense aerobic activity, like jogging four to ten kilometers daily. Women engaging in such exercise experienced various issues, including luteal phase failure, infertility, prolonged menstrual cycles, absence of the midcycle LH (Leutinizing Hormone) surge, altered gonadotropin production patterns, and anovulation.

6) Drugs

- Caffeine: High consumption is associated with reduced fertility.
- Marijuana: Disrupts GnRH (Gonadotropin Releasing Hormone) secretion and can impair reproductive function in both genders, affecting ovulation in women.
- Cocaine: Harms spermatogenesis and considerably elevates the risk of tubal disease in women.

7) Stress & Emotions: Emotional stress affects hormonal regulation by raising levels of corticotrophin-releasing hormone (CRH), which leads to irregular secretion of FSH (Follicle StimulatingHormone) and LH. This disruption can cause anovulation and contribute to infertility.

8) Faulty Dietary Habits: Eating spicy, fermented, and junk foods can result in nutritional deficiencies that impact the H-P-O (Hypothalamo- Pituitary- Ovarian) axis, leading to gynecological disorders and infertility.

9) Infrequent Intercourse: Limited understanding of coital techniques and timing can impede conception, as can the use of spermicidal lubricants.

10) Environmental Toxins: Exposure to pollutants, dioxins, and xenoestrogens can impair fertility in both men and women.

11) Psychiatric Illness: Can cause hypothalamic dysfunction and anovulatory infertility;

antipsychotic drugs may affect the hypothalamus and cause hyperprolactinemia.

12) Endocrine Disorders

- Cushing's Syndrome: Leads to menstrual irregularities and reduced fertility.
- Thyroid Disorder: Both hyperthyroidism and hypothyroidism affect fertility, with hypothyroidism potentially causing hyperprolactinemia.
- Diabetes: Poorly controlled diabetes can lead to anovulatory infertility. Type I diabetes may cause hypothalamic-pituitary dysfunction and premature menopause, while Type II diabetes, associated with hyperinsulinemia, can lead to PCOS (Polycystic Ovarian Syndrome) and gestational diabetes.

13) Genetic Conditions

14) Other Health Issues: Includes sexually transmitted diseases (STDs)

15) Immune Factors

Hormone estimation

- **Serum Progesterone:** Serum progesterone levels are measured on days 8^{th} and 21^{st} of a 28^{th} day cycle. Ovulation is indicated by an increase in levels from below 1 ng/ml to above 6 ng/ml.
- **Serum LH:** The LH surge can be identified by measuring serum LH daily at midcycle. About 34 to 36 hours following the start of the LH surge is when ovulation happens. It occurs roughly 10–12 hours following the peak of LH.
- **Serum estradiol:** reaches its highest rise roughly 24-36 hours before ovulation and 24 hours before the LH surge. In vitro fertilization uses the estimation of estradiol and serum LH.
- **Urinary LH*:*** To identify midcycle LH surge, LH kits are offered.

Once a urine LH surge is detected, ovulation almost invariably happens within 48 hours, typically within 14–26 hours.

Endometrial biopsy

With tools like the Pipelle endometrial sampler or Sharman curette, obtaining endometrial samples to determine ovulation (endometrial sampling) can be done quickly and easily as an outpatient operation. However, dilatation and curettage should only be used in situations

requiring a large-scale endometrial examination, such as endometrial tuberculosis.

TREATMENT OF INFERTILITY

Couple instructions

- **Psychological Support**: Infertility can be emotionally challenging for couples. It's crucial to handle them with care to minimize psychological distress. Ensuring that the couple feels supported and understood throughout the investigation and treatment process is essential.
- **Simultaneous Treatment:** When minor defects are found in both partners that collectively impact fertility, it's important to address these issues concurrently. Even if a severe abnormality is identified, maintaining an optimistic outlook and discussing the situation positively can be beneficial.

Lifestyle Modifications

- **Body Weight**: Maintaining an optimal Body Mass Index (BMI) of 20–24 is crucial for fertility. Both overweight and underweight conditions should be corrected to enhance reproductive potential.
- **Smoking and Alcohol**: Reducing or eliminating smoking and excessive alcohol consumption can significantly improve fertility outcomes.
- **Coital Timing**: Evaluate coital issues through detailed questioning. For better chances of conception, time intercourse around mid-cycle. Use an LH test kit daily from day 12 to day 16 of a regular cycle to detect the LH surge. Intercourse should be timed 24–36 hours after the color change on the dipstick for optimal results. Address any minor psychosexual issues as necessary.

Treatment Modalities for Female Infertility

- Ovulatory Disorders: Address issues related to irregular or absent ovulation.
- Tubal Factors: Treat conditions affecting the fallopian tubes.
- Associated Disorders: Manage conditions like endometriosis that may impact fertility.
- Infections or Endocrinopathies: Treat infections and hormonal imbalances.
- Cervical Issues: Address problems related to cervical mucus or the cervix itself.
- Immunological Factors: Investigate and treat any immune-related causes of infertility.
- Unexplained Infertility: Explore all possible causes when no specific issue is identified.
- Uterovaginal Canal Disorders: Treat abnormalities in the uterine or vaginal structures.

- Assisted Reproductive Technology (ART): Consider ART methods such as IVF (Invitro Fertilization) or ICSI (Intracytoplasmic Sperm Injection) for more advanced treatment.

Assessment and Management of Ovulation

1) Basic Work-Up

- Track basal body temperature to identify ovulation timing.
- Mittelschmerz (ovulation pain) can also indicate ovulation.

2) Ultrasonography

- Baseline Transvaginal Ultrasound: Detect uterine abnormalities and assess endometrial and ovarian conditions.
- Follicle Tracking: Monitor follicle development and endometrial thickness during the cycle. A dominant follicle is usually around 17 mm, and the endometrium should be 10–12 mm thick during the peri-ovulatory period. Diagnose luteinized unruptured follicles when the follicle fails to rupture despite elevated progesterone.

3) Serum Progesterone: Evaluated during the mid-luteal phase; levels above 6.5 ng/ml (ideally >10 ng/ml) confirm that ovulation has occurred.

4) Additional Hormones: Assess free T3, T4, TSH, FSH, LH, and prolactin for a comprehensive evaluation.

5) Endometrial Biopsy: Performed in the premenstrual phase or during laparoscopy. A secretory-phase endometrium confirms recent ovulation. Repeated biopsies showing a luteal phase defect help in diagnosis. Samples may be tested for infections using PCR.

6) Tubal Patency Tests

- Hysterosalpingography (HSG): Injects a radio-opaque material to visualize the uterus and fallopian tubes.
- Hysterosonography: Uses air, saline, or contrast medium to examine the uterus for potential blockages.

7) Hysteroscopy and Laparoscopy

- Hysteroscopy: Directly visualizes the uterine cavity
- Laparoscopy: Views pelvic organs and assesses tubal patency. Chromopertubation with methylene blue dye confirms tube patency and identifies blockages.

8) Postcoital Test

- Evaluates sperm-cervical mucus interaction. Examines cervical mucus for sperm presence and activity after intercourse, ideally conducted around ovulation when cervical mucus is most receptive.

9) Ovulation Induction

- Purpose: Treats ovarian dysfunction, a common cause of infertility. Medications promote follicular development and ovulation, enhancing the chances of conception. Treatments may include superovulation, controlled ovarian hyperstimulation, or standard ovulation induction. Address underlying causes such as PCOS, diminished ovarian reserve, central disorders, thyroid dysfunction, or rare ovarian tumors**.**

DRUG REVIEW

Ayurveda considers that the whole orchestra of treatment is governed by "*Chikitsa Chatuspada"* i.e four basic pillars of treatment and also their required qualities lead to the fastest recovery of the disease. Among the four basic factors of treatment, *Dravya* has been placed in the second-place quoting that it is a major tool in treating the diseases.

According to Maharsi Charaka, any substance that relieves the patient of his ailments is considered as *'Aushadhi'*. Hence sufficient attention should be paid while selecting a drug. Drugs are always considered as tool of a Physician. In Ayurvedic Classics, there are a lot of single and compound drugs available which are mentioned in several context. Most of them are not re-tested according to the current research methodology. Unless the drug is tested through this research methodology, the drug will not get proper recognition in the scientific world.

Indicated in the following

बन्ध्यानां शतपाकेन शोधितानां यथाक्रमम् । बलातैलेन देयाः स्युर्वस्तयस्त्रैवृतेन च ।।

(Su.Chi.38/89)

The infertile woman having undergone cleansing procedures should be given basti of bala taila described under mudhagarbha.

In this Bala Taila may help in normalizing the vitiated apana Vayu.

DRUGS USED

MORPHOLOGICAL DETAILS

Table 9: Showing Morphological details of Drugs of Bala Taila and parts used.

Drugs (sanskrit name)	Botanical name	Family	English name	Gana	Synonyms	Parts Used
Bala	Sida cordifolia	Malvaceae	Country Mollow	Bala, Brmhaniya, Prajasthapan, Madhurskanda (Charak) Vatasamsamana (Sushruta)	Vatya, Vatyalika' Vatyapuspi, vatyayani, Bhadroudani	Root
Bilva	Aegle marmelos	Rutaceae	Bael tree	Sothahara, Arshoghna, Asthapanopaga (Charak) Varunadi, Ambasthadi, Brhat panchamula (Susruta)	Malurah, Sandilya, Sadaphala, Gandha garbha	Fruit, leaves, root
Agnimantha	Clerodendrum phlomidis	Verbinaceae	Indian Headache tree	Sothahara, Shitaprasamana, Anuvasanopaya (Charaka) Viratarvadi, Varunadi, Vatasamsamana (Sushruta)	Arani, Ganakarika, Jya,Tarkari,Vataghna, Sriparni	Root, bark, leaf
Gambhari	Gmelina arborea	Verbinaceae	White Teak, Beech wood	Sothahara, Dahaprasamana, Virechanopaga (Charak) Sarivadi, Brihat panchamula (Sushruta)	Kasmari, Pitarohini, Madhparni, Sriparni	Root, fruit, leaves, flower
Shyonak	Oroxylum indicum	Bignonaceae	Indian Trumpet tree, Broken bones	Sothahara, Sitaprasamana, Anuvasanopaga (Charak) Rodhradi, Viratarvadi, Brihat panchamula	Tuntuka, Ari simbi, Dirghavrinka, Mayurjangha' Bhalluka	Root, bark

				(Sushruta)		
Patala	Stereospermum suaveolens	Bignonaceae	Yellow Snake Tree, Trumpet Flower	Sothahara (Charaka) Aragvadhadi, Brihat panchamula, Adhobhagahra (sushruta)	Kasthapatala, Tamrapuspi, Madhudhuti' Sitapatala	Root, bark, flower, seed, leaf
Brihati	Solanum indicum	Solanaceae	Poison Berry, Indian Night Shade	Kanthya, Hikkanigrahana, Sothahara, Angamarda-prasamana (Charak) Brihatyadi, Laghu panchamula (sushruta)	Dushpradharshini, Mahati, Vartaki, Simhi, Hinguli	Root, fruit
Kantakari	Solanum virginianum	Solanaceae	Yellow berried Night shade	Kasahara, Sothahara, Hikkanigrahani, Kanthya, Angamarda-prashamana (Charaka) Brihatyadi, Varunadi, Laghupan chamula (Sushruta)	Kshudra, Duhsparsha, Nidigdhika, Vyaghri	Whole plant, Root, Fruit
Shalparni	Desmodium gangeticum	Fabaceae	Shal leafed Bush	Angamardaprasamana, Sothahara, Balya, Snehopaga, Madhura skanda (Charaka) Vidarigandhadi, Laghupan chamula (Sushruta)	Amshumati, Guha Triparni, Dirghapatra, Vidarigandha, Sthira	Root
Prishniparni	Uraria picta	Fabaceae	Wizardry, Slight of hand	Angamarda, Prashamana, Sothahara, Sandhaniya (Charaka) Vidarigandhadi, Haridradi (Susruta)	Krostuvinna, Simhapucchi, Citraparni, Atiguha, Prithakparni, KalashiW	Root
Gokshura	Tribulus terrestris	Zygophyllaceae	Cow hage	Sothahara, Mutravirechaniya, Krimighna (Charak) Vidarigandhadi, Viratarvadi, Laghu	Ikshugandhika, Swadamstra, Trikantak, Palankasha	Fruit, Root

				panchamula (Sushruta)		
Yava	Hordeum vulgare	Poaceae	Barley	Sukadhanya (Charaka)	Atiyava, Taukya	Seeds
Kola	Ziziphus jujube	Rhamnaceae	Indian plum, Chinese date	Nyagrodhadi gana (Susruta)	Ajapriya, Badara, Badari	Fruit, Leaf
Kulattha	Dolichos biflorua	Fabaceae	Horse gram	Swedopaga mahakashaya (Charak) Chaksushya (Nighantu granthas)	Kulutthika, Kulali, Vanya Kuluttha	Stem,bark, heartwood
Til	Sesamum indicum	Pedaliaceae	Sesamum seeds	Swedopaga, Purishavirajaniya (Charak)	Tila, Vanyatila, Alpatila	Seed, oil
Saindhav lavana	Rock salt				Sindhu, Shiva, Shuddha,	Lavan
Agaru	Aquilaria agallocha	Thymaliaceae	Agarwood	Shitaprasamana, Swasahara, Shirovirechana, Tikta skanda (Charak) Salasaradi, Eladi, Shlesmasamana (Susruta)	Krimija, Krimijagdha, Loha, Anaryaka,Shrestha vriksha	Bark, Root
Sarjarasa	Vateria indica	Dipterocarpaceae	Dammer(Gum)	Vatadi varga (Bhavaprakash) Prabhadradi varga (Raja nighantu)	Ajakarna, Sarjaka, Shala, Marichapatraka	Bark, Gum
Sarala	Pinus longifolia	Pinaceae	Chir pine, Long leaved pine	Purishavirajaniya (Charak) Eladi (Susruta)	Pita vriksha, Surabhi daruka	Bark
Devdaru	Cedrus deodara	Pinaceae	Himalayan Cedar Dcodar	Stanya Shodhan, Anuvasanopaga (Charak) Vatasamshamana (Sushruta)	Indra daru, Amara daru, Sura kastha, Bhadra daru	Bark
Manjistha	Rubia cordifolia	Rubiaceae	Indian Madder	Jwarahara, Varnya, Visaghna (Charaka) Priyangvadi,	Jingi, Vastra Ranjani, Mandukaparni, Lohitalata, Kalamesi	Root

				Pitasamshamana (Sushruta)		
Chandan	Santalum album	Santalaceae	Sandalwood	Dahaprashamana, Angamardaprashamana, Trishnanigrahana, Varnya, Vishaghna, Kandughna (Charaka) Salsaradi, Sarivadi, Patoladi, Priyangvadi, Guduchyadi (Sushruta)	Gandhasara, Malayaja, Sweta chandan, Bhadrashriya	Bark, Stem
Kustha	Saussurea lappa	Asteraceae	Costus root	Shukra sodhana, Lekhaniya, Asthanopaga (Charak) Eladi gana (Susruta)	Utapala, Kashmira Vapya, Agada, Ama, Amaya, Padmaka	Leaf, Root
Ela	Elettaria cardamomum	Scitaminae	Lesser Cardamom	Swasahara, Angamarda prasamana, Katukaskandha, Shirovirechana (Charaka) Eladi (Sushruta)	Korangi, Dravidi, Tuttha, Triputa, Triti	Seed
Kalaanusarivam	Ichnocarpus frutescen	Apocynaceae	Black creeper	Jvara hara, Dahaprashamana, Stanyashodhana (Charaka) Sarivadi, Vidarigandhadi, Vallipanchamula (Sushruta)	Kalanusaryaka, Kalnusari	Root
Jatamansi	Nardostachys jatamansi	Valerianaeae	Spikenard	Sangyasthapana, Kandughna, Tikta skandhas (Charaka) Eladi gana (Susruta)	Tapasvini, Nalada, Bhuta jata, Mura	Rhizome
Saileyak	Parmelia perlata	Parmeliaceae	Stone flowers	Karpuradi varga (Bhavaprakash Nighantu) Chandanadi varga	Kalaanusaryakam, Shilapuspam	Panchang (whole plant)

				(Dhanvantari nighantu)		
Patra	Cinnamomum zeylanica	Lauraceae	Cinnamon	Eladi (Susruta)	Tvaka patra, Kavacha, Tanutvak	Bark
Tagara	Valeriana wallichi	Valerianaceae	Indian Valerian	Shitaprashamana, Tikta skanda (Charak) Eladi gana (Sushruta)	Natam, Kutila, Vakra	Root
Sariva	Hemidesmus indicus	Asclepidaceae	Indian Sarsaparilla	Jvara hara, Dahaprashamana, Purishasangrahaniya Stanya shodhana, Madhura skanda (Charak) Sarivadi, Vidarigandhadi, Vallipanchamula (Sushruta)	Ananta, Ananta mula, Chandana, Gopi	Root, Whole plant
Vacha	Acorus calamus	Araceae	Sweet flag	Lekhaniya, Arshoghna, Asthapanopaga, Shirovirechana, Sanjnasthapan, Shitaprasamana (Charak) Pippalyadi, Mustadi, Vachadi	Ugra gandha, Sataparvika, Sadgrandha	Kanda(rhizome)
Shatavari	Asparagus racemosus	LIliaceae	Asparagus	Balya, Vayasthapana, Madhura Skanda (Charaka) Vidarigandhadi, Pitta Samsamana, Kantakapanamula (Sushruta)	Indivari, Bahusuta, Satavirya, Suksmapatra, Atirasa	Root
Ashwagandha	Withania somnifera	Solanaceae	Indian Winter Cherry	Balya, Brimhaniya, Madhurskanda (Charaka)	Gatrakari, Turagi, Balya, Vajikari, Vajigandha	Root, Leaf
Shatapushpa	Foeniculum vulgarae	Umbelliferae	Dill seeds	Asthanopaga, Anuvasanopaga (Charaka)	Atilambi, Karavi, Mishi Madhura,	Fruit, Leaves

