

Infertility (Vandhyatva): Integrating Ayurvedic Principles with Contemporary Reproductive Medicine

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Abstract—Infertility, described in Ayurveda under the concept of *Vandhyatva*, is a multifactorial reproductive health condition characterized by failure to achieve conception despite regular, unprotected intercourse. Ayurveda approaches fertility through the harmonious functioning of *Dosha*, *Dhatu*, *Agni*, and reproductive factors, with particular emphasis on *Artava*, *Shukra*, and the proper functioning of *Garbhashaya*. Classical concepts such as *Ritu*, *Kshetra*, *Ambu*, and *Beeja* provide a comprehensive framework for understanding factors essential for conception. Contemporary reproductive medicine identifies female and male factors, ovulatory dysfunction, tubal and uterine abnormalities, diminished ovarian reserve, sperm abnormalities, endocrine disorders, age-related decline, and unexplained infertility as major contributors. Integrating these perspectives may provide a broader, individualized approach to infertility management. Ayurvedic assessment through *Prakriti*, *Vikriti*, *Agni*, *Ahara-Vihara*, and reproductive history can complement contemporary diagnostic investigations such as hormonal profiling, ultrasonography, semen analysis, tubal assessment, and assessment of ovarian reserve. Ayurvedic interventions including *Shodhana*, *Shamana*, *Rasayana*, dietary modification, lifestyle regulation, and appropriate *Yogic* practices may be considered as supportive measures, particularly when individualized according to the underlying pathology. Contemporary reproductive technologies, including ovulation induction, intrauterine insemination, and assisted reproductive techniques, remain important therapeutic options when clinically indicated. An integrative model emphasizing evidence-based Ayurveda alongside modern reproductive medicine may facilitate personalized care, address modifiable lifestyle and metabolic factors, and potentially improve reproductive health outcomes. Further well-designed clinical research is required to establish the efficacy, safety, and appropriate role of integrative approaches in infertility management.

Index Terms—*Vandhyatva*, Infertility, Ayurveda, Reproductive Medicine, *Artava*, *Shukra*, *Beeja*, Fertility, Assisted Reproductive Technology, Integrative Medicine.

I. INTRODUCTION

Infertility is an important reproductive health problem affecting individuals and couples across the world. It is currently defined as failure to achieve pregnancy after 12 months or more of regular, unprotected sexual intercourse. It may arise from female factors, male factors, combined factors, or remain unexplained.¹ The World Health Organization estimates that approximately one in six people of reproductive age experience infertility during their lifetime, emphasizing its substantial physical, psychological, social, and economic burden.²

In contemporary reproductive medicine, infertility is evaluated through a systematic assessment of ovulation, ovarian reserve, uterine and tubal anatomy, and male reproductive function.³ Female age remains one of the most important predictors of fecundity, while increasing prevalence of obesity, metabolic disorders, reproductive tract disorders, delayed childbearing, and lifestyle-related factors further influence reproductive potential.³

Ayurveda approaches infertility through the broader concept of *Vandhyatva*. Rather than considering conception solely as a reproductive event, Ayurveda emphasizes the appropriate functioning of *Dosha*, *Dhatu*, *Agni*, *Srotas*, and reproductive organs. The classical concept of four essential factors for conception—*Ritu*, *Kshetra*, *Ambu*, and *Beeja*—provides a useful conceptual framework for understanding fertility.

Therefore, integration of Ayurvedic principles with contemporary reproductive medicine may provide a holistic and individualized approach while retaining the advantages of modern diagnostic and assisted reproductive technologies.

II. AYURVEDIC CONCEPT OF VANDHYATVA

The term *Vandhya* denotes a woman who is unable to achieve conception. Classical Ayurvedic texts discuss infertility-related conditions in the context of *Yonivyapada*, *Artavadushti*, *Shukradushti*, and disorders affecting conception and maintenance of pregnancy. Modern literature also recognizes that *Vandhyatva* is not described as a single disease entity equivalent to the modern definition of infertility; rather, its understanding is derived from multiple pathological conditions affecting reproductive function.

