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ROLE OF AGNI AND AMA IN THE PATHOGENESIS OF *STRI VANDHYATVA* (FEMALE INFERTILITY): A CRITICAL REVIEW

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Abstract

In the modern era, sedentary lifestyle and improper dietary habits have led to disturbances in Agni, the fundamental digestive and metabolic force described in Ayurveda. Proper functioning of Agni is essential for digestion, tissue nourishment, immunity, and overall health. Impairment of Agni results in incomplete digestion and formation of Ama, a toxic metabolic by-product that obstructs bodily channels (*Srotas*) and initiates disease processes. Ayurveda considers *Mandagni* as the root cause of all diseases.

Stri Vandhyatva (female infertility) is a multifactorial condition influenced by disturbances in *Garbha Sambhava Samagri*—*Ritu, Kshetra, Ambu, and Beeja*—as well as mental and *Dosha* imbalance, particularly of *Vata*. Vitiated *Agni* leads to *Ama* accumulation, impaired tissue formation, and inadequate nourishment of reproductive organs, thereby affecting fertility. Maintenance of balanced *Agni* ensures proper digestion, absorption, formation of healthy *Dhatus*, and enhancement of *Ojas*. Thus, correction of Agni and elimination of Ama form the cornerstone in the Ayurvedic management of *Stri Vandhyatva*.

Keywords

Agni, Ama, Stri Vandhyatva, Female Infertility, Mandagni, Ayurveda

Introduction

Agni is a central concept in Ayurveda, considered the fundamental force governing digestion, metabolism, catabolism, and the transformation of nutrients into bodily tissues and energy. The quality and strength of *Agni* regulate both the physical and physiological processes essential for maintaining health and preventing disease. When *Agni* is balanced, digestion is efficient and nutrients are properly assimilated. However, impairment of *Agni*, termed ***Agnimandya***, results in incomplete digestion and the formation of ***Ama***, a toxic metabolic by-product that obstructs bodily channels and disrupts normal physiology.

Classical Ayurvedic texts describe multiple levels of *Agni*, including ***Jatharagni*** (primary digestive fire), ***Bhutagni***, and ***Dhatvagni***, each playing a distinct role in metabolic transformation at different levels of the body. *Jatharagni* is particularly critical in determining the quality of digestion; its impairment is believed to initiate systemic metabolic dysfunctions. Modern lifestyles characterized by irregular eating patterns, physical inactivity, and psychological stress have been associated with increased functional gastrointestinal disorders, such as dyspepsia and indigestion, which are reflective of impaired digestive function. Dyspepsia, defined in biomedical literature as persistent or recurrent upper abdominal discomfort related to digestion, affects a significant proportion of adults worldwide.

In the context of reproductive health, Ayurveda posits that balanced *Agni* is essential for the proper formation of reproductive tissues (*Artava* in females and *Shukra* in males). Nutrient assimilation and tissue nourishment directly influence fertility, and disturbances in *Agni* can adversely affect reproductive function even in the presence of normal anatomical and hormonal parameters. The accumulation of *Ama* due to impaired *Agni* is understood to interfere with physiological processes and obstruct channels, thereby contributing to conditions such as ***Stree Vandhyatva*** (female infertility).

Understanding the interplay between *Agni*, *Ama*, and reproductive function offers an integrative framework for exploring metabolic and fertility disorders. This perspective supports the rationale for dietary and lifestyle interventions aimed at restoring metabolic balance as part of therapeutic strategies for infertility.

Aims and Objectives

Aim

To evaluate the effect of *Agni* and the role of *Ama* in the pathogenesis of *Stree Vandhyatva* (female infertility) from an *Ayurvedic* perspective.

Objectives

1. To critically analyze the concept of **Agni** and **Ama** as described in classical *Ayurvedic* literature.
2. To elucidate the physiological and pathological significance of **Agni** in digestion, metabolism, and tissue nourishment.
3. To study the role of **Ama** in the development of various **Vyadhis** (diseases), with special reference to reproductive disorders.
4. To explore the contribution of **Agnivaishamyā** (imbalance of Agni) and **Ama** in the etiopathogenesis of **Stree Vandhyatva**.
5. To highlight the therapeutic importance of restoring **Agni** and eliminating **Ama** in the management of female infertility.