					Sitachatra	
Punarnava	Boerrhavia wallichi	Nyctaginaceae	Spreading Hog-weed	Vayasthapana, Kasahara, Anuvasanopaga, Svedopaga (Charak) Vidarigandhadi (Sushruta)	Kathillaka, Varsabhu, Sothaghni	Whole plant, Root, Leaf
Kakoli	Roscoea purpurea	Liliaceae	White Himalayan Lily	Balya, Brimhaniya, Shukrajanan, Madhurskanda (Charak)	Vayasoli, Swadumanishi, Vira, Kayasthika	Rhizome
Kshira kakoli	Lilium polyphyllum	Liliaceae	Himalayan Lily	Balya, Brimhaniya, Shukrajanan, Snehopaga (Charaka)	Shukla, Ksiravallika, Kshirni, Kshirashukla	Underground bulb
Jivaka	Microstylis wallichii	Orchidaceae	Jeevak	Shukrajanan, Snehopaganani, Jeevaniya (Charak) Kakolyadi, Vidarigandhadi (Sushruta)	Madhurah, Jivadah, Vrishalo, Dirgayu	Bulb
Rishabhak	Malaxis muscifera	Orchidaceae	Snake mouth Orchid	Jeevaniya, Shukrajanan (Charak) Kakolyadi, Vidarigandhadi (Sushruta)	Goraksha, Vrishabho, Rishabhak, Indraksha	Bulb
Riddhi	Habenaria intermidia	Orchidaceae	Intermediate Habenaria	Jeevaniya, Shukrajanan (Charak) Kakolyadi, Vidarigandhadi (Sushruta)	Aswasini, Aswasana, Asi, Bodhana	Tuber
Vriddhi	Habenaria edgeworthii	Orchidaceae	Intermediate Habenaria	Jeevaniya, Shukrajanan (Charak) Kakolyadi, Vidarigandhadi (Sushruta)	Tushti, Sampadashi, Pushtida	Tuber
Meda	Polygonatum verticillatum Linn	Liliaceae	Whorled solomon's seal	Jeevaniya, Sukrajaniya, Snehopaga Dashemani (Charak) Kakolyadi gana (Sushruta)	Basuchidra, Devamani, Pandura	Rhizome

Mahameda	Polygonatum cirrhifolium	Liliaceae	Kings Solomon's seal	Jeevaniya Dashemani (Charak) Kakolyadi gana (Sushruta)	Vasuchidra, Tridanti	Rhizome
Guduci	Tinospora cordifolia	Menispermaceae	Heart-leaved moonseed	Vayasthapana, Daha prashamana, Stanya shodhana, Trishna nigraha (Charak) Guduchyadi, Patoladi, Kakolyadi, Vallipanchamula (Sushruta)	Avyatha, Amrita, Amritavalli, Jivantika, Guduchika	Stem, Leaf, Areal roots
Mudgaparni	Phaseolus trilobus	Fabaceae	Common bean	Jivaniya, Sukrajanan, Madhuraskanda (Charak) Kakolyadi, Vidarigandhadi (Sushruta)	Kaka mudga,Kshudrasaha, Surpaparni	Panchanga, Mula
Masaparni	Teramnus labialis	Fabaceae	Vogel-Tephrosis	Jivaniya, Sukrajanan, Madhuraskanda (Charak) Kakolyadi, Vidarigandhadi (Sushruta)	Mahasaha	Panchanga, Mula
Padmakastha	Prunnus puddum	Rosaceae	Bird cherry	Vednasthapan, Varnya, Kashaya skanda (Charak) Sarivadi, Chandanadi, Padmakadi gana (Sushruta)	Padma Gandhi	Heart wood
Vansalochana	Bambusa arundinaceae	Poaceae	Thorny Bamboo		Venu, Yavaphala, Tvakasara	Nodes of bamboo trees
Karkatshringi	Semicarpus anacardium	Anacardaceae	Marking nut	Dipaniya, Bhedaniya, Kusthaghna(Charak) Nyagrodadi, Mustadi(Susruta)	Agnimukhi, Viravriksha	Bark and Root
Pundarika	Nelumbo nucifera	Nelumbonaceae	White lotus	Mutravirajaniya(Charaka) Utpaladi(Sushruta)	Padma, Tamarasa, Pankaja, Pushkara	Stem, seeds, fruit
Jivanti	Leptadenia	Asclepiadaceae	Cork swallow-	Jivaniya, Snehopaga,	Shaka shrestha	Roots

	reticulata		wort	Vayasthapana (Charaka) Kakolyadi gana (Susruta)		
Madhuyasti	Glycyrrhiza glabra Linn.	Fabaceae	Liquorice	Jivaniya, Sandhaniya, Varnya, Kanthya (Charak) Kakolyadi, Sarivadi, Anjanadi (Sushruta)	Klitaka, Madhuka, Madhuyashti, Jalayashti	Mula
Draksha	Vitis vinifera Linn.	Vitaceae	Grapes	Kanthya, Virechanopaga, Kasahara, Shramahara (Charaka) Parusakadi (Sushruta)	Mridvika, Gostani	Fruit

Table 10: Ayurvedic Properties of Drugs of Bala Taila.

DRUG	RASA	GUNA	VIRYA	VIPAKA	DOSHAGHNA
Bala	Madhura	Laghu, Snigdha	Shita	Madhura	Vata-pittahara
Bilva	Kashaya, Tikta	Laghu, Ruksha	Ushna	Katu	Vata-kaphahara
Agnimantha	Tikta, Katu, Kasaya, Madhur	Ruksa, Laghu	Ushna	Katu	Kapha-vatahara
Gambhari	Tikta, Kasaya, Madhur	Guru	Ushna	Katu	Vata-pittahara
Shyonak	Tikta, Kasaya, Madhur	Laghu, Ruksha	Ushna	Katu	Kapha-vatahara
Patala	Tikta, Kasaya	Laghu, Ruksha	Anushna	Katu	TRidoshahara
Brihati	Katu, Tikta	Laghu, Ruksha	Ushna	Katu	Kapha-vatahara
Kantakari	Katu, Tikta	Laghu, Ruksha, Tikshna	Ushna	Katu	Kapha-vatahara
Shalparni	Madhura, Tikta	Guru, Snigdha	Ushna	Madhura	Tridoshahara
Prishniparni	Madhura, Tikta	Laghu, Snigdha	Ushna	Madhura	Tridoshahara
Gokshura	Madhura	Guru, Snigdha	Shita	Madhura	Vata-pittahara
Yava	Kashaya, Madhura	Ruksha	Shita	Katu	Pitta-kaphahara
Kola	Madhura, Amla	Guru, Snigdha	Shita	Madhura/Amla	Vata-pittahara
Kulattha	Kashaya	Laghu, Ruksha	Ushna	Katu	Vata-kaphahara
Tila	Madhura, Kashaya, Tikta	Guru, Snigdha	Ushna	Madhura	Vatahara
Saindhav lavana	Madhura	Laghu, Snigdha	Shita	Madhura	Tridoshaghna
Agaru	Katu, Tikta	Laghu, Tikshna	Ushna	Katu	Vata-kaphahara
Sarjarasa	Kashaya,Tikta	Snigdha	Shita	Katu	Vata-pittahara
Saral	Katu, Tikta, Madhura	Laghu, Tikshna, Snigdha	Ushna	Katu	Kapha-vatahara
Devdaru	Tikta, Katu, Kashaya	Ruksha, Laghu	Ushna	Katu	Kapha-vatahara
Manjistha	Madhura, Tikta	Guru, Ruksha	Ushna	Katu	Kapha-pittahara
Chandan	Tikta, Madhura	Laghu, Ruksha	Shita	Katu	Kapha-pittahara
Kustha	Tikta, Katu, Madhura	Laghu, Ruksha, Tikshna	Ushna	Katu	Vata-kaphahara
Ela	Katu, Madhura	Laghu, Ruksha	Shita	Katu	Kapha-vatahara
Kalaanusariv am	Madhura, Tikta	Guru, Snigdha	Shita	Madhura	Tridoshahara
Jatamansi	Tikta, Kashaya	Laghu, Snigdha	Shita	Katu	Tridoshahara
Saileyak	Kashaya, Tikta, Madhura	Laghu, Snigdha	Shita	Katu	Pittahara
Patra	Madhura, Katu	Tikshna, Laghu, Picchila	Ushna	Katu	Kapha-vatahara
Tagara	Tikta, Katu, Kashaya	Laghu, Snigdha	Ushna	Katu	Kapha-vatahara
Sariva	Madhura, Tikta	Guru, Snigdha	Shita	Madhura	Tridoshara
Vacha	Katu, Tikta	Laghu, Tikshna	Ushna	Katu	Kapha-vatahara
Shatavari	Madhura, Tikta	Guru, Snigdha	Shita	Madhura	Vata-pittahara

Ashwagandha	Katu, Tikta, Kashaya	Snigdha, Laghu	Ushna	Katu	Vata-kaphahara
Shatapushpa	Katu, Tikta	Laghu, Tikshna	Ushna	Katu	Vata-kaphahara
Punarnava	Madhura, Tikta, Kashaya	Laghu, Ruksha	Ushna	Katu	Kapha-vatahara
Kakoli	Madhura	Guru	Shita	Madhura	Vata-pittashamak
Kshira kakoli	Madhura	Guru	Shita	Madhura	Vata-pittashamak
Jivaka	Madhura	Snigdha	Shita	Madhura	Vata-pittahara
Rishabhak	Madhura	Snigdha	Shita	Madhura	Vata-pittahara
Riddhi	Madhura	Snigdha	Shita	Madhura	Vata-pittahara
Vriddhi	Madhura	Snigdha	Shita	Madhura	Vata-pittahara
Meda	Madhura	Snigdha	Shita	Madhura	Vata-pittahara
Mahameda	Madhura	Snigdha	Shita	Madhura	Vata-pittahara
Guduci	Tikta, Kashaya	Guru,Snigdha	Ushna	Madhura	Tridosha shamak
Mudgaparni	Madhura	Laghu, Ruksha	Shita	Madhura	Tridoshahara
Masaparni	Madhura, Tikta	Laghu, Snigdha	Shita	Madhura	Vata-pittahara
Padmakastha	Kashaya, Tikta	Laghu, Snigdha	Shita	Katu	Kapha-pittahara
Vansalochana	Madhura, Kashaya	Laghu, Ruksha	Shita	Madhura	Kapha-pittahara
Karkatshringi	Kasaya, Tikta	Laghu, Ruksha	Ushna	Katu	Kapha-vatahara
Pundarika	Kashaya, Madhura, Tikta	Laghu, Snigdha	Shita	Madhura	Kapha-pittahara
Jivanti	Madhura	Laghu, Snigdha	Shita	Madhura	Chaksusya, Balya, Grahi, Rasayana
Madhuyasti	Madhura	Guru, Snigdha	Shita	Madhura	Tridoshahara
Draksha	Madhura	Snigdha, Guru, Mridu	Shita	Madhura	Vata-pittahara
Godugdha	Madhura	Swadu, Sheeta, Mrudu, Snigdha, Bahala,Shlakshna, Picchila,Guru	Shita	Madhura	Vata-pittahara

Table 11: Chemical Constituents of Drugs.

SL.NO.	DRUGS NAME (SANSKRIT)	MAJOR CHEMICAL CONSTITUENTS
1	Bala	Ephedrine, Hypaphorine,Vascicine, Vasicinol, Choline, Betaine, Phytosterol
2	Bilva	-xanthotoxin, umbelliferone, marmesin, ß-sitosterol ,xanthotoxol, marmesin, marmeline, aegeline, imperatorin
3	Agnimantha	Pectolinarigenin, scutellarein, apigenin. hispidulin, clerosterol, clerodin, clerodendrin A, Cerolic acid, Ceryl
4	Gambhari	ß-sitosterol, ceryl alcohol, gmelinol, butyric & tartaric acids. pigenin, premnazole, arborone, arboreol, isoarboreol
5	Shyonak	Baicalein, Tetulin, oroxindin, aloe-emodin, Chrysin, 6-methylether of baicalein oroxylium A; scutell- arein-7-rutinoside, prunetin, ß-sitosterol
6	Patala	Crystalline bitter substance
7	Brihati	Solanine, Carotene, Carpesterol, Solanocarpone, diosogenin, ß-sitosterol, lanosterol, solasodine, vit.C

8	Kantakari	B-carotene, diosgenin, carpesterol, solasodine, B-solamargine, solasonine, solasodino-L-rhamnosyl-B-D-glucoside, solanocarpine
9	Shalparni	N,N-dimethyltryptamine, hypaphorine, hordenine, caudicine, gangetin-3H, gangetinin, desmodin
10	Prishniparni	U.lagopodioides-flavonoids
11	Gokshura	Campesterol, ß-sitosterol and stigmasterol, neotigogenin
12	Yava	Seeds- Cyanogenic glycoside, ubiquinones, proanthocyanidins, glycosides of hordatines A & B, procyanidin B3, trimer of procyanidin C2, prodelphinidin, chrysoeriol, hordeumin, pangamic acid, protein, carbohydrates, calcium, phosphorus, iron.
13	Kola	Jujubosides A&B (seeds), zizogenin, zeatin, frang foline, saponin
14	Kulattha	Leaves- quercetin, rutin, root. chaksine & isochaksine, seed- ß-sitosterol, hydnocarpin, apigenin, raffinose.
15	Tila	Neutral lipids, glycolipids & phospolipids, sesamose, sesamolin, sesamolinol, sesamol, pinoresinol
16	Saindhav lavana	Sodium chloride, Calcium, Magnesium, Ptassium, Iron, Zinc, Copper, Sulphur
17	Agaru	Agarospirol, aquillochin. Holocellulose, lignan, pentosans; essential oils, viz., agarol
18	Sarjarasa	Oleoresin contains essen. oil, (+) camphena, a-& ß-pinene, limonene, chamazulene
19	Saral	Turpentine oil from the bark. - and B-pinene, abietic acid, pinosylvin, pinocembrin, pinobanskin, longifolene
20	Devdaru	Essential oil from wood p methylacetophenone, atlantone, sesquiterpenes (a&β- himoc halene. himachalol etc.); stem bark deodarın
21	Manjistha	Anthraquin-ones munjistin, purpuroxanthin, rubiatriol, rubicoumaric acid, rubifolic acid
22	Chandan	a-santalol, ß-santene, and santalenes santenol, teresantalol, nor-tricycloekasantalal, 1-santenone santanone, teresantalic acid, a-and ß-santantalic acids.
23	Kustha	Essential oil, costol, taraxas-terol, costunolide, dehydro costuhactone, alpha- cyclocostunolide, asterol, sesquiterpenes. Ar-curcumene, isodihydrocostuslactone
24	Ela	Bornneol, camphene, p-cymene, geraneol, heptane, D-limonene, linalool, menthone, methylheptenone, myrcene, nerol, nerylacetate, a- & B-pinenes, saibenene, a- & ß-terpeneols, n-alkanes, ascaridole, camphor, citral, citronellal, farnesol, sitosterol
25	Kalaanusarivam	Hyperoside, rutin, desinine, hexatriacontane, B- stosterol
26	Jatamansi	Actinidine, carotene, aristolens, calarene, calarenal, elemol, droaristolene, b-eudesmol; jatamols A & B: jatamansic acid, jatamansone, nardol, nardostachonol, nardostachone, patchouli alcohol
27	Saileyak	Iridoid glucosides, barlerin, acetylbarlerin, flavonoid glycoside, scutellarein-7- neohesperidoside, beta-sitosterol

28	Patra	Eugenol, d-a-phellandrene, cin- namic aldehyde, Linalool
29	Tagara	Hydroxyvaleranone, acctox- valeranone, linarin isovalerate, didrovaltratum, Valerosidatum, Valtrate, acevaltrate
30	Sariva	Hemidesminine, hemidesmin-1 and hemidesmin-2
31	Vacha	Acolamone, acorenone, acorag ermacrone, acoramone, acorone
32	Shatavari	Roots- Sarsapogenin; two spirostanolic & two furostanolic sponins; sitosterol, asparagamine A. Fruits- ß-sitosterol, sarsasapogenin, diosenin, asparamins A B. Leaves- favonoids, rutin.
33	Ashwagandha	Withaferin A; withanone, withanolide WS-1, withanolide A to Y, somnirol, somnitol; withasomniferin A, nicotine, preudotropine, tropine, solasodine, withasomnine, sitoindosides VII-X, sominone, sominolide
34	Shatapushpa	Fruit or seed oil- Carvone. dihydrocarvone, limonene; apiol, trans- dihydrocarvone, ß-caryophyllene, cugenol, cis-ocimene, ß-sitosterol
35	Punarnava	Hentriacontane, ß-sitosterol, oxalic acid, D-gla cose, punarnavoside, punarnavine-1, punarnavine-2
36	Kakoli	Carbohydrates, proteins, flavonoids, alkaloids, glycosides, tannin saponins.
37	Kshira kakoli	Linalool
38	Jivaka	linoleic acid, stearic acid, oleic acid
39	Rishabhak	Flavanoid, Tannins, Saponin
40	Riddhi	Gallic acid, Antioxidants, Scopoletin
41	Vriddhi	Lysine, Sucrose, Flavanoids
42	Meda	saponin, alkaloids, glycosides, phenols, flavonoids, tannins
43	Mahameda	beta-sitosterol, 6-stearic acid, dauvosterol, maleamic acid
44	Guduci	Tinosporin, Isocolumbin, tetrahydropalmatine, magnoflarine and palmatine
45	Mudgaparni	Vitexin, Kaempferol, lutcolin, quercetin
46	Masaparni	Glycosides, Saponins, Tannins
47	Padmakastha	Puddumin A, genistein, prunetin, genkwanin, cerasinone; two chalcones- cerasidin & cerasin.
48	Vansalochana	Methylanthraquinones, fucosterol
49	Karkatshringi	essential oils, resin, pistacienoic acids A & B, β- sitosterol, aromadendrene, camphene, caprylic acid, cineol
50	Pundarika	flavonol miquelianin, alkaloids, coclaurine and (1S)-norcoclaurine
51	Jivanti	n- triacontane, cetyl alcohol, beta-sitosterol, beta-amyrin acetate lupanol 3-O- diglucoside and leptidine glycoside
52	Madhuyasti	Glycyrrhizii, glycyrrhizic acid, glycyrrhetinic acid, liquirtin
53	Draksha	catechin, epicatechin, ß-sitosterol, ergosterol. jasmonic acid
54	Godugdha	Water, Lactose, Protein, Minerals

Table 12: For Murchhana of Tila Taila, the following drugs have been used by the reference of Bhaisajya Ratnavali.

