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Review Article

LASHUNA RASAYANA IN *STREE VANDHYATVA* (FEMALE INFERTILITY): A NARRATIVE REVIEW

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ABSTRACT

Stree vandhyatva (female infertility) is a complex clinical condition described in Ayurveda as resulting from derangement of *Doshas*, impairment of *Agni*, obstruction of *Srotas*, and qualitative or quantitative defects of *Artava* and *Shukra*. *Rasayana* therapy is advocated to rejuvenate reproductive tissues and enhance fertility potential. *Lashuna* (*Allium sativum* Linn.), widely used as both food and medicine, is described in classical Ayurvedic texts as a potent *Rasayana*, *Vrushya*, *Balya*, and *Srotoshodhaka* drug. *Lashuna Rasayana* has traditionally been employed in various gynaecological disorders, including infertility. Contemporary scientific studies demonstrate antioxidant, anti-inflammatory, insulin-sensitizing, antimicrobial, and hormonal modulatory properties of garlic, which are relevant to the etiopathogenesis of female infertility, particularly in conditions such as polycystic ovary syndrome (PCOS), oxidative stress–related ovarian dysfunction, and chronic inflammation. Experimental studies reveal protective effects on ovarian tissue and modulation of reproductive hormones, while limited clinical studies suggest improvement in metabolic and endocrine parameters associated with infertility. This narrative review explores the Ayurvedic rationale, pharmacological properties, experimental and clinical evidence, and safety considerations of *Lashuna Rasayana* in *Stree vandhyatva*. Although the available evidence is encouraging, further well-designed clinical trials with fertility-specific outcomes are necessary to establish its definitive therapeutic role.

INTRODUCTION

Infertility is a major concern affecting nearly 8–12% of couples of reproductive ages, with female factors contributing to approximately 40–50% of cases.[1] Female infertility is defined as the inability to achieve conception after 12 months of regular, unprotected sexual intercourse in women younger than 35 years, or after 6 months in women aged 35 years or above and represents a major global reproductive health concern.[2] Beyond its biological implications, infertility exerts profound psychological, emotional, and social consequences on women, particularly in developing countries where motherhood is closely linked to social identity and marital stability.[3] The etiology of female infertility is multifactorial and includes ovulatory disorders, tubal and peritoneal factors, uterine abnormalities, endocrine and metabolic dysfunctions, and unexplained infertility.[4] Ovulatory disorders contribute to nearly 25–30% of female infertility cases, with polycystic ovary syndrome (PCOS) being the most common endocrine disorder characterized by chronic anovulation, hyperandrogenism, insulin resistance, and metabolic disturbances.[5,6] Tubal damage resulting from pelvic inflammatory disease, endometriosis, genital tuberculosis, or prior pelvic surgery accounts for approximately 20–25% of cases by impairing fertilization or embryo transport.[7] Uterine factors such as fibroids, congenital anomalies, endometrial polyps, and intrauterine adhesions may adversely affect implantation and pregnancy maintenance.[8]

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Endocrine disorders including thyroid dysfunction, obesity, and diabetes mellitus further compromise reproductive function by altering gonadotropin secretion, oocyte quality, and endometrial receptivity. [9,10] In a significant proportion of couples, estimated at 15–30%, infertility remains unexplained despite standard evaluation, suggesting subtle abnormalities in oocyte quality, fertilization, implantation, immune regulation, or oxidative balance. [11] Oxidative stress has emerged as a critical pathophysiological factor in female infertility, contributing to ovarian aging, follicular atresia, impaired oocyte competence, luteal phase defects, and implantation failure through excessive generation of reactive oxygen species. [12]

Normal female fertility requires precise coordination between the hypothalamic–pituitary–ovarian axis, reproductive organs, metabolic homeostasis, and immune balance, and disruption at any level can impair conception.[7] While assisted reproductive technologies have significantly advanced infertility treatment, their high cost, invasiveness, variable success rates, and emotional burden have led to growing interest in holistic and integrative approaches that address systemic health, metabolic balance, and reproductive tissue quality.[13,14] Despite significant advances in assisted reproductive technologies, success rates remain variable, treatment costs are high, and the associated physical and emotional burden often leads women to seek safer, holistic, and culturally acceptable therapeutic options.

Ayurveda conceptualizes infertility under the broad spectrum of *Vandhyatva*, wherein successful conception depends on the integrity of four essential factors- *Ritu* (appropriate fertile period), *Kshetra* (healthy uterus and reproductive organs), *Ambu* (adequate nourishment), and *Beeja* (healthy ovum and sperm).[15] Disturbance of any of these factors, particularly due to *Vata dosha* vitiation, impaired *Agni*, obstruction of *Artavavaha srotas*, or qualitative and quantitative derangement of *Artava dhatu*, can lead to *Stree Vandhyatva.*[16,17] Classical Ayurvedic texts emphasize that infertility is rarely a localized disorder; instead, it reflects a systemic imbalance affecting digestion, metabolism, tissue nourishment, and reproductive physiology.