Materials and Methods

Study Design

The present study is a **literature-based narrative review** undertaken to examine the concepts of **Agni**, **Agnimandya**, and **Ama**, and to evaluate their relevance in the context of **Stree Vandhyatva** (female infertility) from an Ayurvedic perspective.

Materials

Classical Ayurvedic literature formed the primary source of data for this study. The main texts consulted included **Charaka Samhita**, **Sushruta Samhita**, **Ashtanga Hridaya**, and **Madhava Nidana**, along with their relevant authoritative commentaries. Sections dealing with digestion, metabolism, Agni, Ama, and reproductive health were carefully reviewed.

To incorporate contemporary perspectives, **modern Ayurvedic textbooks**, **peer-reviewed journal articles**, and **scholarly publications** were also consulted. In addition, academic web-based sources were searched to identify recent studies related to digestive disorders, metabolic disturbances, and female infertility.

Methodology

Relevant literature from classical and modern sources was systematically collected and analyzed. Classical descriptions of **Agni**, **Agnimandya**, and **Ama** were critically interpreted

and correlated with the concept of *Stree Vandhyatva*. Information from modern scientific and Ayurvedic publications was used to support and contextualize these concepts.

The collected data were synthesized and organized to develop a conceptual framework explaining the effect of *Agni* and the role of *Ama* in the etiopathogenesis of female infertility. The analysis was conducted in accordance with the aims and objectives of the study, with emphasis on understanding the pathological significance of impaired *Agni* and *Ama* formation in reproductive disorders.

EPIDEMIOLOGICAL PROFILE OF THE DISEASE

Infertility is a major global public health concern affecting individuals during their reproductive years. The World Health Organization (WHO) reports that approximately **one in six adults' worldwide** experiences infertility during their lifetime, corresponding to a global prevalence of about **17%–18%**. Large-scale epidemiological assessments, including data from the Global Burden of Disease (GBD) Study, indicate that more than **100 million women worldwide** were affected by infertility in recent years².

Long-term trend analyses demonstrate that the burden of infertility has increased over the past decades, with considerable regional variation in prevalence³. In India, nationally representative data from the National Family Health Survey (NFHS-5) reveal substantial inter-state and sociodemographic differences in infertility prevalence. Clinical and hospital-based studies further suggest that prevalence estimates vary widely depending on study population and methodology, often ranging between **10% and 15%** in tertiary care settings. These findings indicate that *Stri Vandhyatva* represents a significant and growing reproductive health challenge both globally and in India.

Role of *Agni* in Ayurveda and Its Relevance to *Stree Vandhyatva*

Agni is the central governing principle of Ayurveda, responsible for digestion, metabolism, transformation, and vitality. Acharya Charaka states that the existence of life depends upon *Agni* and its impairment leads to disease and even death (*Charaka Samhita, Chikitsa Sthana*). In Ayurveda, the structure and function of the human body are explained through concepts such as *Triguna*, *Panchamahabhuta*, *Tridosha*, and *Agni*. Among these, *Agni* occupies a pivotal position because it regulates digestion (*Ahara Pachana*), tissue formation (*Dhatu Poshana*), strength (*Bala*), complexion (*Varna*), immunity (*Ojas*), and longevity (*Ayus*).

Stree Vandhyatva (female infertility) is described in classical texts like **Harita Samhita**, **Rasa Ratna Samuchchaya**, and **Vandhya Kalpadruma** as the inability to conceive despite appropriate conditions. Since proper formation of Dhatus, normal menstrual function, ovulation, and uterine receptivity depend on balanced *Agni*, its derangement plays a crucial role in the pathogenesis of infertility. Along with this, the formation of **Āma** due to impaired *Agni* further obstructs bodily channels (*Srotas*) and vitiates reproductive physiology.