Sl. no.	Drug	Rasa	Guna	Vipaka	Veerya	Dosha Karma
1	Manjithha	Tikta, Kashaya, Madhura	Guru, Ruksha	Katu	Ushna	Kapaha-pittahara
2	Haridra	Tikta,Katu	Ruksha Laghu	Katu	Ushna	Tridosha Shamak
3	Mustak	Tikta, Katu Kashaya	Ruksha Laghu	Katu	Sheeta	Kapaha-pittahara
4	Amalaki	Amla Madhura Tikta Kashaya, Katu	Guru Sheeta	Madhura	Sheeta	Tridosha shamak
5	Haritaki	Same as Amalaki (Kashaya pradhan)	Ruksha Laghu	Madhura	Ushna	Tridosha shamak
6	Bibhitak	Kashaya	Ruksha Laghu	Madhura	Ushna	Kaha-pitta Hara
7	Hrivera	Tikta	Ruksha Laghu	----	Sheeta	Kaha-pitta Hara
8	Ketaki puspa	Tikta Madhura, Katu	Laghu Snigdha	Katu	Ushna	Kaha-pitta Hara
9	Vatankura	Kashaya	Guru Ruksha	Katu	Sheeta	Kaha-pitta Hara
10	Lodhra	Kashaya, Tikta	Laghu Ruksha	Katu	Sheeta	Kaha-pitta Hara
11	Nalika	Madhura Tikta Kashaya	Sara Pichhila	Katu	Sheeta	Kapha-pittahara

PREPARATION METHOD OF TRIAL DRUG

Preparation of *Bala Taila*

- *Bala taila* has been prepared with all the drugs mentioned in table no.1. The taila has been obtained after getting the sneha paka (madhyam paka) siddhi lakshan.
- Packing was done inside 60 ml bottle and was stored in a cool dry place.

Pharmacognostic evaluation

- Colour- Brown
- Odor- Characteristic

PHYSICOCHEMICAL STUDY OF TRIAL DRUG

- Weight per ml: 0.8568

- Refractive index: 1.47
- Saponification value: 189.45
- Acid value: 0.561

MATERIALS AND METHODS

The purpose of any clinical trial is primarily to establish the efficacy of the drug in human. Appropriate medicine plays a paramount role in the success of treatment as it is the main factor lying with the management of a disease. In other words, there is direct proportional relationship between the success of the treatment and the genuineness of the medicine. So, the process of drug preparation, selection of the patient, trial methodology and follow up of the study and statistical analysis of the result is essential requirements for conducting a reasonably well planned and designed clinical study.

In the present study an Open Randomized Clinical Trial of *Bala Taila Matra Basti* has been carried out to evaluate its efficacy in *Vandhyatwa.*

REFERENCE OF THE TRIAL DRUG

Reference of Bala Taila Matrabasti in Vandhyatwa: Sushruta samhita/ chikitsa sthana/38/89.

PHASE 1: Prior to starting trial

- Following approval of the study synopsis and clearance from the ethical committee, the drug was prepared at the State Ayurvedic Pharmacy, GACH. The ethical approval number from the Instituitional Ethical Committee (IEC) is IEC/2022/299
- A sample of the drug was sent to Drug Testing Laboratory for physical evaluation, which confirmed the absence of heavy metals or toxicity. An authorised certificate for the trial drug test analysis was obtained.
- Prior to enrolling patients, the study was registered in the clinical trials registry with the CTRI trial no CTRI/2023/08/057151
- This is an Open Randomized Clinical Trial with total sample size of 30 patients.
- A comprehensive research proforma was developed incorporating all the signs and symptoms based on the disease concerned.
- Before administering the trial drug to patients, proper counseling and written consent were taken from each and every patient.
- All patients were selected based on predefined inclusion and exclusion criteria

PHASE 2: **Clinical Study Design**

Patients were enrolled in the trial based on specific criteria for inclusion and exclusion. A total of 30 patients unable to conceive even after a year of unprotected coitus, were registered for an Open Randomised Clinical Trial conducted at the *Outpatient* and *Inpatient Department* of Prasuti Tantra Evum Stree Roga Department Government Ayurvedic College and Hospital, Ghy-14, Assam.

The trial was designed in a group 0f 30 patients

- Received Bala Taila Matra Basti for 7 days for 3 consecutive cycles after the cessation of menstruation.

Dose: 60ml

Duration of Treatment: 3 consecutive cycle(3 months)

1) INCLUSION CRITERIA

The patients with the chief complaints of unable to conceive even after a year of unprotected coitus.

2) EXCLUSION CRITERIA

1. Patients with any pelvic pathology such as menorrhagia, fibroid, adenomyosis endometriosis, PID, malignancy of pelvic organs.
2. Patients suffering from acute infections.
3. Patients with Systemic diseases like Diabetes mellitus, CKD, HIV, Tuberculosis.

3) INVESTIGATIONS

- Hb%, RBS, TSH, Sr. Prolactin, AMH
- HIV, HbsAg, VDRL, TORCH
- Urine: R/E, C/S
- Blood urea, Serum Creatinine
- FSH, LH
- Ovulation test
- Hysterosalpingography(HSG)
- Ultrasonography of lower abdomen(USG)

4) EXAMINATION OF THE PATIENT

- The detailed history of the present complaint with duration and associated symptoms, were taken on predesigned specific proforma.
- Detailed Interrogation regarding chief complaints specially unable to conceive even after a year of unprotected coitus, menstrual history, presence or absence of associated symptoms, frequency of coitus, use of any contraception were taken.
- Interrogation regarding chief complaints especially duration of married life, menstrual history, presence or absence of associated symptoms, frequency of coitus, use of any contraception were taken
- Presence of family history was also inquired.
- Detailed menstrual history was also taken regarding the duration of menstrual bleeding, Interval in between occurrence of menstrual cycles, regularity of the menstrual cycles, amount of bleeding.
- History of any systemic illness including Diabetes mellitus, Hypertension, TB, Jaundice, Surgical Intervention, Blood Transfusion, Drug Sensitivity were noted. Obstetric history (if married) was also taken.
- Personal history regarding diet, habits, any addiction, occupation, drug history were also noted.

5) Clinical Examination

- **General Examination:** In the general condition of the patient. Pulse, Temperature, BP, Pallor, Icterus, Clubbing, Cyanosis, Oedema, Height, Weight etc. noted.
- **Systemic Examination:** Examination Central Nervous System, Gastrointestinal system Cardiovascular system, Nervous System, Urogenital system, noted.
- **Local examination:** Per Abdomen examination –
  - Inspection: Incisional scar, prominent veins over abdomen are examined and tenderness if any.
  - Palpation: Any palpable mass
  - Auscultation: Bowel sound

- **Per vaginal examination**
  - Inspection: Any kind of growth, ulcer, scarring, lesions or discharge.
  - P/V: Any discharge, vaginal mass like Bartholin cyst or Gartner cyst, vaginal atrophy or vaginal prolapse

- Per Speculum Examination: Cervical erosion, congestion, inflammation, ulceration, bleeding, polyp, ectropion or any abnormal discharge.

6) Subjective Parameters

- Ritu: Menstrual cycle
- Kshetra: Tubal, ovarian, uterine
- Ambu: hormonal factor
- Beeja: Ovum

Table 13.

RITU	KSHETRA	AMBU	BEEJA
• Menstrual history	• USG of Pelvic organ • Hysterosalpingography (HSG)	• HB% • RBS • TSH • FSH • AMH • Sr. Prolactin	• Ovulation test

Table 14: Scoring pattern of Ritu.

Parameters		Normal(G0)	Scanty(G1)	Heavy(G2)
RITU	Artava pramana (amount of blood loss)	3-4pads fully soaked/day	1-2 pads fully soaked/day	5-6pads fully soaked /day
	Duration of flow	3-4 days	1-2 days	5-6 days
	Regularity	Regular/Irregular		
	Pain	Present/Absent		

FINAL ASSESSMENT

The final assessment of overall effect of the therapy was done by below mentioned criteria:

A) Conceived

B) Non-conceived: a) Improved

b) Unchanged

Plan of Study

Trial Group and methodology: An Open randomised controlled trial was conducted involving 30 patients at *Prasuti Tantra Evum Stree Roga Dept* of GACH, Ghy -14. Detailed information was collected based on their demographic and clinical profile.

THERAPEUTIC STUDY

PREPARATION OF THE TRIAL DRUG BALA TAILA

बलामूलकषायस्य दशमूलीकृतस्य च । यवकोलकुलत्थानां क्वाथस्य पयसस्तथा ।। २७३ ।। अष्टावष्टौ शुभा भागास्तैलादेकस्तदेकतः । पचेदावाप्य मधुरं गणं सैन्धवसंयुतम् ।। २७४ ।। तथाऽगुरु सर्जरसं सरलं देवदारु च । मञ्जिष्ठां चन्दनं कुष्ठमेलां कालानुशारिवाम् ।। २७५ ।। मांसी शैलेयकं पत्रं तगरं शारिवां वचाम् शतावरीमश्वगन्धां शतपुष्पां पुनर्नवाम् ।। २७६ ।। तत्साधुसिद्धसौवर्णेराजते मृन्मयेऽपि वा । प्रक्षिप्य कलसे सम्यक् सुनिगुप्ते निधापयेत् ।। २७७।। बलातैलमिदं नाम्ना सर्ववातविकारनुत् । यथाबलं भिषङ् मात्रां सूतिकायै प्रदापयेत् ।। २७८ ।। या चगर्भार्थिनीनारी क्षीणशुक्रश्च यः पुमान् । (B.R. 26)

Table 15: Showing the ingredients of trial Drug Bala taila and quantity taken on the basis of taila.

SL. No.	Name of the drugs	Proportion	Quantity taken
1	Bala	4 part	40kg
2	Agnimantha	1part	4kg
3	Gambhari	1 part	4kg
4	Shyonak	1part	4kg
5	Patala	1 part	4kg
6	Brihati	1 part	4kg
7	Kantakari	1part	4kg
8	Shalparni	1part	4kg
9	Prishniparni	1 part	4kg
10	Gokshura	1 part	4kg
11	Yava	4part	40kg
12	Kola	4part	40kg
13	Kulattha	4 part	40kg
16	Saindhav lavana	1/4th part	2.5kg
17	Agaru	1/4th part	2.5kg
18	Sarjarasa	1/4th part	2.5kg
19	Sarala	1/4th part	2.5kg
20	Devdaru	1/4th part	2.5kg
21	Manjistha	1/4th part	2.5kg
22	Chandan	1/4th part	2.5kg
23	Kustha	1/4th part	2.5kg
24	Ela	1/4th part	2.5kg
25	Kalaanusarivam	1/4th part	2.5kg
26	Jatamansi	1/4th part	2.5kg
27	Saileyak	1/4th part	2.5kg
28	Patra	1/4th part	2.5kg

29	Tagara	1/4th part	2.5kg
30	Sariva	1/4th part	2.5kg
31	Vacha	1/4th part	2.5kg
32	Shatavari	1/4th part	2.5kg
33	Ashwagandha	1/4th part	2.5kg
34	Shatapushpa	1/4th part	2.5kg
35	Punarnava	1/4th part	2.5kg
36	Kakoli	1/4th part	2.5kg
37	Kshira kakoli	1/4th part	2.5kg
38	Jivaka	1/4th part	2.5kg
39	Rishabhak	1/4th part	2.5kg
40	Riddhi	1/4th part	2.5kg
41	Vriddhi	1/4th part	2.5kg
42	Meda	1/4th part	2.5kg
43	Mahameda	1/4th part	2.5kg
44	Guduci	1/4th part	2.5kg
45	Mudgaparni	1/4th part	2.5kg
46	Masaparni	1/4th part	2.5kg
47	Padmakastha	1/4th part	2.5kg
48	Vansalochana	1/4th part	2.5kg
49	Karkatshringi	1/4th part	2.5kg
50	Pundarika	1/4th part	2.5kg
51	Jivanti	1/4th part	2.5kg
52	Madhuyasti	1/4th part	2.5kg
53	Draksha	1/4th part	2.5kg
54	Godugdha	8 part	80litres
55	Til Taila	1part	10 litres

The preparation is done in State Ayurveda Pharmacy, GACH under the guidance of the In-charge, State Ayurveda Pharmacy, GACH Guwahati, Assam after identifying all the drugs from the Dravyaguna Department of Govt. Ayurvedic College, Guwahati, Assam.

- *Taila Kalpana was prepared in 2 steps;*

1) Murchhana of Tila taila

2) Preparation of *Bala Taila* (*Bheshajya Ratnavali26/273-282)*

1) Murchhana of Tila taila - Taila Murchhana has been done with drugs mentioned in Bhaisajya Ratnavali. Jwara.5/1283-87.

Table 16.

SL No.	Name of the Drugs	Propertion	Quantity taken
1	*Tila Taila*	1 part	10 litre
2	*Manjistha*	1/16th part	625gm
3	*Haridra*	1/64th part	156gm
4	*Mustak*	1/64th part	156gm
5	*Amalaki*	1/64th part	156gm
6	*Haritaki*	1/64th part	156gm
7	*Bibhitaka*	1/64th part	156gm
8	*Hrivera*	1/64th part	156gm
9	*Ketakipuspa*	1/64th part	156gm
10	*Vatankura*	1/64th part	156gm
11	*Lodhra*	1/64th part	156gm
12	*Nalika*	1/64th part	156gm
13	Water	4 parts	320 litres

- *Tila taila* is taken in a clean iron vessel and heated till *Phena shanti lakshyana.*
- Fine powder of all the above drugs mentioned in above table from no. 2 to no. 12 was taken. A little amount of water was added and paste was prepared.
- Paste was added to the oil followed by water and continuous stirring was done.
- Then heating was stopped after getting the *Snehapaka Siddhi Lakshan.*
- Finally the product was filtered with clear cloth to obtain *Murchhita Tila Taila.*

2) *Preparation of trial drug Bala Taila*

- All the ingredients of Bala Taila were collected locally
- Root of bala, combined Dashamoola herbs, Yava, Seed pulp of Badari and Kulattha each measuring 40kg is taken.
- Kwath is prepared by putting the above ingredients in water measuring 320 litres and reducing the original quantity to one fourth.
- Thus 240 litres of kwath is obtained of the herbs noted above.
- 80 litres of Godugdha and Murchhita tila taila 10 litres is taken**.**
- Obtain the herbs of Kakolyadi group and take equal parts of the following:

Saindhav lavan, Agaru, Ral, Saralkastha, powder of Devdaru wood, manjistha, Raktachandan, Kustha, Ela, Tagara, Jatamansi, Saileyak, Anantamula, Vacha, Shatavari, Ashwagandha, roots of shatapuspa and Punarnava

- Mix all the above herbs together and quantity taken is one fourth of the above til taila i.e 2.5kg.
- Kalka of the above materials is prepared with the help of water.

- Bala taila is obtained by cooking the above materials combined.
- Continuous stirring was done throughout the process. Then heating was stopped after getting the *Snehapaka siddhi lakshan*.
- Finally the product was filtered with clean cloth and Bala *taila* was obtained

Packing Size – 60 ml

- The oil was tested in State Drug Testing Laboratory (AYUSH) Guwahati, Assam.

Storage – Stored in a cool place in tightly closed containers, protected from light and moisture.

METHOD OF ADMINISTRATION OF BALA TAILA

Purvakarma

- Required instruments: 100 ml syringe, Rubber Catheter, Medicated oil, Cotton, Hand gloves, Kidney tray.
- Patient should have light meal.
- Evacuation of bowel and bladder.
- Abhyanga (mainly on legs, lower abdomen & back)
- Patient to be shifted to separate procedure room, clean table.
- Patient should lie down in left lateral position and folded right leg is drawn up to the chest and left leg placed straight on the table.
- The trial drug is heated to make it lukewarm and 60 ml is filled is syringe. Rubber catheter is fixed to the nozzle of syringe.

Pradhan karma

- The catheter tip is dipped in oil, and the patient's anal orifice is smeared with oil.
- The catheter is inserted into the anal canal, following the spine's direction for 4-6 inches. Oil is then syringed into the rectum while the patient takes deep breaths.
- Afterwards the catheter is gently removed, and the patient's buttocks are massaged.
- To prevent early evacuation, the patient is positioned supine with elevated buttocks or foot end. The soles are rubbed, and the legs are flexed and raised repeatedly.

Paschat karma

- The client is then allowed to lie down in supine position without much movement for 30-45 mins.

- The taila should get evacuated within 9 hours of administration

Qualities of matra Basti: Person can take any food and indulge in any activities, can be given at any time and it is free from complications. (Ca.Si 4/53-54).

FOLLOW UP

- On completion of the treatment, patients were asked to report to OPD.
- The patients were followed up once after each menstrual cycle for three consecutive cycles and after the completion of course treatment.

7) CRITERIA FOR WITHDRAWAL

- Discontinuation of treatment during the trial by the patient
- Development of any complications.
- Aggravation of morbid symptoms

STATISTICAL ANALYSIS: The data obtained before and after treatment were organised and summarised using the method of frequency distribution. The data were then analysed using arithmetic mean, percentage, standard deviation, paired t test.

RESULTS AND ANALYSIS

Observation and results of the study was done under two headings:

- The first part consists of demographic study
- Second part consists of therapeutic response of the drug on Vandhyatwa in prefixed subjective parameter of assessment.

In this present study, total 30 numbers of patients were given complete treatment along with follow up of three consecutive cycle.

A) DEMOGRAPHIC REVIEW

Table 17: Age wise distribution of 30 patients.

Serial no.	Age(yrs)	Number of patients& Percentage(%)(N=30)
1	18-24	1(3.33%)
2	25-31	13(43.33%)
3	32-38	12(40%)
4	39-45	4(13.33%)
TOTAL		30

Observation: It was observed from the above table that out of 30 patients, maximum number of patients i.e 13(43.33%) belonged to the age group 25-31years, followed by 12(40%)% belonged to the age group 32-38 years, followed by 4(13.33%) belonged to the age group 39-45 years, minimum number of patients i.e 1(3.33%) belonged to the age group 18-24 years.