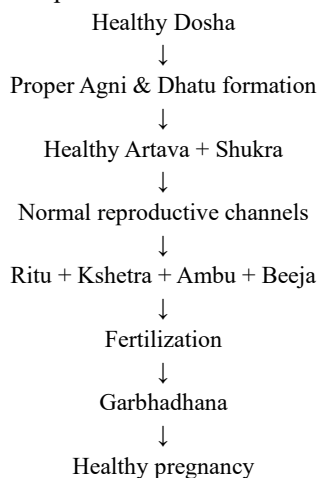
Ayurveda considers successful conception to depend upon the proper functioning of:

Ritu + Kshetra + Ambu + Beeja → Garbhadhana

- Ritu – appropriate reproductive period and ovulatory phase.
- Kshetra – healthy reproductive tract, including *Garbhashaya* and genital passages.
- Ambu – adequate nourishment and supporting factors required for development.
- Beeja – healthy reproductive elements of both partners, interpreted in contemporary terms in relation to ovum and sperm.

Any defect in these factors may interfere with conception.⁴

Ayurvedic conceptual flowchart



Vata, particularly *Apana Vayu*, is considered important in reproductive functions because of its role in the proper movement and regulation of processes occurring in the pelvic region. Disturbance of *Apana Vayu*, together with impairment of *Artava* or *Shukra*, may therefore contribute to impaired fertility.

III. ETIOLOGICAL FACTORS

3.1 Ayurvedic perspective

The Ayurvedic assessment of infertility considers multiple interacting factors rather than a single organ or laboratory abnormality. Important considerations include:

1. *Dosha* imbalance, particularly disturbance of *Vata*.
2. Abnormality of *Artava*.
3. Abnormality or depletion of *Shukra Dhatu*.
4. Impairment of *Agni* and subsequent *Dhatu* nourishment.
5. *Srotodushti* involving reproductive channels.
6. Improper *Ahara* and *Vihara*.
7. Excessive physical or mental stress.
8. Inadequate sleep and disturbed daily routine.
9. Age-related decline in reproductive capacity.
10. Psychological and sexual factors.

Thus, Ayurveda provides a systemic assessment of fertility rather than restricting evaluation to the reproductive organs.

3.2 Contemporary perspective

Modern infertility may result from several causes:

Female factors	Male factors
Ovulatory disorders	Oligozoospermia
PCOS	Asthenozoospermia
Diminished ovarian reserve	Teratozoospermia
Tubal obstruction	Azoospermia
Endometriosis	Varicocele
Uterine abnormalities	Endocrine disorders
Premature ovarian insufficiency	Genetic factors
Age-related decline	Sexual dysfunction

Infertility may also be unexplained despite apparently normal conventional investigations.⁵

IV. CORRELATION BETWEEN AYURVEDIC AND CONTEMPORARY CONCEPTS

The objective of integration should not be to force one-to-one equivalence between Ayurvedic terminology and modern biomedical diagnoses. Instead, the two systems can be viewed as complementary frameworks.

Ayurvedic concept	Possible contemporary clinical correlation
<i>Ritu</i>	Ovulatory/reproductive period
<i>Kshetra</i>	Uterus, cervix, tubes and reproductive tract
<i>Ambu</i>	Nutritional and metabolic support
<i>Beeja</i>	Ovum and sperm
<i>Artava</i>	Menstrual/ovarian reproductive function
<i>Shukra</i>	Male reproductive function and semen
<i>Apana Vayu</i>	Pelvic reproductive and expulsive physiological functions
<i>Srotodushti</i>	Functional/structural impairment of reproductive pathways
<i>Agni</i>	Digestion and metabolic processes
<i>Rasayana</i>	Rejuvenative/supportive approach

This correlation should be regarded as conceptual rather than as proof that the Ayurvedic terms are exact anatomical or physiological equivalents.

V. CONTEMPORARY DIAGNOSTIC APPROACH

A systematic infertility evaluation should involve both partners, wherever applicable. The American Society for Reproductive Medicine recommends assessment of ovulatory status, reproductive tract structure and tubal patency, and semen parameters.