Concept of *Agni* in Ayurveda

Agni represents the *Agni Mahabhuta* in the human body and is responsible for all processes of digestion, absorption, assimilation, and metabolism. *Acharya Charaka* explains the intimate relationship between *Agni* and *Pitta*, stating that *Agni* cannot function independently of *Pitta* in metabolic activities.

Classical texts describe **13 types of *Agni***:

- **1 *Jatharagni*** (digestive fire)
- **5 *Bhutagni*** (elemental fires)
- **7 *Dhatvagni*** (tissue fires)

Jatharagni initiates digestion and converts food into absorbable form. ***Bhutagni*** acts on the elemental components of food, while ***Dhatvagni*** transforms nutrients into specific tissues (*Dhatus*).

***Acharya Charaka* states:** “अग्निर्हि देहिनां प्राणाः” (*Agni is the life of living beings*)

Functions of *Agni*

1. **Digestion and absorption:** Breaks food into subtle forms for easy assimilation.
2. **Metabolism:** Converts nutrients into energy and body tissues.
3. **Detoxification:** Prevents formation and accumulation of **Āma**.
4. **Mental functions:** Supports clarity, comprehension, and intellect.
5. **Immunity:** Maintains *Ojas* through proper *Dhatu* formation.

Functional States of *Agni*

Ayurveda describes four functional states of *Agni* :

1. **Samagni** – Balanced *Agni*, seen in equilibrium of *Doshas*; ensures proper digestion and *Dhatu Samya*.
2. **Mandagni** – Weak *Agni* (*Kapha* predominance); causes incomplete digestion and *Āma* formation.
3. **Tikshnagni** – Sharp *Agni* (*Pitta* predominance); leads to excessive digestion and *Dhatu Kshaya*.
4. **Vishamagni** – Irregular *Agni* (*Vata* predominance); causes erratic digestion and uneven *Dhatu* formation.

Classical verse describing *Vishamagni* and *Tikshnagni*:

“विषमो धातुवैषम्यं करोति विषमं पचन्। तीक्ष्णो मन्देन्धनो धातून् विशोषयति पावकः॥”

(*Ashtanga Hridaya*) [2]

Āma and Its Pathological Significance

When *Agni* becomes weak or irregular, food is not properly digested, resulting in the formation of **Āma**, which is heavy, sticky, and toxic in nature. *Āma* obstructs *Srotas*, vitiates *Doshas*, and impairs *Dhatu* formation. With progression, *Āma* may transform into a more toxic state described as **Āmavisha**, producing symptoms such as indigestion, heaviness, pain, fever, anorexia, and metabolic disturbances.

Concept of Vandhyatva in Ayurveda

Vandhyatva refers to the inability to conceive. The term “*Vandhya*” denotes infertility or unfruitfulness. According to Acharya Sushruta, successful conception depends upon four essential factors (***Garbha Sambhava Samagri***) :

1. **Ritu** – Proper fertile period
2. **Kshetra** – Healthy uterus and reproductive organs
3. **Bija** – Healthy *Shukra* and *Artava*
4. **Ambu** – Adequate nourishment

Acharya Vagbhata emphasizes the importance of **unvitiated *Vata* (especially *Samana Vayu*)** and a healthy *Hridaya* for conception. *Acharya Charaka* states that abnormalities of *Yoni*, *Manas*, *Shukra*, *Artava*, improper diet, lifestyle, and timing of coitus can lead to *Vandhyatva* .

Role of Agni in Stree Vandhyatva

1. Agni and Dhatu Formation

Proper functioning of *Jatharagni*, *Bhutagni*, and *Dhatvagni* ensures healthy formation of *Rasadi Dhatus*, including *Shukra* and *Artava*. Impaired *Agni* leads to *Āma* formation and defective *Dhatu Poshana*, directly affecting fertility.

2. Agni and Ovulation

Agnimandya results in *Āma* accumulation and *Srotorodha*, which can disturb *Artava* formation and release, leading to anovulation. Restoration of *Agni* supports regular ovulation and menstrual cyclicity.