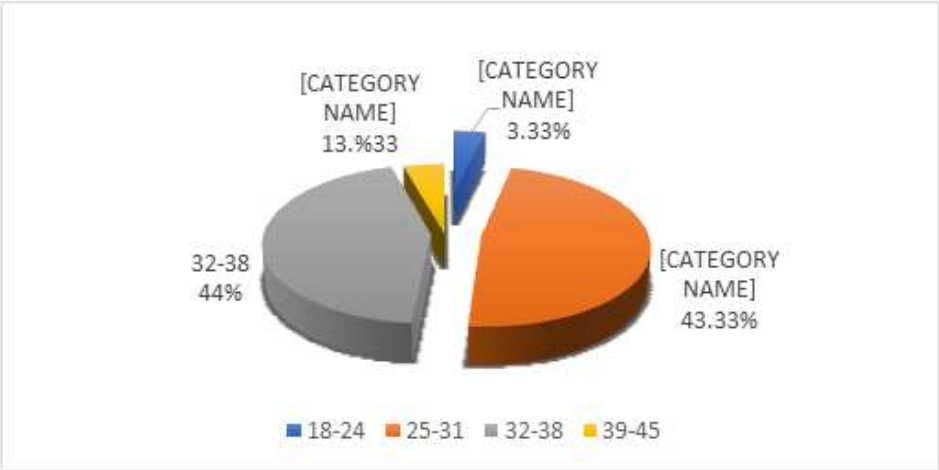

Fig. 1: Showing age group wise distribution.

Table 18: Religion wise distribution of 30 patients.

Serial no.	Religion	Number of patients & Percentage (N=30)
1	Hindu	27 (93.33%)
2	Islam	3 (6.67%)

Observation: Above table shows that maximum number of patients i.e 27(93.33%) belonged to Hindu community while 3(6.67%) were from Muslim community.

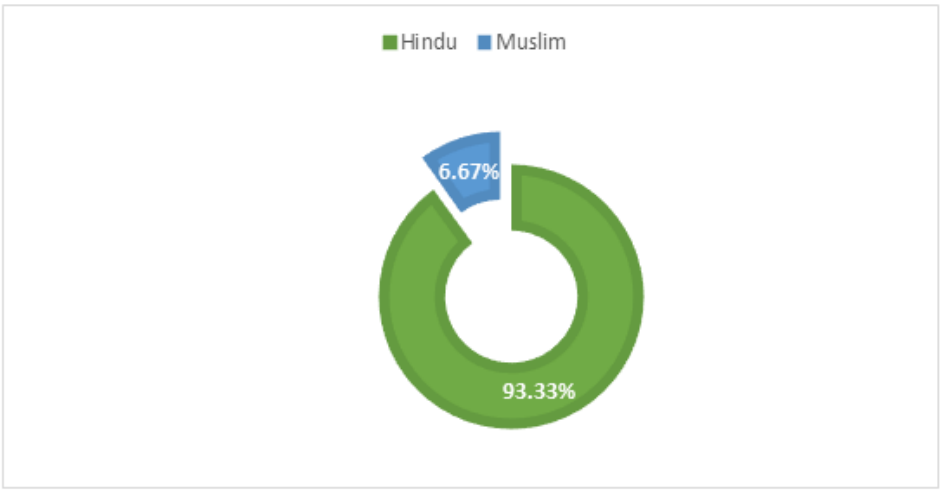

Fig. 2: Showing the incidence of Religion.

Table 19: Education wise distribution of 30 patients.

Serial no.	Education	Number of patients & Percentage (N=30)
1	Primary school	1(3.33%)
2	High school	8(26.67%)
3	Graduate	18(60%)
4	Post Graduate	3(10%)

Observation: The above table shows that maximum number of patients i.e 18(60%) were Graduated, followed by 8(26.67%) patients High school passed, followed by 3(10%) were post graduated and followed by 1(3.33%)patients were primary school passed.

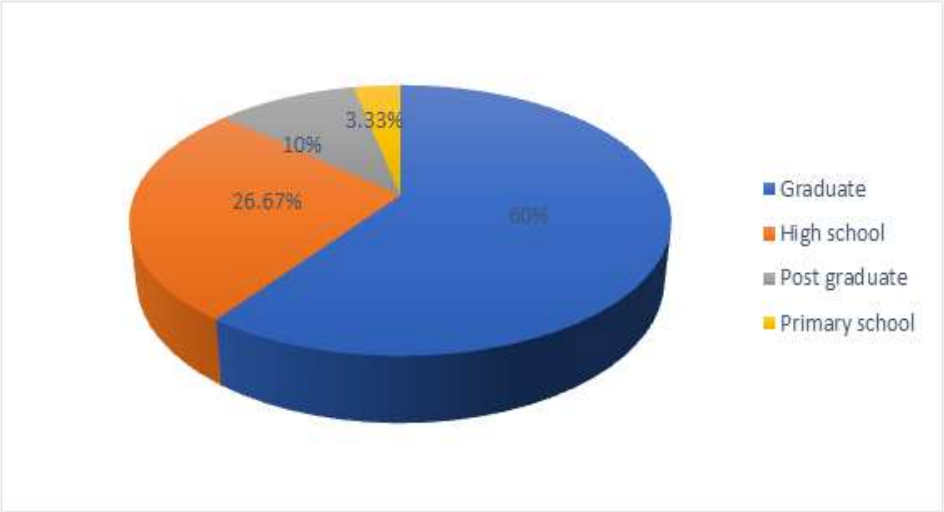

Fig 3: Showing the incidence of Education.

Table 20: Occupation wise distribution of 30 patients.

Serial no.	Occupation	Number of patients & Percentage(N=30)
1	Business	1(3.33%)
2	Home maker	18(60%)
3	Service	11(36.67%)

Observation: Above table shows that maximum number of patients i.e 18(60%) were Home maker, followed by 11(36.67%) were Service women and 1(3.33%) were Business women.

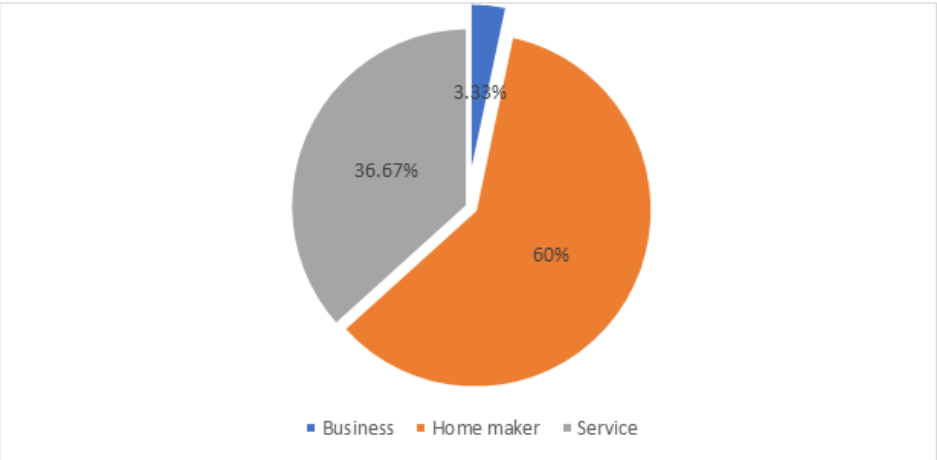

Fig. 4: Showing the incidence of Occupation.

Table 21: Socio economic Status wise distribution of 30 patients.

Serial no.	Socioeconomic Status	Number of patients & Percentage(N=30)
1	High	3(10%)
2	Lower middle	15(50%)
3	Upper middle	12(40%)

Observation: The present study shows maximum number of patients i.e 15(50%) belonged to the Lower middle class, followed by 12(40%) belonged to the Upper middle class and minimum number of patients i.e 3(10%) belonged to the High class respectively.

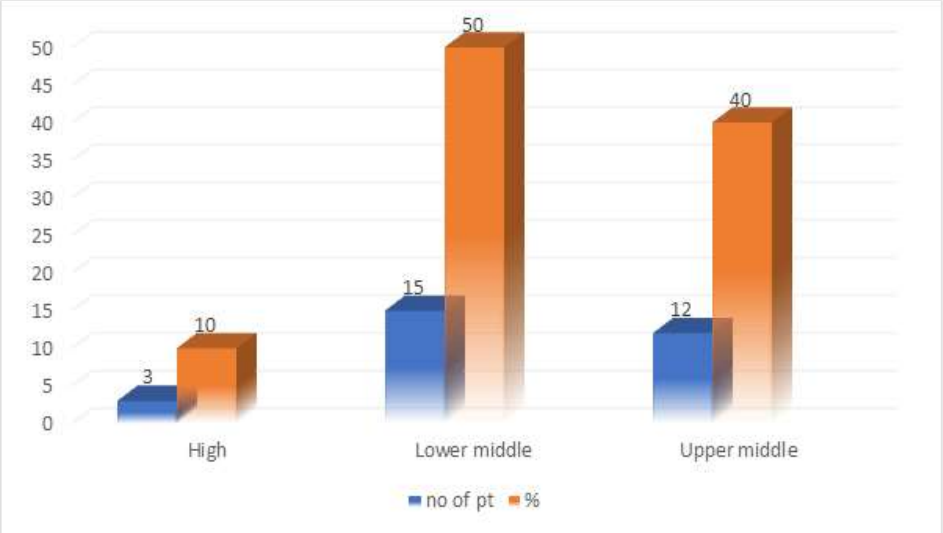

Fig. 5: Showing the incidence of Socio-economic Status.

Table 22: Distribution on the basis of Duration of Marriage.

Serial no.	DURATION OF MARITAL LIFE(yrs)	Number of Patients & Percentage(N=30)
1	2	3(10%)
2	3	4(13.33%)
3	4	7(23.33%)
4	5	4(13.33%)
5	6	5(16.66%)
6	8	2(6.66%)
7	9	1(3.33%)
8	11	1(3.33%)
9	12	2(6.66%)
10	15	1(3.33%)

Observation: This present study shows the Duration of Married life or the chronicity of infertility where maximum number of patients i.e 7(23.33%) belonged to 4yrs of married life, 5(16.66%) patients belonged to 6yrs duration of married life, followed by 4(13.33%)patients belonged to 3 and 5 yrs of married life, 3(10%) patients belonged to 2yrs of married life, 2(6.66%) belonged to 8 and 12 yrs married life and 1(3.33%)patient belonged to 9, 11and 15 yrs of married liferespectively.

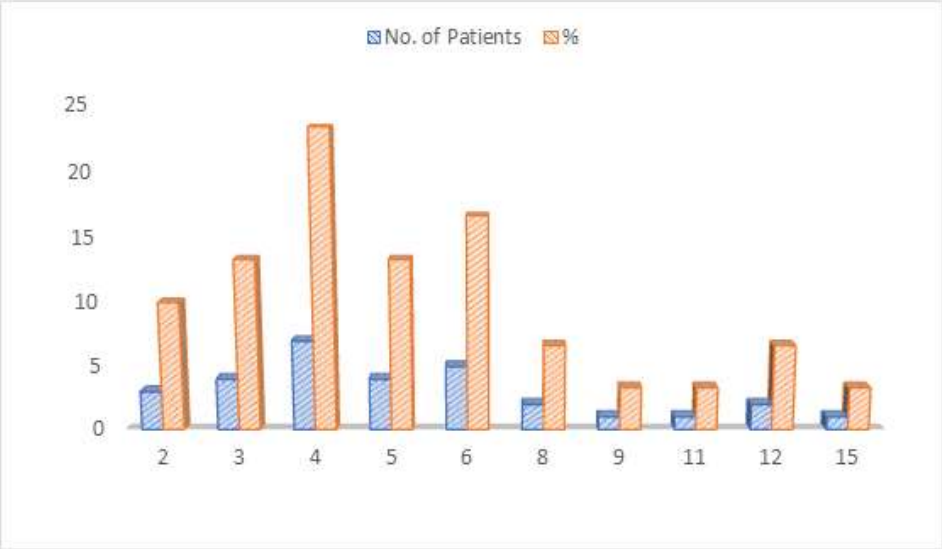

Fig. 6: Showing Distribution on the basis of duration of Married life.

Table 23: Distribution on the basis of Dyspareunia.

Serial no.	Dyspareunia	Number of Patients & Percentage (N=30)
1	Absent	25(83.33%)
2	Present	5(16.67%)

Observation: The study shows that out of 30 patients maximum no. of patients i.e., 25(83.3%) had no complain of dyspareunia and 5(16.67%)patients suffered from dyspareunia.

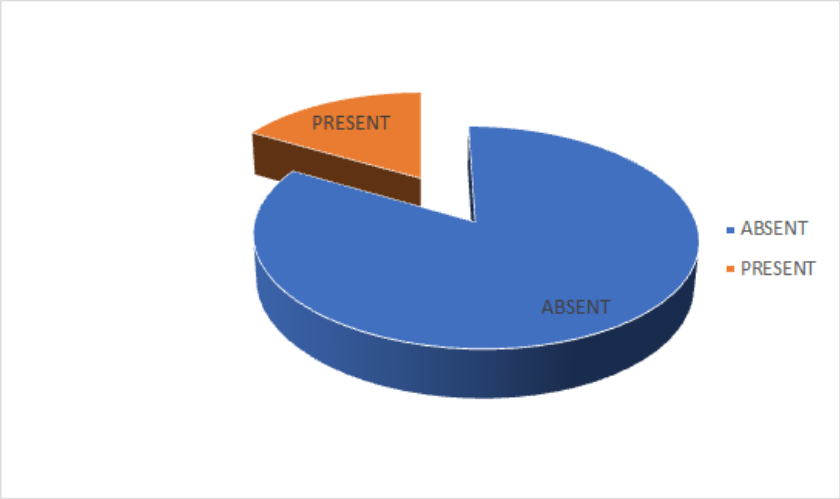

Fig. 7: Showing Dyspareunia wise distribution.

Table 24: Distribution on the basis of Sexual Relation.

Serial no.	Sexual Relation	Number of Patients& Percentage(N=30)
1	Regular	16(53.33%)
2	Irregular	14(46.67%)

The present study shows maximum number of patients i.e 16(30%) patients had regular sexual relation with their partners while 14(46.67%) patients had irregular sexual relation.

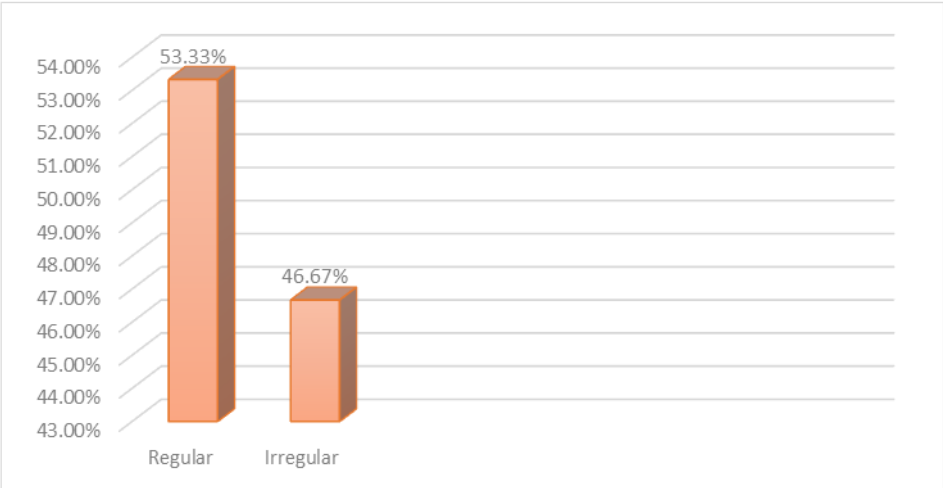

Fig. 8: Showing Distribution on the basis of Sexual relation.

Table 25: Distribution on the basis of Type of Infertility.

Serial no.	Type of Infertility	Number of patients & Percentage(%)(N=30)
1	Primary	21(70%)
2	Secondary	9(30%)

Observation: The study shows that out of 30 patients maximum number of patients i.e., 21(70%) had Primary Infertility and 9(30%) paients had Secondary Infertility.

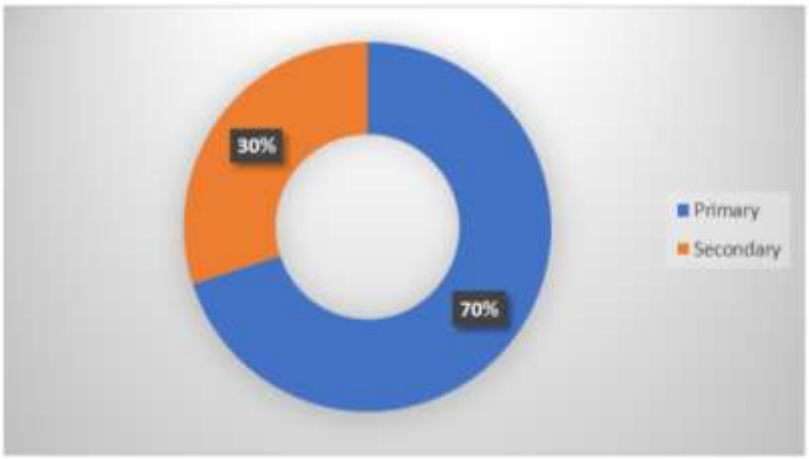

Fig. 9: Showing type of Infertility.

Table 26: Distribution on the basis of Parity.

Serial no.	Parity	Number of patients & Percentage(%)(N=30)
1	P_0	28(93.33%)
2	P_1	2(6.66%)

Observation: The study shows that out of 30 patients maximum number of patients i.e., 28(93.33%) Nulliparous and 2(6.67%)were Primi parous patients.

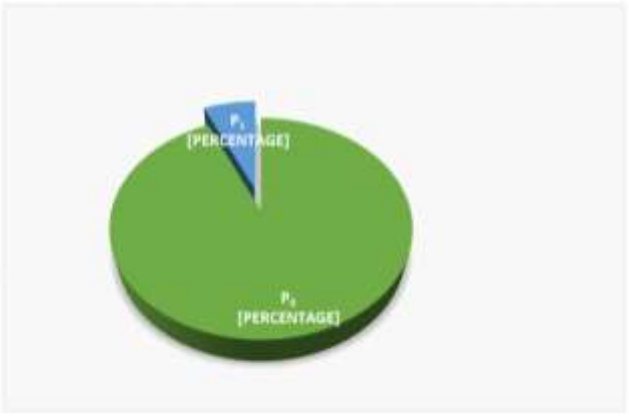

Fig 10: Showing distribution on the basis of Parit.

Table 27: Distribution on the basis of Abortion.

Serial no.	Number of Abortion	Number of patients Percentage(%)(N=30)
1	A_0	21(70%)
2	A_1	5(16.66%)
3	A_2	3(10%)
4	A_4	1(3.33%)

Observation: The study shows that out of 30 patients maximum number of patients i.e., 21 (70%) had no abortion, followed by 5 (16.66%) patients had 1 spontaneous abortion, 3 (10%) patients had 2 spontaneous abortions and 1 (3.33%) had 4 spontaneous abortions.