Basic evaluation

Female partner

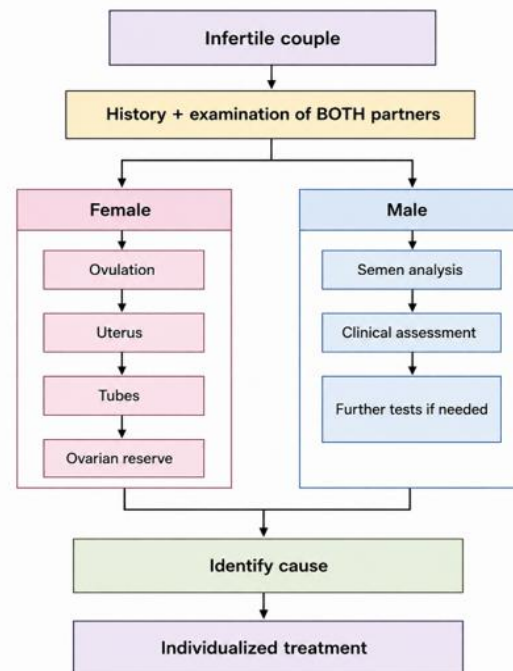
- Detailed menstrual and reproductive history
- Ovulatory assessment
- Transvaginal ultrasonography
- Assessment of ovarian reserve when indicated
- Evaluation of uterus and adnexa
- Tubal patency assessment using HSG or sonographic methods when appropriate
- Hormonal investigations based on clinical indication

Male partner

- Reproductive and medical history

- Physical examination where indicated
- Semen analysis
- Further endocrine, genetic or anatomical evaluation when clinically indicated

Diagnostic pathway



Evaluation is generally initiated after 12 months of unsuccessful attempts in women below 35 years of age and after 6 months in women aged 35 years or older; earlier assessment is appropriate when risk factors for infertility are already known.

VI. AYURVEDIC ASSESSMENT

An Ayurvedic infertility consultation can be performed alongside contemporary investigation. Important parameters include:

Prakriti and Vikriti

Assessment of *Prakriti* may help individualize diet, lifestyle and therapeutic planning, while *Vikriti* helps identify the currently predominant pathological factors.

Agni and Koshta

Assessment of *Agni*, bowel habits and *Koshta* may provide information regarding digestion, metabolism and general physiological status.

Artava Pariksha

Menstrual history should include:

- Cycle duration

- Regularity
- Duration of bleeding
- Quantity
- Colour
- Pain
- Clots
- Intermenstrual bleeding

Reproductive history

- Duration of infertility
- Primary/secondary infertility
- Previous pregnancies
- Abortions
- Previous infertility treatment
- Sexual history
- Previous pelvic infection or surgery

Lifestyle assessment

Diet, physical activity, sleep, stress, occupational exposure, tobacco/alcohol use and obesity should also be evaluated because contemporary evidence demonstrates associations between lifestyle factors and reproductive health.

VII. INTEGRATIVE MANAGEMENT

The central principle of an integrative approach should be individualized treatment based on the identified cause.

7.1 Lifestyle modification

Both systems emphasize the importance of maintaining an appropriate lifestyle. Management may include:

- Balanced nutrition
- Appropriate physical activity
- Healthy body weight
- Adequate sleep
- Reduction of tobacco and excessive alcohol exposure
- Stress management
- Avoidance of unnecessary reproductive delays

Lifestyle modification is particularly relevant in infertility associated with metabolic disorders such as obesity and PCOS.

7.2 Ayurvedic management

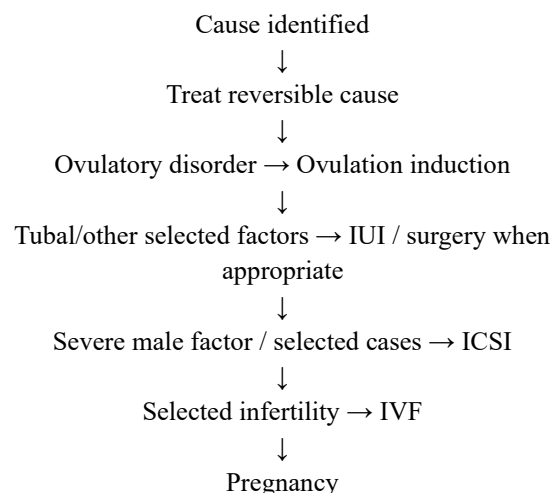
Ayurvedic management may be planned according to *Dosha*, *Dushya*, *Agni*, *Srotas*, and the specific reproductive abnormality. Therapeutic principles described in the literature include:

- *Deepana-Pachana* where indicated
- *Shodhana* in appropriately selected patients
- *Shamana Chikitsa*
- *Rasayana*
- *Vajikarana*
- *Basti* in selected clinical situations
- Appropriate *Ahara-Vihara*
- Psychological and behavioural support

The objective is to restore physiological balance, improve nourishment and support reproductive function rather than simply treating infertility as an isolated symptom. Clinical studies have reported Ayurvedic interventions in selected cases of anovulatory infertility, PCOS, tubal-factor infertility and endometriosis; however, the evidence base remains limited and heterogeneous. A systematic review evaluating Ayurvedic interventions identified only a limited number of studies and highlighted small sample sizes, case reports and lack of standardized treatment protocols.⁶ Therefore, claims of universal efficacy or replacement of established fertility treatment cannot currently be justified.

VIII. ROLE OF CONTEMPORARY REPRODUCTIVE MEDICINE-

Modern reproductive medicine provides several evidence-based options according to the underlying cause.



Treatment may include ovulation induction, intrauterine insemination (IUI), surgical correction of selected abnormalities, in-vitro fertilization (IVF), and intracytoplasmic sperm injection (ICSI). Choice of treatment depends on age, ovarian reserve, duration and cause of infertility, semen parameters, tubal status, previous treatment and patient preferences. Ayurveda should therefore be considered potentially complementary, rather than a substitute for indicated modern reproductive interventions.

IX. EVIDENCE FOR INTEGRATIVE APPROACH

Available clinical evidence provides preliminary support for investigating Ayurvedic interventions in infertility. An open-label randomized clinical trial involving women with anovulatory infertility evaluated *Brihatyadi Yapana Basti* and *Shivalingi* seed powder and reported improvement in selected reproductive outcomes.⁷ Case reports have also described Ayurvedic management in infertility

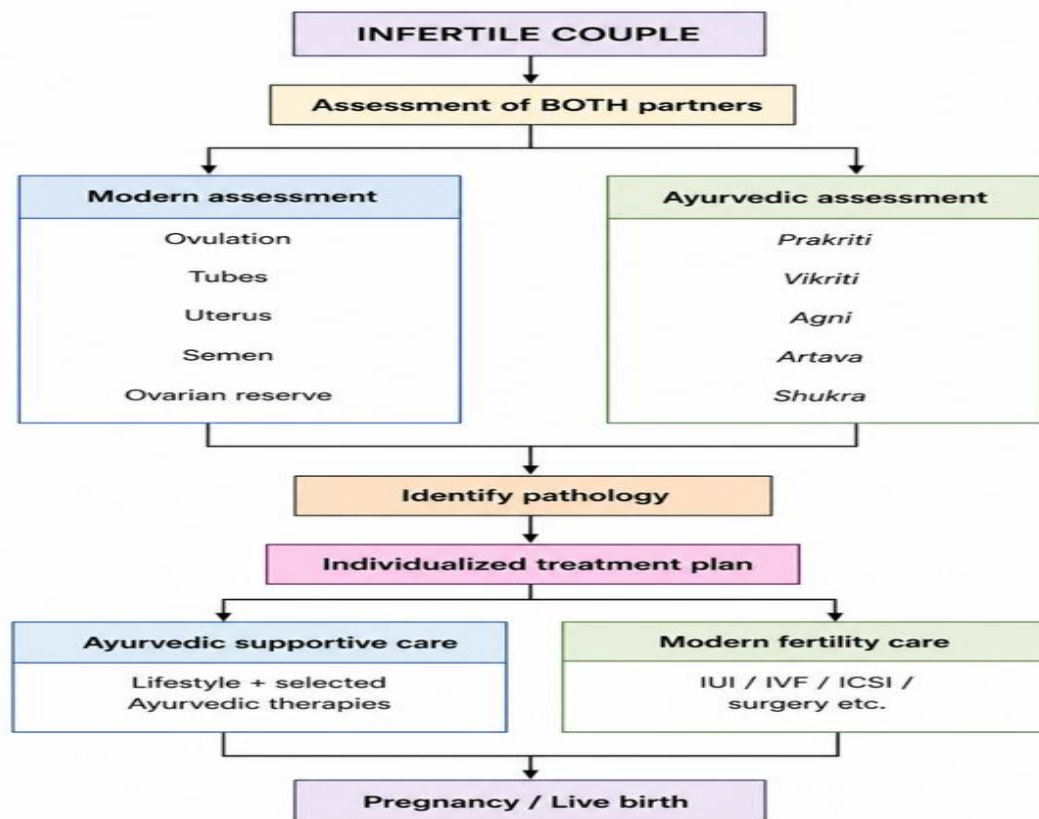
associated with PCOS and endometriosis.^{8,9} These reports are useful for generating hypotheses but cannot establish efficacy because uncontrolled case reports are susceptible to spontaneous conception, selection bias and other confounding factors.