3. Agni and Menstrual Health

Disturbances in *Agni* contribute to menstrual irregularities such as scanty, excessive, or painful menstruation. Correction of *Agni* through *Deepana* and *Pachana* helps normalize these conditions.

4. Agni, Nutrition, and Implantation

Improper diet and lifestyle cause *Agnivaishamyā*, leading to *Dosha* vitiation and *Āma* formation. This results in *Rasa* and *Artavavaha Srotodushti*, producing an unsuitable uterine environment for implantation and causing *Vandhyatva*.

Clinical Importance of Agni in Management of Vandhyatva

Acharya Vagbhata states that most diseases originate from impaired *Agni* (*Ashtanga Hridaya, Sutra Sthana*). *Chakrapani* also emphasizes the importance of proper **Kala (timing)** of digestion of food and drugs. Therefore, treatment principles in *Ayurveda* focus on:

- **Deepana** – Enhancing digestive fire
- **Pachana** – Digesting *Āma*
- **Shodhana** – Eliminating vitiated *Doshas* and toxins

By restoring *Agni*, *Āma* is reduced, *Dhatu* nourishment improves, hormonal balance is supported, and reproductive capacity is enhanced.

AMA

IMPORTANCE of Āma and Its Role in the Samprapti of Stree Vandhyatva

In Ayurveda, the concept of **Āma** occupies a central position in the understanding of disease pathogenesis. The word **Āma** is commonly used to denote something **unripe or improperly processed**, such as an unripe fruit before its natural maturation. Etymologically, **Āma** conveys meanings such as *Isatpakwa*, *Apakwa*, *Asiddha*, and *Vyasta*, indicating an incompletely transformed or immature state of substance. In clinical terms, **Āma** represents **undigested or improperly digested material** formed due to impairment of Agni, especially **Mandagni**.

Acharya *Vagbhata* describes **Āma** as the improperly formed *Ahara Rasa* that remains in the *Amashaya* due to hypo-functioning of *Ushma (Agni)* and undergoes fermentation or putrefaction, leading to a toxic state. Acharya *Charaka* states that undigested food, produced due to **Mandagni**, undergoes *Shukta* (fermentation) and gives rise to a toxic condition known as **Āmavisha**. *Sushruta* explains that any entity, such as a wound, remains in an **Āma** state until it reaches complete maturation (*Pakva Avastha*). *Sharangadhara* further clarifies that properly digested *Ahara Rasa* is called *Rasa*, whereas improperly digested *Ahara Rasa* is termed **Āma**.

Thus, the terms **Āma**, **Āmadoshā**, and **Āmavisha** denote different stages and severities of the same pathological process.

Āmotpatti (Pathogenesis of Āma)

Primary Causes

Primary causes directly impair **Agni**, leading to **Mandagni** and subsequent formation of **Āma**.

Direct causes include:

- Dietary incompatibilities such as *Atibhojana*, *Abhojana*, *Ansana*, *Viruddha Ahara*, *Atyambu Sevana*
- Improper administration of *Shodhana* therapies such as *Vamana*, *Virechana*, *Basti*, *Sneha*, *Sweda*
- *Vega Dharana* (suppression of natural urges)
- Unhygienic food habits and non-adherence to *Ahara Vidhi Visheshayatana*
- Psychological factors (*Manasika Vikara*) like stress, anxiety, fear, anger, and depression, which reduce digestive efficiency by inhibiting gastric secretions and promoting *Mandagni*.

Indirect causes include:

- Diseases leading to *Agnimandya*
- Conditions causing emaciation
- Kapha-dominant disorders
- Abnormal movement of *Apana Vata* and *Samana Vata*
- Inhibition of normal functions of *Agni*

Secondary Causes

Secondary causes primarily vitiate **Doshas**, which in turn impair *Agni*, resulting in *Mandagni* and *Āmotpatti*. All **Kaphaja** and **Pittaja** disorders tend to promote *Āma* by disturbing *Agni*. Without *Mandagni*, *Āma* cannot be produced; hence *Mandagni* is the **key intermediate factor** in *Āmotpatti*.