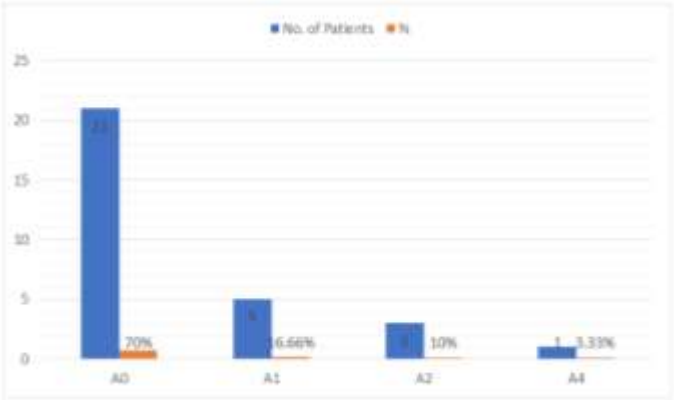

Fig 11: Showing distribution on the basis of Abortion.

B) CLINICAL REVIEW

Qualitative as well as quantitative data were noted down before treatment and after treatment and are assessed on the basis of scoring. Statistical analysis of all these symptoms has been explained as below:

Subjective parameters

Table 28: Showing Ritu (duration of flow) and amount of menstrual bleeding wise distribution of 30 patients.

RITU

Parameters		Number of Patients & Percentage (%)
Duration of bleeding(days)	3-4(G0)	13(43.33%)
	1-2(G1)	14(46.67%)
	5-6(G2)	3(10%)
Amount of bleeding (as per pad used)	3-4 pads(G0)	12(40%)
	1-2 pads(G1)	14(46.67%)
	5-6 pads(G2)	4(13.33%)

Menstrual cycle	Regular	16(53.33%)
	Irregular	14(46.66%)
Painful Menstruation	Absent	16(53.33%)
	Present	14(46.66%)

1) In the study maximum patients i.e. 14 (46.67%) were having duration of menstrual bleeding for 1 to 2 days, 13 (43.33%) had duration of bleeding for 3-4 days and 3 (10%) patients had duration of bleeding for 5-6 days.
2) Maximum number of patients i.e. 14 (46.67%) patients used only 1 to 2 pads per cycle, 12 (40%) used 3 to 5 pads and 4 (13.33%) used 5-6 pads per cycle.
3) Maximum number of patients i.e. 16 (53.33%) were having Regular menstrual cycle and 14 (46.66%) patients were having irregular menstrual cycle.
4) In the study maximum Number of patients i.e.16 (53.33%) are not suffering from pain during menstruation and 14(46.66%) patients were suffering from pain during menstruation.

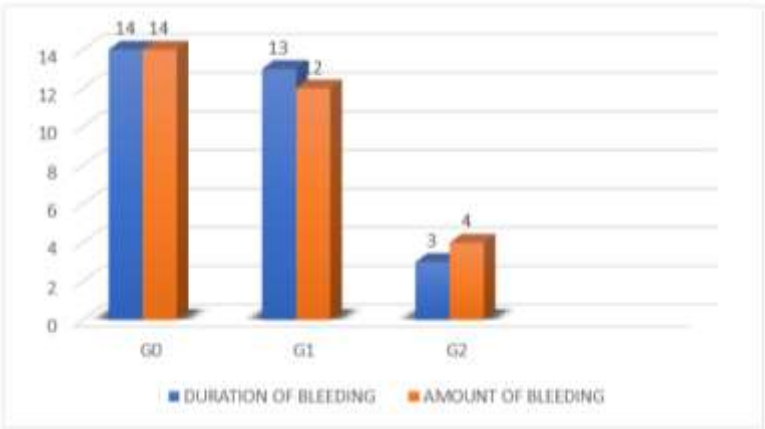

Fig.12 Showing Scoring pattern of Duration and Amount of Bleeding.

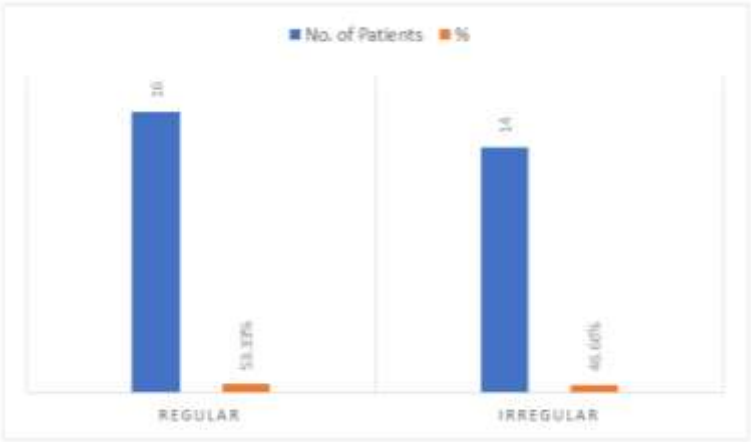

Fig. 13: Showing Regularity of menstruation cycle of 30 patients.

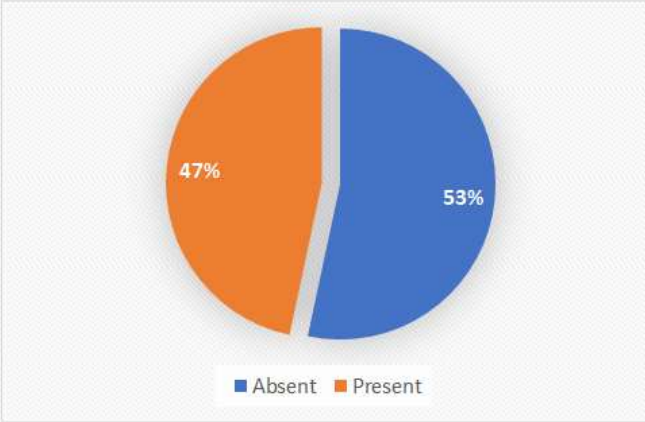

Fig. 14: Showing Yoni Vedana during Menstruation.

Table 29: Table showing Kshetra (Ultrasonography and HSG findings) wise distribution of 30 Patients: KSHETRA.

Parameters		**Number of Patients & percentage (%)**
Ultrasonography (USG)	PCO(Polycystic Pattern)	16(53.33%)
	Normal	13(43.33%)
	Bilateral thickened tubes	1(3.33%)
Hysterosalpingiography (HSG)	Normal	20(66.67%)
	Right Cornual Blockage	2(6.67%)
	Left Cornual blockage	2(6.67%)
	Bilateral Fimbrial blockage	2(6.67%)
	Right Fimbrial blockage	2(6.67%)
	Right Distal blockage	1(3.33%)
	Right Cornual and Left Fimbrial Blockage	1(3.33%)

1) Among 30 no. of patients 16 (53.33%) patients were suffering from Polycystic Ovarian pattern ovaries, 13 (43.3%) patients had normal USG findings and 1 (3.33%) patient had Bilateral thickened tubes.
2) Among 30 number of patients ,20 patients (66.67%) had normal HSG findings, 2(6.67%) patients had Right Cornual Blockage, 2 (6.67%) patients had Left Cornual blockage, 2 (6.67%) patients had Bilateral Fimbrial blockage, followed by 2 (6.67%) patients had Right Fimbrial blockage, 1(3.33%) patient had Right Distal blockage and 1(3.33%) patient had Right Cornual and Left Fimbrial Blockage.

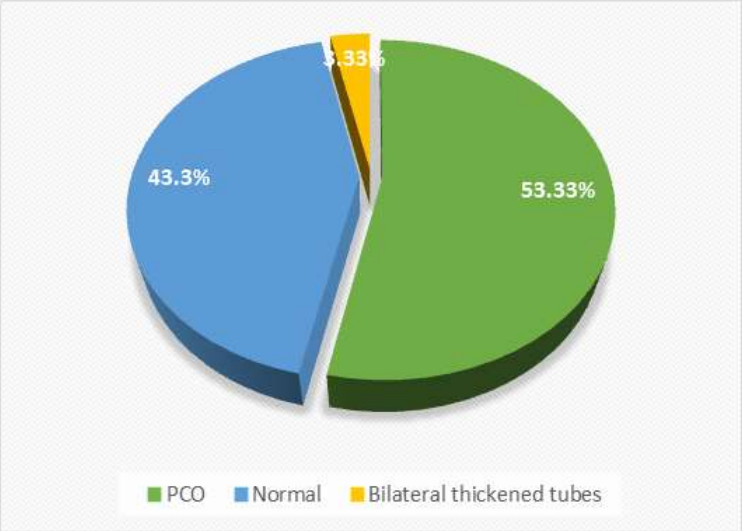

Fig. 15: Showing USG findings wise distribution.

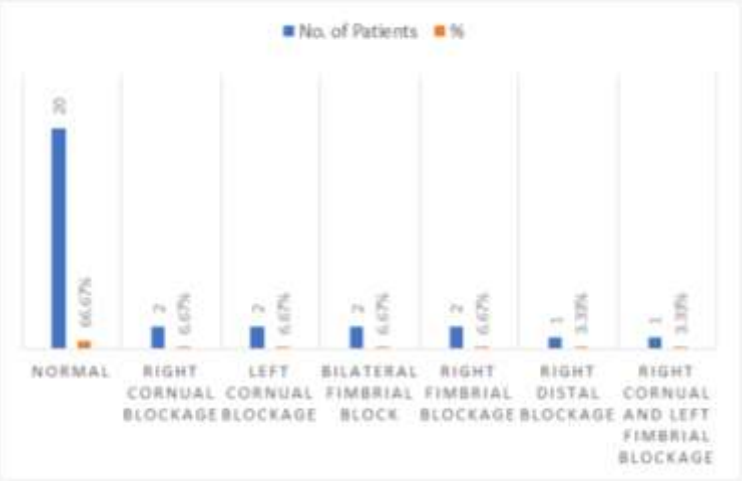

Fig. 16: Showing HSG findings wise distribution.

Table 30: Table showing the status of Ambu of 30 Patients: AMBU.

Parameters		**Number of Patients & Percentage (%)**
Haemoglobin	Mild (10-10.9)	12(40%)
	Moderate(7-9.9)	3(10%)
	Normal(>11)	15(50%)
Range of RBS (Random Blood Sugar) mg/dl	70-90	16(53.33%)
	91-110	12(40%)
	111-130	2(6.6%)
TSH(Thyroid Stimulating Hormone	Within normal limits(0.4-5)mIU/L	25(83.33%)
	Higher than normal limit(>5mIU/L)	5(16.6%)
Follicle Stimulating Hormone (FSH)in mIU/L	5-15	20(66.6%)
	16-30	10(33.3%)

Anti-Mullerian Hormone level(ng/mL)	Lower than normal limit(<2)	8(26.6%)
	Normal 2-10	20(66.6%)
	Higher than normal limit(>10)	2(6.6%)
Sr. prolactin level(ng/ml)	Lower than normal limit <13	13(43.3%)
	Normal limit(13-25)	13(43.3%)
	Higher than normal limit(>25)	4(13.3%)

1) Among 30 no. of patients 12 (40%) patients had mild anaemia, 3(10%) patients had moderate anaemia, and 15(50%) patients had normal range of haemoglobin.
2) In the study maximum patients i.e. 16(53.33%)% were having Random blood sugar level between 70-90 mg/dl, 12(40%) patients had Random blood sugar level between 91-100mg/dl and 2(6.6%) patients had Random blood sugar level between 111-130mg/dl.
3) Maximum patients i.e. 25(83.33%) were having TSH (Thyroid Stimulating Hormone) level within normal limits and 5(16.6%) patients had TSH level Higher than normal limits.
4) Higher number of patients i.e. 20 (66.6%) were having FSH (Follicle Stimulating Hormone) level within 5-15mIU/L and 10(33.3%) patients had FSH level 16-30mIU/L.
5) 20 (66.6%) patients were having normal AMH(Anti-Mullerian Hormone) level within 2-10ng/mL, 8(26.6%) patients had AMH level <2ng/mL and 2(6.6%) patients were having AMH levels >10ng/mL.
6) In this study patients i.e. 13 (43.33%) patients having Sr. Prolactin level Lower than normal Limit(<13)ng/mL, 13(43.33%) patients having Sr. Prolactin level within normal limits (13-25)ng/mL and 4(13.33%) patients were having Sr. Prolactin level higher than normal limits(>25)ng/mL.

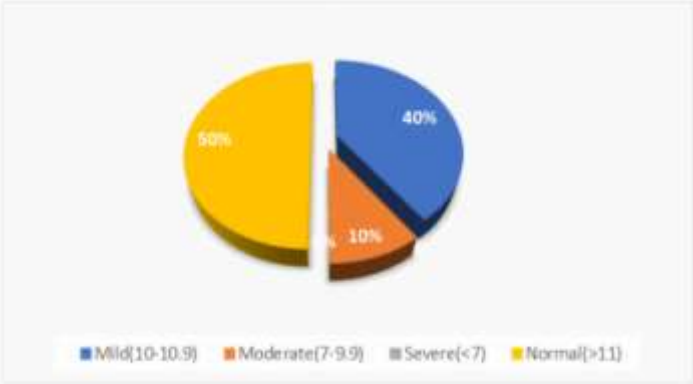

Fig. 17: Showing Degree of Haemoglobin of 30 patients.

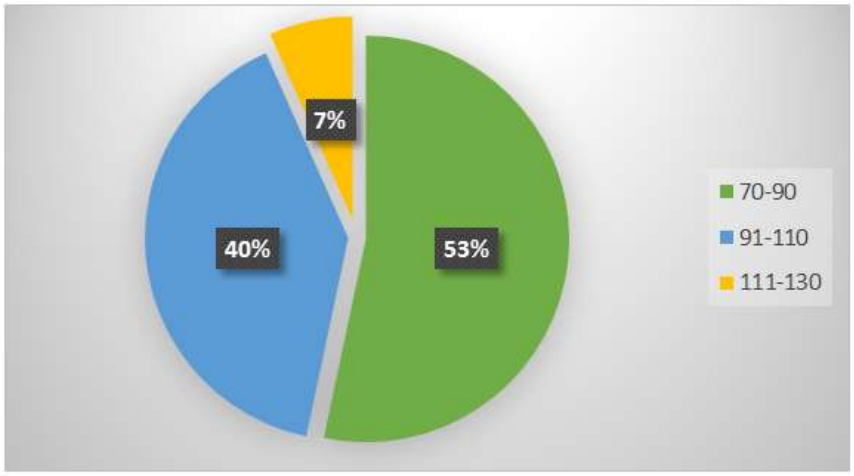

Fig. 18: Showing Level of Random Blood Sugar of 30 patients.

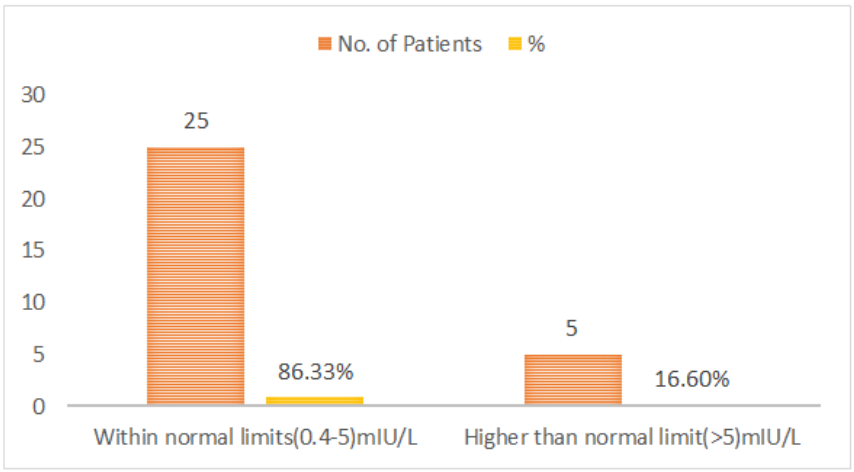

Fig. 19: Showing TSH (Thyroid Stimulating Hormone) Level of 30 patients.

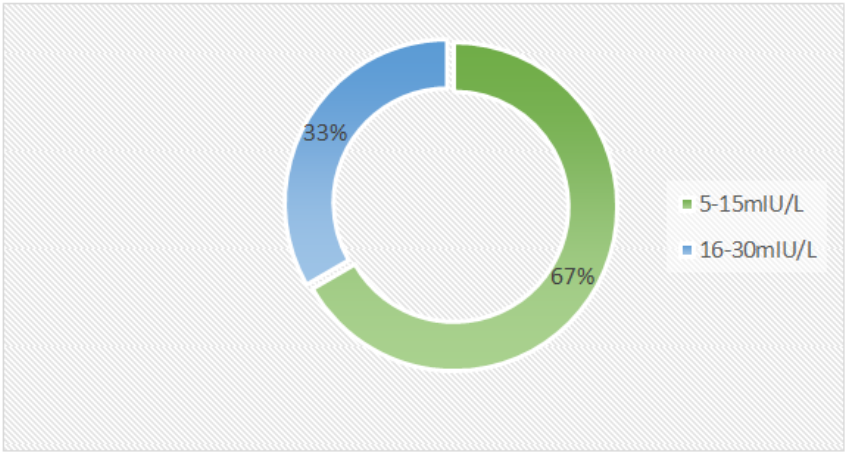

Fig. 20: Showing FSH values of 30 patients.

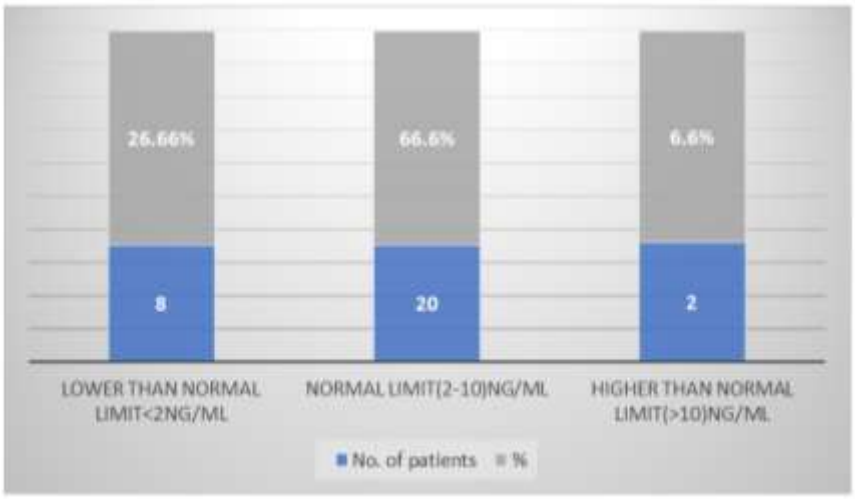

Fig. 21: Showing AMH values of 30 patients.