A systematic review published in 2024 identified 14 studies involving 248 participants and concluded that although Ayurvedic interventions show potential, limited sample sizes and non-standardized treatment protocols restrict the strength of available evidence.

Consequently, future research should focus on:

- Larger randomized controlled trials
- Standardized diagnostic criteria
- Clearly defined Ayurvedic interventions
- Objective reproductive outcomes
- Live-birth rate as an important endpoint
- Safety monitoring
- Long-term follow-up
- Proper comparison with standard fertility care

X. PROPOSED INTEGRATIVE CLINICAL MODEL



This model allows Ayurvedic assessment to contribute individualized lifestyle and therapeutic planning while modern reproductive medicine provides objective diagnosis and evidence-based fertility interventions.

XI. DISCUSSION

The concept of *Vandhyatva* provides a broad, individualized perspective on impaired reproductive potential. The classical framework of *Ritu*, *Kshetra*, *Ambu*, and *Beeja* emphasizes that conception requires appropriate timing, a healthy reproductive environment, adequate nourishment and healthy reproductive elements. This multidimensional concept has conceptual relevance when viewed alongside the modern understanding that infertility may result from multiple interacting factors. Contemporary reproductive medicine, however, has the advantage of precise anatomical, hormonal and gamete-level investigation. Ultrasonography, semen analysis, tubal assessment, ovarian reserve testing and assisted reproductive technologies allow specific causes to be identified and managed. The greatest potential of integration lies in combining these strengths rather than attempting to replace one system with the other. Ayurveda may contribute individualized assessment of *Prakriti*, *Agni*, *Ahara-Vihara*, and lifestyle, while modern medicine can identify conditions requiring timely intervention. Importantly, integrative infertility care should be evidence-based. Some Ayurvedic procedures may require specific safety considerations, particularly when invasive procedures or intrauterine interventions are contemplated. Such interventions should only be undertaken by appropriately qualified practitioners with proper aseptic precautions and should not delay necessary fertility evaluation or treatment. Thus, the future role of Ayurveda in infertility should be established through rigorous clinical research rather than through unsupported claims of efficacy.

XII. CONCLUSION

Vandhyatva represents a complex reproductive condition that can be understood through both Ayurvedic and contemporary biomedical perspectives. Ayurveda emphasizes *Dosha*, *Agni*, *Dhatu*, *Artava*, *Shukra*, and the four essential factors of conception—*Ritu*, *Kshetra*, *Ambu*, and *Beeja*. Contemporary

reproductive medicine provides systematic investigation of ovulation, ovarian reserve, reproductive anatomy and semen parameters, together with effective interventions such as ovulation induction, IUI, IVF and ICSI. An integrative model may therefore provide a patient-centred approach in which Ayurvedic principles support individualized lifestyle and therapeutic planning while contemporary reproductive medicine ensures appropriate diagnosis and evidence-based intervention. Current evidence regarding Ayurvedic infertility management remains promising but insufficient for definitive conclusions. Well-designed randomized controlled trials with standardized protocols and clinically meaningful outcomes, particularly pregnancy and live-birth rates, are required to establish its precise role in contemporary fertility care.

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