Diseases commonly associated with *Āma* production include: *Grahani, Ajeerna, Jwara, Rajayakshma, Gulma, Shotha, Amavata, Atisara, Pravahika, Arsha, and Udara Roga*.

Role of *Āma* in the *Samprapti* of *Stree Vandhyatva*

General *Samprapti*

Mithya Ahara-Vihara → *Tridosha Prakopa* → *Jatharagni Dushti* → Improper formation of *Ahara Rasa* → ***Āma (Amarasa) Utpatti*** → Circulation of *Āma* → Vitiating of *Ritu, Kshetra, Ambu, and Bija* → ***Vandhyatva***.

1. *Samprapti* of Abnormality in *Ritu (Ritukala)*

Artava is an *Upadhatu* of *Rasa Dhatu*. When *Rasa Dhatu* is vitiated by *Āma*:

- *Āma-dushta Rasa Dhatu* → *Artavavaha Srotorodha*
- Improper formation or absence of *Artava (Nashtartava)*
- Results in failure of ovulation and ***Vandhyatva***

2. *Samprapti* of Abnormality in *Kshetra*

Kshetra (uterus and reproductive tract) is structurally and functionally maintained by proper *Rasa Dhatu*. When *Rasa* is vitiated by *Āma*:

(a) *Pradushta Artava (Menstrual disorders)*

- *Artava* vitiated by *Sukshma Amarasa* → *Artava Dushti* → Irregular or unhealthy menstruation → ***Vandhyatva***

(b) Shweta Pradara (Leucorrhea / PID-like condition)

- *Āma-dushta Artava* → *Guru* and *Pichhila* vaginal discharge → Obstruction in the passage of sperm (*Gati Avarodha*) → *Vandhyatva*

(c) Beejakosha Granthi Shopha (PCOD-like condition)

- *Nidana Sevana* → *Mandagni* → *Āma Nirmana* → Abnormal ovarian function → Incomplete formation or non-release of ovum → *Vandhyatva*

3. Samprapti of Abnormality in Ambu

- *Āma-dushta Rasa Dhatu* → *Artavavaha Srotodushti*
- Improper nourishment of *Garbhashaya*
- Endometrium becomes unsuitable for implantation (*Sama Ambu*)
- Leads to failure of implantation and ***Vandhyatva***

4. Samprapti of Abnormality in Bija

(a) Abnormality in Shonita Bija (Ovum)

- *Mithya Ahara-Vihara* → *Mandagni* → *Āma Nirmana*
- *Āma-dushta Rasa Dhatu* → *Shukra/Artava Dhatu Dushti*
- Improper formation of ovum → *Vandhyatva*

(b) Abnormality in Shukra Bija (Sperm factor contribution)

- *Mandagni* → *Āma-dushta Rasa Dhatu* → *Artavavaha/Shukravaha Srotodushti*
- Improper nourishment of *Stree Bija* and *Shukra* → Infertility

Thus, *Āma* acts as a **central pathological factor** in *Stree Vandhyatva* by:

- Obstructing Srotas (*Srotorodha*)
- *Vitiating Rasa, Artava, and Shukra Dhatu*
- Disturbing ovulation, menstruation, implantation, and gamete quality
- Creating an unhealthy internal environment for conception

Since *Mandagni* is the root cause of *Āma*, correction of *Agni* through ***Deepana, Pachana, and Shodhana*** forms the cornerstone of *Ayurvedic* management of infertility .

Importance of *Āma* and its role in the *samprapti* of *Stree Vandhyatva* show *Āma*, produced due to *Mandagni*, plays a decisive role in the pathogenesis of *Stree Vandhyatva*. It affects all

four essential factors of conception—**Ritu, Kshetra, Ambu, and Bija**—by causing *Dhatu Dushti, Srotorodha*, and impaired tissue nourishment. Therefore, assessment and management of *Āma* and *Agni* should be considered fundamental in the *Ayurvedic* approach to female infertility.