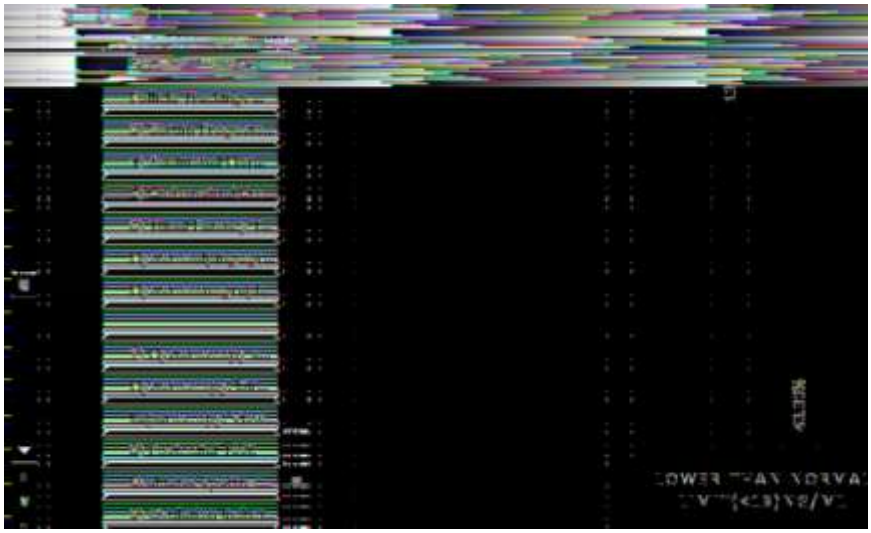

Fig. 22: Showing Sr. Prolactin values of 30 patients.

Table 31: Table showing Beeja(Ovulation test) of 30 Patients: BEEJA.

Sl. No	Ovulation test	Number of patients & Percentage(%)
1	Positive	6(20%)
2	Negative	24(80%)

In the study maximum number of patients i.e., 24(80%) patients showed negative ovulation test and 6(20%) patients showed positive ovulation test result.

Fig. 23: Showing Ovulation test of of 30 patients.

STATISTICAL REVIEW

Table 32 (A): Effect of the trial drug on Cardinal symptom i.e. *Ritu* in relation to *Artava srava kala avdhi* (Duration of menstrual bleeding) and *Artava srava pramana*-Amount of blood loss (pad used per cycle).

Assessment criteria		BT (Pts.)	$\bar{X}_{BT}$	AT (Pts.)	$\bar{X}$AF	SD (BT)	SD (AT)	SE	t_{29}	P	Remarks
RITU	Duration of bleeding	G0-13	0.63	G0-30	0.97	0.67	0.18	0.121	t_{29}= 2.7625	0.0099	Highly Statistically significant
		G1-14		G1-0							
		G2-3		G2-0							
	Amount of bleeding	G0-12	0.67	G0-29	1.00	0.71	0.00	0.130	t_{29}= 2.5673	0.0157	Statistically Significant.
		G1-14		G1-1							
		G2-4		G2-0							

The above table shows that

1. The efficacy of the trial drug on duration of flow of menstruation is Highly statistically significant. (t_{29}=2.7625, p=0.0099)
2. The efficacy of the trial drug on Amount of bleeding is statistically significant. (t_{29}=2.5673, p=0.0157)

Table 32(B): Effect of Trial drug on *Regularity of Menstrual cycle* and Yoni Vedana (painful menstruation).

Assessment criteria			Number of patient (BT) & %	Number of patient (AT) & %
RITU	Regularity	Regular	16(53.33%)	28(93.33%)
		Irregular	14(46.67%)	2(6.66%)
	Painful menstruation	Present	14(46.67%)	3(10%)
		Absent	16(53.33%)	27(90%)

The above table shows that

1) The efficacy of the trial drug on Regularity i.e Intervals between menstruation is found to be effective as 14(46.66%)patients were having irregular menstrual cycle whereas after treatment, only 2(6.6%) patients were found to have irregular menstrual cycle. The percentage of regular menstrual cycle raised from 16(53.33%) to 28 (93.33%) after treatment.
2) The efficacy of the trial drug on Pain during menstruation is found to be effective as Among 30 patients, before treatment 16 (53.3%) patients had no pain during menstruation and 14 (46.6%) patients had pain during menstruation. Whereas after treatment, 27 (90%) patients had no pain during menstruation and 3 (10%) patients had pain during menstruation. The percentage of pain absent during menstruation raised from 16 (53.33%) to 27 (90%) after treatment.

Table 33: Effect of trial drug on *Kshetra as per Ultrasonography and Hysterosalpingiography findings).*

Assessment criteria			**Number of patients(BT)&%**	**Number of patients(AT)&%**
KSHETRA	Ultra sonograpghy (USG)	PCO	16(53.33%)	9(30%)
		Normal	13(43.33%)	20(43.33%)
		Bilateral thickened tubes	1(3.3%)	1(3.33%)
	Hysterosal pingiography (HSG)	Normal	20(66.67%)	20(66.67%)
		Right Cornual Blockage	2(6.67%)	2(6.67%)
		Left Cornual blockage	2(6.67%)	2(6.67%)
		Bilateral Fimbrial blockage	2(6.67%)	2(6.67%)
		Right Fimbrial blockage	2(6.67%)	2(6.67%)
		Right Distal blockage	1(3.33%)	1(3.33%)
		Right Cornual and Left Fimbrial Blockage	1(3.33%)	1(3.33%)

The above table shows that

1) The efficacy of the trial drug on Kshetra i.e USG is found to be effective on patients suffering from Polycystic Ovarian Pattern as the percentage of patients suffering from Polycystic ovarian Pattern decreased from 16(53.33%)patients to 9(30%) raising the

percentage of normal USG findings from 13(43.33%) to 20(66.67%). Whereas the percentage of pt. suffering from Bilateral thickened tubes remained unchanged.

2) The efficacy of the trial drug on Hysterosalpingiography (HSG) findings remained unchanged. Among 30 no. of patients 20 (66.67%) patients had normal HSG findings, 2 (6.67%) patients had Right Cornual Blockage, 2(6.67%) patients had Left Cornual blockage, 2 (6.67%) patients had Bilateral Fimbrial blockage, followed by 2(6.67%) patients had Right Fimbrial blockage, 1 (3.33%) patient had Right Distal blockage and 1(3.33%) patient had Right Cornual and Left Fimbrial Blockage. Whereas, after treatment, no change was noted.

Table 34: Effect of trial drug on *Ambu.*

Assessment criteria		$\bar{X}_{BT}$	$\bar{X}$AF	SD (BT)	SD (AT)	SE	t_{29}	P	Remarks
AMBU	Haemoglobin	11.000	11.097	1.021	0.957	0.049	t_{29}= 1.9538	0.0604	Not Statistically Significant.
	Random Blood Sugar	92.03	91.50	11.87	11.20	0.869	t_{29}= 0.6135	0.5443	Not Statistically Significant.
	TSH	4.4020	3.1427	4.6318	1.2988	0.688	t_{29}= 1.8844	0.0696	Not Statistically Significant.
	FSH	13.660	13.490	4.707	4.511	0.097	t_{29}= 1.7572	0.0894	Not Statistically Significant.
	AMH	3.6877	3.5773	2.9734	2.6444	0.168	t_{29}= 0.6587	0.5153	Not Statistically Significant.
	Sr. Prolactin	16.0937	15.8560	9.6866	9.1891	0.149	t_{29}= 1.5950	0.1216	Not Statistically Significant.

The above table shows that

1) The efficacy of the trial drug on Haemoglobin is not statistically significant (t_{29}=1.9538, p=0.0604)
2) The efficacy of the trial drug on Random Blood Sugar is not statistically significant (t_{29}=0.6135, p=0.5443)
3) The efficacy of the trial drug on Thyroid Stimulating Hormone is not statistically significant (t_{29}=1.8844, p=0.0696)
4) The efficacy of the trial drug on Follicle Stimulating Hormone is statistically not significant (t_{29}=2.8811, p=0.0074)

5) The efficacy of the trial drug on Anti-Mullerian Hormone is not statistically significant (t_{29}=0.6587, p=0.5153)
6) The efficacy of the trial drug on Sr. Prolactin Hormone is statistically not significant (t_{29}=2.9070, p=0.0069).

Table 35: Effect of trial drug (Bala Taila Matra Basti) on Beeja.

Assessment criteria		Ovulation test	Number of patients & Percentage(%)	
			BT	AT
Beeja	Ovulation test	Positive	6(20%)	22(73.33%)
		Negative	24(80%)	8(26.67%)

In the study maximum No. patients i.e., 24 (80%) showed negative ovulation test and 6 (20%) showed positive ovulation test result. Whereas after treatment, 22(73.33%) patients ovulated and 8 (26.67%) patients showed negative ovulation test.

RESULT

Table 36: Final Assessment of Bala Taila Matra Basti.

Parameters			BT (pts. & percentage)	AT (pts. & percentage	Remarks
RITU	Duration of flow	G0(3-4) days	13(43.33%)	30(100%)	Improved
		G1(1-2)days	14(46.67%)	0	
		G2(5-6)days	3(10%)	0	
	Amount of flow	G0(3-4)pads	12(40%)	29(96.7%)	
		G1(1-2)pads	14(46.67%)	1(3.33%)	
		G2(5-6)pads	4(13.3%)	0	
	Regularity	Regular	16(53.3%)	28(93.3%)	
		Irregular	14(46.7%)	2(6.7%)	
	Painful menstruation	Present	15(53.3%)	0	
		Absent	14(46.7%)	30(100%)	
Kshetra	USG	PCO(Polycystic Ovarian Pattern)	16(53.3%)	9(30%)	Improved
		Normal	13(43.3%)	20(66.7%)	
		Bilateral Thickened tubes	1(3.3%)	1(3.33%)	
	HSG	Normal(No blockage)	20(66.7%)	20(66.7%)	Unchanged
		Abnormal(Blockage)	10(33.3%)	10(33.3%)	
Ambu	Hb%	Mild	12(40%)		Maintains normal range
		Moderate	3(10%)		
		Normal	15(50%)		
	RBS	70-90	16(53.33%)		
		91-110	12(40%)		
		111-130	2(6.6%)		

	TSH	Within normal limits(0.4-5)mIU/L	25(83.33%)		
		Higher than normal limit(>5mIU/L)	5(16.6%)		
	FSH	5-15	20(66.6%)		
		16-30	10(33.3%)		
	AMH	Lower than normal limit(<2)	8(26.6%)		
		Normal 2-10	20(66.6%)		
		Higher than normal limit(>10)	2(6.6%)		
	Sr. prolactin	Lower than normal limit <13	13(43.3%)		
		Normal limit(13-25)	13(43.3%)		
		Higher than normal limit(>25)	4(13.3%)		
Beeja	Ovulation test	Positive	6(20%)	22(76%)	Improved
		Negative	24(80%)	8(24%)	

RESULTS

A) **Conceived:** 1(3.33%) **B) Not Conceived:**

a) Improved

b) Unchanged

B. a) Improved

- In case of Ritu, the criteria showed significant changes after treatment. 30(100%) patients have attained normal duration of bleeding, 29(96.67%) patients had normal amount of bleeding, 28(93.3%) patients had regular menstrual cycle and 27(90%) patients had no painful menstruation.
- In case of Kshetra, USG findings showed significant changes in Polycystic Ovarian Pattern. The number of patients suffering from Polycystic Ovarian Pattern decreased from 16 to 9 patients.
- In Ambu, previous stage is maintained.
- In Beeja, Ovulation test, 22(73.33%) patients ovulated after the treatment which is significant.

B. b) Unchanged

- No change was found in HSG findings i.e, tubal blockage remained unchanged.

Note: The trial drug is effective in preparation of a patient for conception. However, only 1 patient out of 30 patients conceived, where statistically no comment can be made.

DISCUSSION

Discussion is a critical part of any research, as it provides a platform to analyze findings, interpret results, and understand their implications within the broader context of existing knowledge. In other words we can say that discussion is the extract of matter described in any research.

Infertility is an agonizing problem in the reproductive age of couples, often disrupting both their personal and social lives. Many patients come to our hospital with renewed hope, seeking relief through Ayurvedic treatments after exploring all available modern medical options. Bala Taila Matra Basti is described in Sushruta Samhita Chikitsa Sthana for treatment of infertility. In this work, Role of Bala Taila Matra Basti as Vatashamak, thereby creating normalcy of Apana Vayu and garbha sambhava samagri Therefore, this study is completed to re-evaluate the effect of Bala Taila Matra Basti in infertility in scientific way following subjective and objective parameter.

This entire work can be classified into three main section for convenience of Discussion

1) Discussion on literature review
2) Discussion on the trial drug
3) Clinical Discussion

1) Discussion on literature review

Harita has defined Vandhyatva as failure to achieve a child rather than pregnancy as he has included garbhasravi (having repeated abortions) and mrtavatsa (having repeated still births) also under the classification. Sushruta mentioned Vandhya in Vimshati Yoni Vyapada in Uttaratantra 38th chapter. Charaka and Vagbhata have referred Vandhya due to abnormality of bijamsa. Both these references do not give complete picture of Vandhyatva.

In classical texts of Ayurveda, Acharya Sushruta outlines four essential elements for successful conception: Ritu (the appropriate time), Kshetra (the fertile ground), Ambu (nourishing fluids), and Beeja (the seed or sperm), alongside the proper functioning of Vata, a vital life force. Disruption in any of these factors can lead to Vandhyatva, or infertility. Härīta initially identifies six types of infertility but later enumerates only five, suggesting that conditions like childhood sterility, uterine injury or prolapse, loss of dhātus, and constriction of the vagina and uterus due to pre-menarche coitus might be subsumed under a sixth category. The term kākavandhyā, or "crow infertility," likely alludes to an old belief that a

crow has only one eye, metaphorically representing a childless condition. In this context, Aprajā and Saprajā from Caraka's descriptions align with anapatyā and kākavandhyā as described by Härīta. Additionally, Acharya Kashyap refers to Puspaghnī in Jātahāriṇī, denoting infertility due to reduced ovarian hormones, thus implicating anovulation.

Modern Correlation

Infertility is defined as the inability to conceive after one year of regular, unprotected intercourse. The World Health Organization characterizes it as a condition where, following consummation of marriage and without the use of contraception, a couple fails to achieve pregnancy within one year or more. Approximately 80% of couples will conceive within 12 months, and 93% within 24 months, leaving about 8% who remain infertile by the end of this period. In about 90% of cases, causes of infertility can be identified, and pregnancy results in 40% of these cases.

Infertility is categorized into two main types: Primary infertility refers to individuals who have never conceived, while secondary infertility pertains to those who have previously been pregnant but are now unable to conceive. The complex process of conception relies on a series of interrelated factors:

1. Male Factor: Healthy sperm must be deposited high in the vagina or near the cervix.
2. Cervical Factor: Sperm must undergo capacitation and acrosome reaction, with cervical mucus being of sufficient quality and quantity to allow passage and ascent of motile sperm through the cervix and into the uterine cavity and fallopian tubes.
3. Ovarian Factor: Ovulation must occur.
4. Tubal Factor: The fallopian tubes must be open, allowing the oocyte to be picked up by the fimbriated end and fertilized at the ampullary portion.
5. Endometrial Factor: The endometrium should be adequately prepared by estrogen, progesterone, IGF-I, cytokines, and integrins for implantation, and the corpus luteum must function properly.

Causative factors for infertility include

- Ovulatory Dysfunction: 30-40%
- Tubal Disease: 25-35%
- Uterine Factors: 10%
- Cervical Factors: 5%

- Pelvic Endometriosis: 1-10%

Common causes of female infertility encompass a range of issues such as

- Ovulatory Dysfunction: Anovulation or oligo-ovulation, decreased ovarian reserve, corpus luteum insufficiency, luteinized unruptured follicle, and polycystic ovarian disease (PCOD).
- Tubal and Peritoneal Factors: Altered tubal motility, pelvic adhesions, tubal obstruction, previous tubal surgery or sterilization, and endosalpingeal damage.
- Uterine Factors: Uterine hypoplasia, fibroid uterus, uterine synechiae, congenital malformations, and second-degree uterine prolapse.
- Cervical Factors: Chronic cervicitis, abnormal cervical mucus, cervical polyp, and congenital elongation of the cervix.
- Vaginal Factors: Atresia of the vagina (partial or complete), transverse vaginal septum, vaginitis, and vaginismus.

Each of these factors can disrupt the delicate balance required for successful conception, highlighting the complexity of diagnosing and treating infertility.

2) Discussion on the trial drug

In this clinical study, Bala Taila has been chosen for Matrabasti over a three-month period. Referenced in Sushruta's Chikitsa Sthana (15th chapter, Mudhagarbha Chikitsaadhyaya) and its method of preparation is mentioned in Bhesajya Ratnavali (26th chapter, Vatavyadhi). Bala Taila is an intricate formulation. Its preparation involves a blend of potent ingredients: Bala root, dasamula herbs, barley, seed pulp of Hadari fruit, Kulattha, water, cow milk, and mūrcchita sesame oil. The formulation is enriched with a diverse group of herbs from the käkolyādi family—such as Kakoli, Kṣīrakākoli, Jīvaka, and others—as well as rock salt, agar, sarja rasa, saralkāstha, Devadāru wood powder, manjisthā, red sandalwood, kustha, smaller cardamom, ragara, jaṭāmānsi, šeleyaka, cassia leaves, tagara, Anantamüla, vaca, šatāvarī, aśvagandha, satapuspa, and punarnava roots. Bala Taila is celebrated for its Vatahara (Vata-reducing) properties. Acharya Sushruta recommends this oil for basti in infertile women who have undergone prior cleansing procedures.

The drug is taken for the study i.e *Bala Taila* possess Vatahara properties.