Among the various therapeutic approaches described in Ayurveda, *Rasayana chikitsa* holds a prominent position in the management of infertility. *Rasayana* therapy aims not only to rejuvenate tissues and delay degeneration but also to enhance reproductive competence by improving *Dhatu poshana*, correcting metabolic dysfunction, and strengthening *Ojas.* [18] Drugs possessing *Rasayana* and *Vrushya* properties are therefore considered particularly relevant in the management of *Stree Vandhyatva*.

Lashuna (*Allium sativum* Linn.), commonly known as garlic, occupies a unique position in Ayurvedic literature. While widely consumed as a dietary substance, *Lashuna* is also described as a potent medicinal agent endowed with *Rasayana*, *Vrushya*, *Balya*, *Agnideepana*, and *Srotoshodhaka* properties.[19,20] *Lashuna Rasayana*, prepared through specific processing (*Samskara*), is traditionally employed to enhance strength, vitality, and reproductive potential.

In recent decades, garlic has gained considerable scientific attention due to its diverse pharmacological properties, including antioxidant, anti-inflammatory, insulin-sensitizing, antimicrobial, and endocrine-modulating effects.[21,22] These properties are particularly relevant to modern etiological factors implicated in female infertility such as polycystic ovary syndrome (PCOS), oxidative stress-induced ovarian dysfunction, metabolic syndrome, and chronic low-grade inflammation.[23] This convergence of Ayurvedic principles and modern biomedical evidence provides a strong rationale for reviewing the role of *Lashuna Rasayana* in *Stree Vandhyatva*.

MATERIALS AND METHODS

This article is a narrative review. Information was compiled from classical Ayurvedic texts and commentaries describing *Lashuna* and *Rasayana* therapy, contemporary Ayurvedic textbooks and review articles, experimental animal and in-vitro studies evaluating *Allium sativum* in female reproductive function, clinical studies and observational reports related to garlic use in reproductive and metabolic disorders, and safety data from pharmacological and lactation/pregnancy databases.

Ayurvedic Concept of *Stree Vandhyatva*

Ayurveda considers infertility as a disorder involving both local and systemic factors. *Charaka Samhita* emphasizes that balanced *Doshas*, proper nourishment of *Dhatus*, and unobstructed *Srotas* are essential for conception. [15] Among the *Doshas*, *Vata dosha*, particularly *Apana vata*, governs ovulation, menstruation, fertilization, and implantation. Vitiation of *Vata* leads to anovulation, irregular menstruation, and implantation failure.[17] *Rasayana* therapy is indicated to rejuvenate reproductive tissues (*Artava* and *Shukra*), correct metabolic disturbances, and enhance fertility. [18]

Lashuna in Ayurveda

Lashuna is described with *Katu*, *Tikta*, and *Madhura rasa*; *Snigdha*, *Tikshna*, and *Guru guna*; *Ushna veerya*; and *Katu vipaka.* (Table No.1) It is indicated in

Vata-Kapha disorders and is described as *Balya*, *Brimhana*, *Agnideepana*, *Srotoshodhaka*, *Rasayana*, and *Vrushya*. Classical texts highlight its role in strengthening the body, improving digestion, and enhancing reproductive capacity.[19,20] *Lashuna Kalpa* and *Lashuna Rasayana* are prepared with specific *Samskara* to reduce excessive *Tikshnata* and enhance *Rasayana* effects, making them suitable for gynaecological disorders including infertility.

Pharmacological Properties Relevant to Female Infertility

Modern scientific studies have identified bioactive compounds in garlic such as allicin, diallyl disulfide, diallyl trisulfide, and S-allyl cysteine.[22] Oxidative stress plays a crucial role in ovarian aging, poor oocyte quality, and implantation failure. Garlic exhibits potent antioxidant activity by scavenging free radicals and enhancing endogenous antioxidant enzymes such as superoxide dismutase and catalase. [21,23] Chronic low-grade inflammation, implicated in conditions such as PCOS and endometriosis, is reduced through inhibition of pro-inflammatory cytokines and cyclooxygenase pathways by garlic compounds. [24]

Metabolic dysfunction, particularly insulin resistance and dyslipidemia, is a major contributor to anovulatory infertility in PCOS. Garlic supplementation has been shown to improve insulin sensitivity, lipid profiles, and body weight, indirectly supporting ovulatory function. [25] Experimental studies further suggest that garlic influences estrogen and progesterone levels, thereby supporting follicular development and luteal function. [22]