Chikitsā of Agni and Āma

1. Nidāna Parivarjana

Avoidance of causative factors such as faulty diet, incompatible food, irregular meals and unhealthy lifestyle is the first step in management to prevent further *Agnidushti* and *Āma* formation.

2. Āhāra Regulation

Intake of light, warm, freshly prepared and easily digestible food helps in restoring *Jatharagni* and reducing metabolic burden.

3. Langhana

In conditions associated with *Āma*, lightening therapies and restricted diet are advised to reduce *Āma* and kindle *Agni*.

4. Dīpana Therapy

Measures that stimulate digestive fire are used to correct *Agnimandya* and improve digestion and metabolism.

5. Pāchana Therapy

Drugs and measures that digest already formed *Āma* are administered to clear metabolic toxins and support proper *Dhātu* formation.

6. Śodhana Therapy

When *Doṣas* are markedly aggravated and the patient is fit, purification therapies are indicated to eliminate morbid *Doṣas* and remove *Srotorodha*.

7. Sañśamana Therapy

In mild conditions or after purification, pacifying therapy is used to stabilize *Agni*, maintain *Doṣa* balance and prevent further *Āma* formation.

8. Srotoshodhana

Cleansing and opening of channels helps in proper circulation of nutrients and removal of obstructions caused by *Āma*.

9. Dhātu Poṣaṇa

After correction of *Agni* and removal of *Āma*, nourishing measures are adopted to promote healthy formation of *Rasa, Artava* and other *Dhātus*.

10. Lifestyle and Mental Health Regulation

Proper sleep, controlled exercise and mental calmness are advised, as mental factors influence *Agni* and overall metabolism.

Discussion

Ayurveda considers *Agni* as the fundamental regulator of metabolism and tissue transformation. Disturbance of *Agni* results in the formation of *Āma*, which acts as a toxic, obstructive and pathogenic factor. Classical descriptions of *Āma*—ranging from improperly processed *Rasa* to toxic metabolic by-products—clearly indicate its role in *Srotorodha*, *Dhātu-duṣṭi* and *Doṣa prakopa*.

The present conceptual analysis shows that *Āma* occupies a central position in the pathogenesis of *Stree Vandhyatva*. When *Agni* is impaired, the initial *Dhātu (Rasa)* becomes defective, and since *Artava* is an *Upadhātu* of *Rasa*, its formation and function are also compromised. This explains menstrual irregularities, anovulation, poor endometrial receptivity and defective *Bīja* formation described in classical texts.

Furthermore, obstruction of channels by *Āma (Srotorodha)* provides a logical explanation for conditions resembling tubal block, ovarian dysfunction and chronic inflammatory states of the reproductive system. The therapeutic emphasis placed by *Acharyas* on *Dīpana, Pācana, Langhana* and *Śodhana* before any nourishing or fertility-promoting therapy demonstrates a rational and sequential treatment strategy.

Thus, correction of *Agni* is not merely symptomatic management but addresses the **root metabolic pathology** underlying infertility. This classical framework also aligns with modern observations that metabolic dysfunction, chronic inflammation and poor nutritional assimilation play significant roles in female infertility.

Conclusion

Agni is the cornerstone of health, and its derangement leads to the formation of *Āma*, the fundamental pathological factor in many diseases, including *Stree Vandhyatva*. *Āma*, through its obstructive and toxic properties, vitiates *Rasa Dhātu* and subsequently impairs *Ritu, Kṣetra, Ambu and Bīja*, resulting in infertility.

Ayurvedic management emphasizes *Nidāna Parivarjana, Dīpana-Pācana, Śodhana* and *Samśamana* as a stepwise and logical approach to restore *Agni*, eliminate *Āma* and re-establish normal tissue metabolism. Only after achieving a balanced *Agni* can reproductive tissues be properly nourished and fertility restored. Therefore, *Agni Chikitsā* and *Āma*

Chikitsā form the foundation of a rational, holistic and root-cause-oriented approach to the management of Stree Vandhyatva as described by all major *Acharyas* and *Samhitās*.

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