The pharmacodynamics properties of Murchhita Tila Taila can be explained as:

- RASA - Madhura, Tikta, Kashaya

- GUNA-Vyavayi, Ushna, Guru, Sneha, Sukshma
- VIPAKA-Madhura
- VEERYA – Ushna
- KARMA - Vata-Kapha Shaman, Shrotovishodhan

Hence the pharmacodynamic properties of Bala Taila can be explained as

- RASA - Madhura, Katu, Tikta
- GUNA - Laghu, Snigdha, pichhila
- VIPAK -Madhura, Katu
- VEERYA - Ushna, Shweta
- KARMA – Vatahara, Brimhaniya

A) Probable mode of action of the trial drug

- It has predominance of Madhura Rasa, Laghu, Snigdha Guna, Vipaka Katu and Virya is Ushna.
- It is very important to note that in combination, properties of individual drug may increase or decrease, become absent or even addition of the property may take place to the combination. The guna should be inferred after observing its therapeutic effects and the Therapeutic effects are due to drayva prabhāva, guna prabhāva and dravyaguna prabhāva.

B) Probable mode of Action of Bala Taila as Matrabasti

Through the action of Matrabasti, the potent effects of Bala Taila are skillfully directed through the body's channels. This therapeutic oil first engages with the Apana Vata, guiding its energetic influence towards Samana Vata, which in turn helps regulate Agni (digestive fire). The balanced Agni then extends its harmonizing effect to Udana, Vyana, and Apana Vata, ensuring the drug's benefits are distributed throughout the body. Simultaneously, the pacification of Vata by Matrabasti restores Kapha and Pitta to their rightful places. This meticulous control over Vata facilitates the Samprapti Vighatana, effectively addressing and alleviating the disease.

3) DISCUSSION ON CLINICAL STUDY

In the present study 30 patients were randomly selected for the trial on the basis of prepared inclusion and exclusion criteria from the OPD and IPD of Prasuti tantra and Stree roga

Department of Govt. Ayurvedic College and Hospital, Guwahati. Each patient was thoroughly examined on the basis of dully prepared research proforma. Then the therapy "Bala Taila Matra Basti" was started from 6th day of menstruation i.e after cessation of menstrual bleeding and was continued for 7 days of duration. This process was continued for 3 menstrual cycles and then statistical analysis have been made as per the observed results.

A) Discussion on the observation of demographic profile

- **Age:** From the data presented, it is evident that among the 30 patients, the majority i.e, 13(43.33%) patients were in the age group of 25-31 years. This was followed by 12(40%) belonged to the 32-38 years age group 32-38 years, followed by 4(13.33%) belonged to the age group 39-45 years, minimum number of patients i.e, 1(3.33%) belonged to the age group 18-24 years. It is well-documented that fecundity naturally declines with age, with women's fertility starting to decrease in their late 20s. This decline can affect hormone levels, lead to irregular ovulation, and increase the risk of tubal blockages. Moreover, advancing age is associated with a decline in oocyte quality and a higher incidence of chromosomal abnormalities.
- **Religion**: In the present study, a significant majority of patients, 27(93.33%), were from the Hindu community, while 3(6.67%) patients were from the Muslim community. This distribution is likely influenced by the sources area used in sample selection.
- **Education**: It was observed that the majority of patients, 18(60%), were graduates, followed by 8(26.67%) who had completed high school. Additionally, 3(10%) were postgraduates, and 1(3.33%) had attained a primary school education. Literacy plays a crucial role in maintaining health and ensuring nutritional completeness. Those with higher education levels tend to have better health awareness and self-care practices. Conversely, a lack of education often results in lower health consciousness, which can lead to poorer overall health outcomes.
- **Occupation**: It was observed that the majority of patients, 18(60%), were homemakers, followed by 11(36.67%) who were employed in various service sectors, and 1(3.33%) who was businesswomen. Homemakers often dedicate their time and energy to the well-being of their families, frequently at the expense of their own health. Additionally, many homemakers lead sedentary lifestyles, which can contribute to health neglect and various related issues.
- **Socio-economic status:** The present study reveals that the largest group of patients, 15(50%), belonged to the lower middle class, followed by 12(40%) from the upper

middle class, and 3(10%) from the high class. This distribution underscores a higher prevalence of the disease among the middle and lower middle class populations.

- **Duration of Marriage:** The present study highlights the duration of married life among patients, revealing that the largest proportion, 7(23.33%), had been married for 4 years. This was followed by 5(16.66%) with 6 years of marriage, and 4(13.33%) each with 3 and 5 years of marriage. Additionally, 3(10%) had been married for 2 years, 2(6.66%) for 8 and 12 years, and 1(3.33%) had durations of 9, 11, and 15 years. This distribution underscores the chronic nature of infertility, affecting individuals across various stages of their marital life. Mental stress increases and couples become more anxious with increasing duration of marital life
- **Dyspareunia:** The study reveals that out of 30 patients, 25(83.3%) patients, did not report any complaints of dyspareunia, while 5(16.67%) experienced this condition. Dyspareunia, or painful intercourse, is a significant factor that can contribute to infertility.
- **Regularity of Sexual Relation:** The present study indicates that maximum number of patients i.e, 16(30%) patients had regular sexual relation with their partners while 14(46.67%) patients had irregular sexual relation. Additionally, infrequent intercourse and efforts to time it exclusively to the day of ovulation are critical factors contributing to difficulties in conceiving.
- **Type of Infertility:** The study reveals that among the 30 patients, 21(70%) were diagnosed with primary infertility, while 9(30%) had secondary infertility. This distribution highlights a higher prevalence of primary infertility within the study group.
- **Parity wise Distribution:** The study indicates that among the 30 patients, a significant majority, 28(93.33%), were nulliparous, while 2(6.67%) were primiparous. This distribution emphasizes a predominance of nulliparous patients in the study group.
- **Abortion wise Distribution:** The study reveals that among the 30 patients, the majority, 21(70%) patients, reported no history of abortion. This was followed by 5(16.66%) who experienced one spontaneous abortion, 3(10%) with two spontaneous abortions, and 1(3.33%) with four spontaneous abortions. This distribution provides insight into the varying experiences of abortion among the study participants**.**

B) DISCUSSION ON RESULTS

On Cardinal Criteria of Vandhyatva

- **RITU**

Table 36 shows that the trial drug showed significant changes. The number of patients with

its percentage improved in Ritu are as follows:

30(100%) patients have attained normal duration of bleeding, 29(96.67%) patients had normal amount of bleeding, 28(93.3%) patients had regular menstrual cycle and 27(90%) patients had no painful menstruation.

KSHETRA

1. In Relation to Kshetra Ultrasonography(USG) Findings - Before Treatment: 16 (53.33%) patients had polycystic ovaries (PCO). After Treatment: The number of patients with PCO decreased to 9 (30%). The percentage of patients with normal USG findings increased from 13 (43.33%) to 20 (66.67%). The percentage of patients with bilateral thickened tubes remained unchanged.
2. Hysterosalpingography (HSG): Before and After Treatment: HSG findings did not change, indicating no significant improvement in this aspect post-treatment.

AMBU

Parameters Monitoring in the Study

Haemoglobin (Hb), Random Blood Sugar (RBS), Thyroid Stimulating Hormone (TSH), Follicle Stimulating Hormone (FSH), Anti-Müllerian Hormone (AMH), and Serum Prolactin levels were maintained within normal limits throughout the study.

Patients with deviations in Haemoglobin (Hb), Serum Prolactin, or TSH from normal ranges were appropriately treated to bring these levels back to normal.

In this study evaluating the effect of Bala Taila Matra Basti, there was no statistically significant impact on these parameters.

BEEJA: Ovulation Test Results (Beeja):

Before Treatment: 24 patients (80%) had negative ovulation tests, indicating no ovulation, while 6 patients (20%) had positive ovulation tests, indicating ovulation.

After Treatment: The results improved with 22 patients (73.33%) showing positive ovulation tests, and 8 patients (26.67%) showing negative ovulation tests.

Probable Mode of Action

The drug given per rectum, which are absorbed normalizes the activity of sacral plexus which is responsible for the movement of fallopian tube and uterus. It helps in intine proper ovulation. The drug have Brimhaniya property that means it helps in the maintenance of proper integrity of uterine endometrium. Correction of hostile endometrium as the effect of

stabilization of hormonal balance during cycle helps in increasing the chances of pregnancy.

Suggestion

The result of this study is very encouraging but due to time and financial constrain the sample size is only 30. So, this study may be considered as pilot study for future research in the field of infertility management and study should be converted to multidisciplinary and multicentric.

FINAL ASSESSMENT OF (BALA TAILA MATRA BASTI) RESULTS

1) In case of Ritu, the criteria showed significant changes.
2) In case of Kshetra, USG findings showed significant changes in Polycystic Ovarian Pattern.
3) In Ambu, previous stage is maintained.
4) In Beeja, Ovulation test, 22(76%) patients ovulated after the treatment which is significant.

Note: The trial drug is effective in preparation of a patient for conception. However, only 1 patient out of 30 patients conceived, where statistically no comment can be made.

Adverse effects: No any severe adverse effects or toxicity of the drug was noticed in patients during or after the trial.

It demonstrated that the drug had limited effectiveness in tubal blockage after completion of 3 cycles of Matra Basti. More over *yogic* approach, along with proper diet and counselling is very essential as the patient remains anxious and stressed.

Present study reveals that there was improvement in cardinal features of *Vandhyatva*. The trial drug was found effective after the first follow up i.e. one month from the starting of the clinical study incase of Ritu. But in case of Kshetra and Beeja, the effect was seen only after the completion of treatment. Due to the relatively short duration of the treatment, the results regarding conception have been limited. A longer treatment period is necessary to achieve more definitive outcomes and to allow for a more thorough evaluation.

SUMMARY AND CNCLUSION

SUMMARY

The present work entitled ***"Clinical Assessment to Evaluate the Efficacy of Bala Taila***

Matra Basti in the management of Vandhyatva (Infertility)" was planned with the following objectives:

- ❖ Conceptual study (both Ayurvedic and Modern point of view) of Vandhyatva.
- ❖ Standardization of Bala Taila Matra Basti in the Management of Female Infertility.

The whole topic is elaborated in the following section

1. Introduction
2. Aims and objectives
3. Review of literature
4. Drug review
5. Materials and methods
6. Observation and results
7. Discussion
8. Summary

INTRODUCTION

The introduction deals with the significance of the disease, its prevalence and need of the study.

AIMS AND OBJECTIVES

This section consists of aims and objective of the study.

REVIEW OF LITERATURE

This section further subdivided into Ayurvedic review and modern review. Here the literature available in Ayurveda as well as modern science has been discussed regarding *Vandhyatva.*

Ayurvedic review comprises of compilation of concept of *Yoni, Artava, Rituchakra* along with relevant anatomical and physiological description. It also includes all aspects of *Nidana, Samprapti, Bheda, Sadhya- Asadhyata* and *Chikitsa* regarding the disease *Vandhyatva*.

In modern review, the basic concepts of Infertility, its causes and treatment has been mentioned.

Drug review

In the present study the trial drug is composed of different herbs. In this section, its pharmacodynamic properties and chemical constituents of the drug is mentioned. As the drug

has *Ushna Virya*, it has *Vatashamak* and *Agneya* properties when used in the form of Matra Basti does Apana vata samana and hence brings normalcy.

MATERIALS AND METHODS

This section commences with a detailed description of the selection of patients and methods adopted for the present research work.

OBSERVATIONS AND RESULTS

In this present study, total 30 patients were given treatment along with follow up for three consecutive cycle.

After completion of the study, the trial drug Bala *taila* is found clinically effective in relieving cardinal symptoms in realtion to Ritu, Beeja and to some extent in Kshetra, without having any adverse effect on patients.

DISCUSSION

This section describes the logical interpretation of the observation and results obtained from the clinical study. The probable mode of action of the drug is also explained here.

SUMMARY

This section comprise of a brief layout of plan of the whole thesis.

CONCLUSION

Conclusions are the essence of any study, encapsulating its ultimate value. This study draws its conclusions based on a thorough conceptual analysis, critical reviews, observational data, and the results obtained, supplemented by a comprehensive discussion.

- Vandhyatva, or infertility, is a condition where the female is unable to conceive even after unprotected intercourse. It remains one of the most challenging issues among gynecological conditions often leading to marital discord, personal dissatisfaction, and emotional distress, which in turn contributes to individual, familial, and societal problems.
- Many patients come to our hospital after exploring all available modern medical options with little success. They arrive with renewed hope, seeking relief through Ayurvedic treatments, which have proven to be highly effective in addressing their struggles.

Therefore, this study is completed to re-evaluate the effect of Bala Taila Matra Basti in infertility in a scientific way.

- Bala Taila Matra Basti is described in Sushruta Samhita Chikitsa Sthana for treatment of infertility. It acts as Vatashamak, thereby creating normalcy of Apana Vayu and garbha sambhava samagri. Moreover, Basti is considered to be ardhachikitsa for all the vata disorders as per Charak.
- All the Ayurvedic classics including the Vedic literatures have mentioned about Vandhyatva. But only Harit gave a detailed classification on Vandhyatva.
- Approximately 40% of infertility cases linked to ovulatory dysfunction, tubal disease accounts for 25-35%, uterine factors for 10%, cervical factors for 5%, and pelvic endometriosis for 1-10%.
- Thirty patients were randomly selected from the OPD and IPD of the Prasutitantra Evum Stree Roga Department at Government Ayurvedic College and Hospital, Jalukbari Guwahati-14,. Each patient received Matra Basti with Bala Taila for 7 days across 3 consecutive cycles.
- The assessment revealed that 1(3.33%) patient conceived.
- In case of Ritu, the criteria showed significant changes. The number of patients with its percentage improved in Ritu are as follows: 30(100%) patients have attained normal duration of bleeding, 29(96.67%) patients had normal amount of bleeding, 28 (93.3%) patients had regular menstrual cycle and 27(90%) patients had no painful menstruation.
- In case of Kshetra, USG findings showed significant changes in Polycystic Ovarian Pattern. The number of patients suffering from Polycystic Ovarian Pattern decreased from 16 to 9 patients.
- In Ambu, previous stage is maintained.
- In Beeja, Ovulation test, 22(73.33%) patients ovulated after the treatment which is significant.
- No change was found in HSG findings i.e, tubal blockage remained unchanged.
- Due to the relatively short duration of the treatment, the results regarding conception have been limited. A longer treatment period is necessary to achieve more definitive outcomes and to allow for a more thorough evaluation.
- However, the trial drug has a very good role in the journey of preparation for female infertility treatment.

- For optimal treatment of Vandhyatva, Matra Basti is suggested. This approach could serve as a pioneering reference for future research. Larger studies incorporating biochemical, cellular, and experimental assessments are needed to conclusively establish the efficacy of the drug in treating Vandhyatva.

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2. इत्येते बस्तयः स्नेहाश्चोक्ता यापनसंज्ञिताः ।

नारीणामप्रजातानां नराणां चाप्यपत्यदाः ।।

उभयार्थकरा दृष्टाः बस्तिनिरूहयोः' । (C.Si. 12:20, 22)

3. 'यदा ह्यस्याः शोणिताख्ये बीजे गर्भाशयस्थे निर्वर्तकं बीजं

प्रदुष्यति यदा वन्च्यां जनयति' । (A.S.Sha 2-30)

4. वन्धा स्यात् षट्प्रकारेण बाल्येनाप्यथवा पुनः ।

गर्भकोशस्य भङ्गाद्वा तथा धातुक्षयादपि ।।

जायते न च गर्भस्य सम्भूतिश्च कदाचन ।

काकवन्ध्या भवेच्चैका अनपत्या द्वितीयका ।।

गर्भस्त्रावी तृतीयाऽथ कथिता मुनिसत्तमैः ।

मृतवत्सा चतुर्थी स्यात् पञ्चमी च बलक्षयात्' ।।(H.S. III. 48:1-3)

5. 'तस्माज्जातहारिणी पुष्पं हन्ति वपुश्च हन्ति गर्भाश्च हन्ति जातांश्च हन्ति जायमानांजा जनिष्यमानांश्च हन्ति' । (K. Revatikalpa. 7)

6. शङ्खनाभ्याकृतिर्योनिस्त्र्यावर्त्ता सा प्रकीर्त्तिता । (Sa Cha Kirtita Bh.Pr)

तस्यास्तृतीये त्वावर्ते गर्भशय्या प्रतिष्ठिता । (Su.Sa 5/43 & Bh.Pr.Purva 3/31,86,87)

7. मनोभवागारमुखेऽबलानां तिस्रो भवन्ति प्रमदाजनानाम् । समीरणा चन्द्रमुखी च गौरी विशेषमासामुपवर्णयामि ॥ प्रधानभूता मदनातपत्रे समीरणा नाम विशेषनाडी । तस्या मुखे यत् पतितं तु वीर्यं तन्निष्फलं स्यादिति चन्द्रमौलिः ॥ या चापरा चान्द्रमसी च नाडी कन्दर्पगेहे भवति

प्रधाना । सा सुन्दरी योषितमेव सूते साध्या भवेदल्परतोत्सवेषु गौरीति नाडी यदुपस्थगर्भे प्रधानभूता भवति स्वभावात्। पुत्रं प्रसूते बहुधाऽङ्गना सा कष्टोपभोग्या सुरतोपविष्ठाः ॥ (Bh. Pr. Purva 3/17-20)

8. श्रोण्यांपंच, तेषांगुदभगनितम्बेषुचत्वारि, त्रिकसंश्रितकम्।(Su.Sa.5/19)

9. एकैकंभगेत्रिके।नितम्बयोद्वे। (A.S.Sa.5/70)

10. गुदभगनितम्बेषुसामुद्गा:……..कटिकपालेषुतूनसेवनीसंन्ग्या:। (A.S.Sa.5/77)

11. स्त्रीणां गर्भाशयोऽष्टम इति । (Su.Sa.5/8)

12. पित्तपक्वाशयोमध्ये गर्भशय्या यत्र गर्भस्तिष्ठति ॥ (Su.Sa.5/39)

13. तेषामधस्ताद्विपुलं स्रोतः कुण्डलसंस्थितम्।

जरायुणा परिवीतं स गर्भाशय उच्यते II (Ka.Sa.3/67)

14. यथा रोहितमत्यस्य मुखं भवति रूपतः ।

तत्संस्थानां तथारूपां गर्भशय्यां विदुर्बुधाः ॥ (Su.Sa 5/04 & Bh.Pr.Purva 3/32)

15. द्वे स्तन्यं स्त्रिया वहतः स्तनसंश्रिते, ते एव शुक्रं नरस्य स्तनाभ्यामभिवहतः । (Su.Sa 9/5)

16. अधोगमास्तु आर्तवादीन्यधो वहन्ति ।

शुक्रवहे द्वे शुक्रप्रादुर्भावाय, द्वे विसर्गाय,

ते एव रक्तमभिवहतो नारीणामार्तवसंज्ञम् । (Su.Sa. 9/7)

17. न च प्रवर्तमाने रक्ते बीजं । (Su.Sa 2/31)

18. मासि मासि रज स्त्रीणां रजि स्रवति त्र्यहम् ।

वत्राद्द्वादशादूर्धवव याति पांचाशिः क्षयम ।। (AH.Sa.1/7)

19. रसात् स्तन्यं ततो रक्तं.....I (Ch.Chi. 15/17) रसादेव स्त्रियां रक्तं रजःसंज्ञग्य

20. ततः पुष्पात् प्रभृति त्रिरात्रमासीत । (Ch.Sa.8/5)

21. मासान्निष्छिदाहार्ति पञ्चरात्रानुबन्धि च । नैवातिबहु नात्यल्पमार्तवं शुद्धमादिशेत् ॥

22. गुञ्जाफलसवर्णं च पद्मालक्तकसन्निभम् । इन्द्रगोपकसङ्काशमार्तवं शुद्धमादिशेत् ॥

23. शशासृक्प्रतिमं यत् तु यद्वा लाक्षारसोपमम्।

तदार्तवं प्रशंसन्ति यद् वासो न विरञ्जयेत्॥ (Su.Sa.2/13)

24. आर्तवं पुनः शशरुधिरलाक्षारसोपमं धौतं च विरज्यमानं शुद्धमाहुः ॥ (A.H.Sa 1/20)

25. यदा ह्यस्याः शोणिते गर्भाशयबीज भागः प्र

दोषमापद्यते तदा वन्ध्यां जनयाति.....। (च.सं.शा. 4/30)

26. सप्रजाऽपीति अवन्ध्याऽपि सती कथं चिरेण गर्भ विन्दति। (च.सं.शा. 2/5, चक्र.टी.)