Experimental and Clinical Evidence

Animal studies demonstrate that garlic extracts protect ovarian tissue from oxidative damage, improve follicular morphology, and modulate reproductive hormone levels. Reduced lipid peroxidation and improved antioxidant status in ovarian tissue have been reported following garlic administration in rodent models. [22,23] Clinical evidence on *Lashuna Rasayana* in infertility is limited but suggestive. Studies in women with PCOS have reported improvement in metabolic parameters, oxidative stress markers, and hormonal profiles following garlic supplementation. [25] Narrative reviews indicate potential benefits of garlic in female reproductive health, particularly through metabolic and antioxidant mechanisms. [24] Ayurvedic clinical case series describe improvement in menstrual regularity and conception following Lashuna-based therapies, though these studies lack control groups and standardized outcome measures.[26]

DISCUSSION

The present review highlights Lashuna Rasayana as a therapeutic intervention that meaningfully integrates classical Ayurvedic principles with contemporary scientific understanding in the management of *Stree Vandhyatva*. Female infertility is increasingly recognized as a multifactorial disorder involving endocrine imbalance, oxidative stress, metabolic dysfunction, inflammation, and psychosocial stressors.[1,23] Ayurveda has long acknowledged this complexity by emphasizing systemic correction through *Agni deepana*, *Dosha shamana*, *Srotoshodhana*, and *Dhatu poshana*, rather than focusing solely on the reproductive organs. [15–17]

From an Ayurvedic standpoint, *Vata dosha*, especially *Apana vata*, plays a pivotal role in ovulation, menstruation, fertilization, and implantation. Vitiation of *Vata*, often accompanied by *Kapha* obstruction, leads to impaired follicular rupture, irregular menstruation, and infertility. [5] *Lashuna*, by virtue of its *Ushna veerya*, *Snigdha* and *Tikshna guna*, effectively pacifies *Vata* and alleviates *Kapha*-induced obstruction, thereby restoring the physiological functions of *Apana vata.* [19,20]

Impairment of *Agni* and accumulation of *Ama* are central pathogenic concepts in Ayurveda that closely resemble metabolic dysfunction and chronic low-grade inflammation recognized in modern medicine. Disorders such as PCOS, a leading cause of anovulatory infertility, are characterized by insulin resistance, hyperandrogenism, obesity, and inflammatory changes. [23] *Lashuna's Agnideepana* and *Ama pachana* actions are particularly relevant in this context. Modern studies demonstrate that garlic improves insulin sensitivity, lipid metabolism, and inflammatory markers, thereby indirectly supporting ovulatory function and menstrual regularity. [21,25]

Oxidative stress has emerged as a key factor in ovarian aging, follicular atresia, poor oocyte quality, and implantation failure. [23] Garlic's potent antioxidant activity, mediated through sulfur-containing compounds such as allicin and S-allyl cysteine, enhances endogenous antioxidant defenses and preserves ovarian tissue integrity.[21,22] Experimental studies corroborate these effects by demonstrating improved follicular morphology and reduced oxidative damage following garlic administration.[23] These findings provide strong biological plausibility for the *Rasayana* concept at the cellular level. The *Vrushya* and *Balya* attributes of *Lashuna* further emphasize its role in enhancing reproductive vitality. Adequate nourishment of *Artava dhatu* is essential for ovulation, endometrial receptivity, and implantation. *Lashuna's Brimhana* and *Srotoshodhaka* actions facilitate optimal

tissue nourishment and unobstructed channel function, thereby improving the reproductive microenvironment.

Despite these promising mechanistic insights, the clinical evidence supporting *Lashuna Rasayana* in female infertility remains limited. Most human studies focus on surrogate outcomes rather than fertility-specific endpoints such as ovulation rate, conception, or live birth. Ayurvedic case series provide encouraging practice-based observations but lack methodological rigor and standardization.[26] Safety considerations, particularly regarding its *Ushna* and *Tikshna* properties and mild antiplatelet activity, necessitate cautious use in clinical practice.[27,28] Future research should focus on well-designed clinical trials integrating Ayurvedic principles with modern research methodology. Standardization of *Lashuna Rasayana* formulations, clear dosing regimens, appropriate duration of therapy, and fertility-specific outcome measures are essential to establish its definitive therapeutic role.

CONCLUSION

Stree vandhyatva is a multifactorial condition involving disturbances in *Dosha* balance, impaired *Agni*, and defective nourishment of reproductive tissues. *Lashuna Rasayana* offers a holistic therapeutic approach by addressing key pathogenic factors such as *Vata* vitiation, metabolic dysfunction, oxidative stress, and obstruction of *Artavavaha srotas*. Although experimental and preliminary clinical evidence is encouraging, robust clinical studies with standardized formulations and fertility-specific outcomes are required before its routine recommendation in infertility management.

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