27. ये तु साऽप्रजा इति पठन्ति ते 'यस्यां लब्धेऽपि गर्भे असृगतिप्रवर्तते,

सा तादृशरक्तस्त्रुत्या अप्रजा भवति, इयं च रक्तयोनिरुच्यत इति

रक्तातिस्त्रुत्यैव लभ्यते.... (च.सं. चि. 30/16, चक्र.टी.)

28. वन्ध्या स्यात्षट्प्रकारेण बाल्येनाप्यथवा पुनः। गर्भकोशस्य भङ्गाद्वा तथा धातुक्षयादपि। जायते न च गर्भस्य सम्भूतिश्च कदाचन। काकवन्ध्या भवेच्चैका अनपत्या द्वितीयका।। गर्भस्त्रावी तृतीयाऽथ कथिता मुनिसत्तमैः। मृतवत्सा चतुर्थी स्यात्पञ्चमी च बलक्षयात्॥ तस्योपक्रमणं वक्ष्ये येन सा लभते सुतम्। अजातरजसां स्त्रीणां क्रियते यदि मैथुनम्। तेनैव गर्भसङ्कोचं भगत्वमुपगच्छतिः। तेन स्त्री भवते वन्ध्या गर्भं गृहणाति नो भृशम्। सा च कष्टेन भवति रामा गर्भवती भिषक।। (हा.सं.तृ. 48/1-6)

29. भेदा वन्ध्याऽबलानां हि नवधा परिकीर्तिताः। तत्राऽऽदिबन्ध्या प्रथमा पापकर्मविनिर्मिता ।। रक्तेन च पृथग्दोषैः समस्तैः पञ्चधा भवेत्। भूतदेवाभिचारैश्च तिस्त्रो वन्ध्याः प्रकीर्तिताः ॥ पुमानपि भवेद् वन्ध्यो दौषैरेतैश्च शुक्रतः।गर्भस्त्रावी स्मृता पूर्वं मृतवत्सा द्वितीयका। तृतीया स्त्रीप्रसूतिः स्यात्काकवन्ध्या सकृत्प्रसूः ॥ (२.२.स. 22/1-4)

30. अष्टौदोषास्तु नारीणां नवमः पुरुषस्य च। रक्तात् पित्तात्तथा वातान् श्लेष्मणः सन्निपातकात्।। ग्रहदोषविकारेण देवतानां प्रकोपनात्। अभिचारकृताच्चैव रेतोहीनः पुमांस्तथा ।। काकवन्ध्या मृतवत्सा गर्भस्त्राव्यास्तु याः स्त्रियः। आदिवन्ध्याश्च गीयन्ते दोषैरेभिर्न चान्यथा ।। (बा.त. 1/3-5)

31. 'ध्रुवं चतुर्णा सान्निध्याद्गर्भः स्याद्विधिपूर्वकम् ।

ऋतुक्षेत्राम्बुबीजानां सामग्र्यादंकुरो यथा' ।।(S.Sha. 2:33)

32. ऋतुस्तु द्वादशरात्रं भवति दृष्टार्तवः । अदृष्टार्तवाऽप्यस्तीत्येके भाषन्ते ।। (सु० सं० शा० ३/६)

33. द्वादशरात्रमिति षोडशदिनेषु मध्ये आद्यं दिनत्रयमन्तिमं च

षोडशं योनिसङ्कोचदिनं न गणनीयम् ॥ (सु० सं० शा० ३/६ की डल्हण० टीका)

34. ऋतुश्च निषिक्तस्य बीजस्य फलप्रसवानुगुणः कालः । (अ० सं० शा० १/१० की इन्दु टीका)

35. आर्तवस्त्रावदिवसादृतुः षोडश रात्रयः। गर्भग्रहणयोग्यस्तु स एव समयः स्मृतः ॥

सर्वासामेव चतुर्वर्णस्त्रीणां सर्ववादिसम्मतः पूर्वोक्तः समयः। ग्रन्थान्तरे तु विशेषः । तद्यथा- ज्ञानदिवसादूर्ध्वं द्वादशराशी ब्राह्मण्याः, दशरात्रावधि क्षत्रियायाः, अष्टरात्रावधि वैश्यायाः, षड्ात्रावधि शूद्राया गर्भधारणे शक्तिः । (भा० प्र० पूर्व० ३/२)

36. ऋतुः स्त्रीणां रजोदर्शनात् षोडशनिशाः, तत्र भवमार्त्तवम् ॥ (भा० प्र० पूर्व० ३/२०६)

37. नियतं दिवसेऽतीते सङ्कुचत्यम्बुजं यथा।

ऋतौ व्यतीते नार्यास्तु योनिः संक्रियते तथा ।।(सु० सं० शा० ३/९)

38. पद्म सङ्कोचमायाति दिनेऽतीते यथा तथा।

ऋतावतीते योनिः सा शुक्रं नान्तः प्रतीच्छति ॥ (अ० सं० शा० १/४२ एवं अ० हृ० शा० १/२२)

39. यथोक्तेन विधिनोपसंस्कृतशरीरयोः स्त्रीपुरुषयोर्मिश्रीभावमापन्नयोः शुक्रं शोणितेन सह संयोगं समेत्याव्या- पन्नमव्यापन्नेन योनावनुपहतायामप्रदुष्टेट गर्भाशये गर्भमभिनिर्वर्तयत्येकान्तेन ।

यथा-निर्मले वाससि सुपरिकल्पिते रञ्जनं समुदितगुणमुपनिपातादेव रागमभिनिर्वर्तयति, तद्वत्, यथा वा क्षीरं दध्नाऽभिषुतमभिषवणाद्विहाय स्वभावमापद्यते दधिभावं, शुक्रं तद्वत् ॥ (च० सं० शा० ८/१७).

40. इह खलु भोः याः स्त्रियः पथ्यलघुभोजिन्योऽनुदावर्तनशीला अप्रदुष्टा यथा गर्भाशयाः सुविशुद्धस्रोतसो भवन्ति, ता आचक्षतेऽवन्च्या कुशला इति। ता इष्टरूपं मेधावि चापत्यं जनयन्ति, विपर्यये विपर्ययः॥ (भे० सं० शा० ८/१)

41. गर्भकृच्चेति प्राकृतकर्मकथनम्। व्याख्यानयन्ति च यथोक्तमिति 'शशासृक्प्रतिमं यच्च यद्वा लाक्षारसोपमम्' इत्याद्युक्तलक्षणम्। अकृत्रिममिति वातपित्तकफैरथः

केचिदाचार्या 'रक्तलक्षणमार्तवं यथोक्तमकृत्रिम गर्भकृच्च' इति पठन्ति प्रसृतैरष्टधाऽऽर्तवदूषकैरसृदररूपतया वा कृतं कृत्रिमं, न कृत्रिममकृत्रिमं शुद्धं, गर्भकृद्भवतीत्यर्थः ।।(सु० सं० सू० १५/५ की उल्हण टॉकर)

42. गर्भस्याशयो गर्भाशयः, तस्मिन्। शुद्धे निर्मले, वातादिभिरदुष्टे। तथा, मार्गे प्रकृतत्वादपत्यमार्गे, वातादिभिरदुष्टे । तथा, रक्ते स्त्रीरजसि, शुद्धे। तथा, शुक्रे पुंबीजे, शुद्धे। तथा, अनिले शुद्धे पित्तादिभिरनावृते।

तथा, हृदि शुद्धे-दोषानधिष्ठितेऽसन्तप्ते ॥ (अ० ६० शा० १/८-९ को अरुण० टीका)

43. वृत्तस्य मातुराचाररूपस्य (च० सं० शा०४/२७ की चक्र० टी०)

44. स्वभावसंसिद्धेश्वेति। स्वभावेनैव कर्मजन्येन गर्भो भवति वर्धिष्णुरित्यर्थः॥ (च० सं० शा० ४/२७ की पक्र००)

45. यथोक्तेन विधिनोपसंस्कृतशरीरयोः स्त्रीपुरुषयोर्मिश्रीभावमापन्नयोः शुकं शोणितेन सह संयोगं समेत्याव्यापन्त्रमव्यापन्नेन योनावनुपहतायामप्रदुष्टे गर्भाशये गर्भमभिनिर्वर्तयत्येकान्तेन ।

यथा-निर्मले वाससि सुपरिकल्पिते रञ्जनं समुदितगुणमुपनिपातादेव रागमभिनिर्वर्तयति, तद्वत्; यथा वा क्षीरं दध्नाऽभिषुतमभिषवणाद्विहाय स्वभावमापद्यतें दधिभावं, शुकं तद्वत् ॥

(च० सं० शा० ८/१७)

46. ऋतुरङ्गनाया रजः समयः, क्षेत्रं गर्भाशयः, अम्बु पुनराहारपाकजो व्यापी रसधातुः, बीजं स्त्रीपुंसयोरार्तवशुक्रे ।। (सु०शा०२/३३ की डल्हण टीका)

47. इह नच्छति गर्भ स्त्री वातेनोपहता तथा।

या निदोषेण चान्ने न न हि वन्ध्याऽस्ति नाचन ।। (भे.सं.शा. 2/7)

48. स हि गर्भाशये शुक्लं विस्त्रंसयति योषितः।

वातः स्त्रिया रजो हन्ति वन्ध्या भवति तेन सा।।

न स्त्रियः पुरुषा वापि वन्ध्यास्सन्ति हरेचन।

आशये शीतलो वापि वातश्शुष्केन्द्रियस्तथा।। (भे.सं.सू. 16/3)

49. मातृतः पितृतः आत्मतः सात्म्यतो रसतः सत्वत

इत्येभ्यो भावेभ्यः समुदितेभ्यो गर्भः सम्भवति ॥ (च० सं० शा० ४/४)

50. एवं योनिषु शुद्धासु गर्भ विन्दति योषितः ।

अदुष्टे प्राकृते बीजे जीवोपक्रमणे सति' ।।(C.Chi. 30:125)

51. अतिप्रवर्तते योन्यां लब्धे गर्भेऽपि सासृजा' ।(C.Chi. 30:16)

52. 'सवातमुद्गिरेद् बीजं वामिनी रजसा युतम्' ।(S.U. 38:12)

53. 'षडाहात् सप्तरात्राद्वा शुक्रं गर्भाशयं गतम् ।

सरुजं नीरुजं वाऽपि या स्रवेत् सा तु वामिनी' ।।(C.Chi. 30:33)

54. 'स्थितं स्थितं हन्ति गर्भ पुत्रघ्नी रक्तसंस्रवात्' ।(S.U. 38:13)

55. 'बीजदोषात्तु गर्भस्थमारुतोपहताशया ।

नृद्वेषिण्यस्तनी चैवा षण्ढी स्यादनुपक्रमा' ।।(C.Chi. 30:34)

56. 'कन्यकानां च स्फालितमूत्रत्वमुभ- योर्वाऽनपत्यकरम्'। (K.Su. 28:6)

57. .....समीरणा नाम विशेष नाडी।

तस्या मुखे यत् पतितं तु वीर्यं तन्निष्फलं स्यादिति..... (भा.प्र.पू. 3/18)

58. स न गर्भाहृयवतिष्ठते। तथैव बाहृययोनौ हि निर्वाहिन्यां च सर्वदा। (भे.सं.शा. 3/5)

59. 'तस्माज्जातहारिणी पुष्पं हन्ति वपुश्च हन्ति गर्भाश्च हन्ति जातांश्च हन्ति जायमानांश्च जनिष्यमानांश्च हन्ति' ।(K. Revatikalpa. 7)

60. 'यद्भवत्यासुरमधार्मिकाणामपत्यमधर्मोपहतं विशेषेण' ।(K. Revatikalpa. 7)'

61. स्त्री त्यक्तधर्ममंगलाचारशौचदेवक्रिया देवगोब्राहृमणगुरुवृद्धसद्वेषिणी

दुराचाराऽहंकृता- ऽनवस्थिता' ।(K. Revatikalpa. 8)

62. 'आर्तववहे द्वे, तत्र विद्धायां वन्ध्यात्वं मैथुनासहिष्णुत्वमार्तव- नाशश्च' ।(S.Sha 9:12)

63. अजातरजसां स्त्रीणां क्रियते यदि मैथुनम् । तेनैव गर्भसंकोचं भगत्वमुपगच्छति ।।

तेन स्त्री भवते वन्ध्या गर्भ गृहणाति नो भृशम्' । (H.S. III. 48:5-6)

64. 'ते तु योनिमुपघ्नन्ति आर्तवं च' । (S.Ni. 2:17)

65. मैथुनेऽचरणा पूर्व पुरुषादतिरिच्यते ।

बहुशश्चातिचरणादन्या बीजं न विदन्ति' ।।(S.U. 38:16)

66. 'वक्रयतीतिविपदेन वक्रतयाऽन्तर्मुखनयनमभिप्रेतम्' ।।(C.Chi. 30:29-31, Chakra)

67. 'दोषैरित्यादि । अत्र दोषाः कफो वायुर्वातकफौ च,

न तु पित्तं, पित्तवृद्धौ तस्याति- प्रवृत्तिवृद्धयोरक्तत्वाद्, नश्यति इति प्रवर्तमानं न दृश्यते,

न तु सर्वथा क्षयं याति' ।(S.Sha. 2:21, Dalhana)

68. अजातरजसां स्त्रीणां क्रियते यदि मैथुनम् । तेनैव गर्भसङ्कोचं भगत्वमुपगच्छति (भगस्याप्युपगच्छति शु०पा०) ।।५।।तेन स्त्री भवते वन्ध्या गर्भ गृहणाति नो भृशम्। सा च कष्टेन भवति रामा गर्भवती भिषक् ।।६।। (हा० सं० तृती० ४८/१ से ६)

69. वन्ध्यानां क्षीरनाड्यस्तु वातेन परिपूरिताः।

क्षीरं च न भवेत्तस्मादार्त्तवं चाधिकं यतः ।। (हा० सं० प्र० ८/१०)

70. वमनं रेचनं चैव बस्तिमास्थापनं तथा ।

तस्मात्तत्कार रेत्खीणां प्रसिद्धाः प्रसुवन्ति वैः। (Bhel Sha. 2:8)

71. 'याश्च स्त्रियो वस्तिप्रशस्तः परमं च तेषु ।

यथादोष विशोधयेत् अग्निः प्रजाश्च विरेचनेन बीजं भवति

कार्मुकं गर्भाशया- सृजी। विरेक' ।(K.Si. 2:15-13)

72. 'अल्पबीजा नष्टपुष्पा नष्टबीजाकर्मण्यबीजापरीता. अनुवास्या इति' ।(K.SL. 1:)

73. 'जनयेदप्रजानां च प्रजा स्त्रीणां तथा नृणाम्' । (C.Si. 4:24)

74. 'योनिप्रसादनं धन्यं वन्ध्यानामपि पुत्रदम् ।यासां च गर्भाः खंसन्ते जाता वा न दृढाः सुताः ।।

सुकुमार्यश्च या नार्यः सुभगा नित्यमैथुनाः । (K.Si. 1:39-41)

75. 'इत्येते बस्तयः स्नेहाश्चोक्ता यापनसंज्ञिताः । नारीणामप्रजातानां नराणां चाप्यपत्यदाः ।। उभयार्थकरा दृष्टाः बस्तिनिरूहयो'।(C.Si 12.20. 22)

76. सर्वा व्यापन्नयोनिं तु कर्मभिर्वमनादिभिः ।मृदुभिः पञ्चभिर्नारी स्निग्धस्विन्नामुपाचरेत् ।। सर्वतः सुविशुद्धाया शेषं कर्म विधीयते ।वा तव्याधिहरं कर्म वातार्तानां सदा हितम् ।। औदकानूपजैर्मासैः क्षीरै सतिलतण्डुलैः।। सवातघ्नौषधैर्नाडीकुम्भीस्वेदैरुपाचरेत् ।।

अक्तां लवणतैलेन साश्मप्रस्तरसङ्करैः ।

स्विन्नां कोष्णाम्बुसिक्ताङ्गीं वातघ्नैर्भोजयेद्रसैः' ।। (C.Chi. 30:45-48)

77. 'आर्तवं या न पश्यन्ति पश्यन्ति विफलं च याः'।

अपि बन्ध्या च षण्ढा च सूयेते शतपुष्पया ।।

युवा भवति वृद्धोऽपि....I

युज्यते प्रजया धृत्या वलीपलितवर्जितः' ।। (K.Shatapushpashatavari-kalpa. 10. 17-18)

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