

## A COMPREHENSIVE APPROACH TO ANOVULATION: A REVIEW

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## ABSTRACT

Anovulation is a very common problem that presents in a variety of clinical manifestations, including amenorrhea, irregular menses, and hirsutism.<sup>[1]</sup> We cannot overemphasize the importance of a new attitude toward this common female problem that occurs in approximately 4% to 6% of reproductive-age women.<sup>[2]</sup> Ayurveda offers a holistic approach, targeting the root cause through lifestyle management. It is the second common cause of infertility. This comprehensive study examines anovulation from both Ayurvedic and modern medical perspectives. In Ayurveda, anovulation is often linked to imbalances in the *doshas* (Vata, Pitta, Kapha) and is treated through natural interventions, including herbal remedies, lifestyle modifications, and dietary adjustments. In contrast, modern medicine attributes anovulation primarily to hormonal imbalances, polycystic

ovary syndrome (PCOS), and other endocrine disorders, with treatments focused on hormonal therapy and assisted reproductive technologies. This study analyzes and compares the diagnostic criteria, treatment approaches, and outcomes from both systems. The findings suggest that while modern treatments provide effective symptomatic relief, Ayurvedic practices offer a holistic approach aimed at correcting the underlying imbalances. Combining both systems could offer a more integrative and patient-centered approach to treating anovulation and associated infertility issues. Further research is required to evaluate the efficacy of such integrative approaches in clinical practice.

## INTRODUCTION

Anovulation is a condition in which the ovaries do not release an egg during a menstrual cycle, a crucial process for reproduction. This leads to irregular menstrual cycles and is a



common cause of infertility in women.

Normal ovulation requires coordination of the menstrual system at all levels: the central hypothalamic-pituitary axis, the feedback signals, and local responses within the ovary. The loss of ovulation can be due to any one of an assortment of factors operating at each of these levels. The end result is a dysfunctional state: anovulation and the polycystic ovary.<sup>[4]</sup> A comprehensive understanding of anovulation includes exploring its causes, symptoms, diagnostic methods, and available treatments. Both Ayurveda and modern medicine provide valuable insights and treatments for anovulation, each offering a unique approach to understanding and managing the condition.

### Understanding the Ovulation Process

Ovulation occurs when the ovum surrounded by the corona radiata escape out of the Graffian follicle. It is quickly picked up by the tubal fimbria, which hugs the ovary at ovulation.<sup>[5]</sup> For women with a regular 28day cycle, ovulation usually happens around day 14. Hormones such as follicle-stimulating hormone (FSH) and luteinizing hormone (LH) play key roles in regulating this process. LH surge initiates luteinisation acting through its receptors about 24-48 hrs prior to ovulation.<sup>[6]</sup> When ovulation does not occur, it is termed anovulation, which disrupts the menstrual cycle and prevents conception. Menstruation is unrelated to ovulation and anovular menstruation is quite common during adolescence.<sup>[7]</sup>

### Causes of Anovulation

There are numerous reasons why a woman may experience anovulation, and these can be broadly categorized into hormonal imbalances, ovarian dysfunction, lifestyle factors, and medical conditions.

- **Polycystic Ovary Syndrome (PCOS):** Polycystic ovarian syndrome was originally described in 1935 by stein and leventhalas a syndrome manifested by amenorrhea, hirsutism and obesity associated with enlarged polycystic ovary.<sup>[8]</sup> In PCOS LH level is tonically elevated without any surge.<sup>[9]</sup>
- **Hyperprolactinemia:** High prolactin can suppress ovulation by alteration of GNRH pulsatility.<sup>[10]</sup>
- **Thyroid Disorders:** Both hyperthyroidism (overactive thyroid) and hypothyroidism (underactive thyroid) can disrupt the balance of reproductive hormones, leading to



anovulation.

- **Chronic Illness:** Long-term health conditions, such as diabetes, celiac disease, or autoimmune disorders, can contribute to hormonal imbalances that cause anovulation.
- **Certain Medications:** Some drugs, particularly those affecting hormones (like steroids or certain psychiatric medications), can interfere with ovulation.
- **Obesity:** The frequency of obesity in women with anovulation and polycystic ovaries has been reported to be from 35% to 60%.<sup>[11-14]</sup> Obesity is associated with three alterations that interfere with normal ovulation- 1. Increased peripheral aromatization of androgens to estrogens, 2 Decreased levels of sex hormone-binding globulin (SHBG), resulting in increased levels of free estradiol and testosterone, 3. Increased insulin levels that can stimulate ovarian stromal tissue production of androgens.

- **The Clinical Consequences of Persistent Anovulation<sup>[15]</sup>**

1. Infertility.
2. Hirsutism, alopecia, and acne.
3. Menstrual bleeding problems, which can range from amenorrhea to dysfunctional uterine bleeding.
4. An increased risk of diabetes mellitus in patients with insulin resistance.
5. An increased risk of endometrial cancer and breast cancer.
6. An increased risk of cardiovascular disease.

- **Diagnosis of Anovulation<sup>[16]</sup>**

Identifying anovulation involves a combination of self-monitoring and medical assessments. The following diagnostic methods are commonly used:

1. **Menstrual Cycle Tracking:** Women can track their menstrual cycles to check for irregularities that may suggest anovulation.
2. **Basal Body Temperature (BBT) Charting:** It is established that the basal body temperature (BBT) falls at the time of ovulation by about 1/2°F. Subsequently, during the progestational half of the cycle, the temperature is slightly raised above the preovulatory level, and the rise is of the order of 1/2°F to 1°F
3. **Blood Tests:** Blood tests can be used to measure hormone levels, such as FSH, LH, estrogen, progesterone, prolactin, and thyroid hormones, Lipid profile all of which play a role in ovulation.
4. **Pelvic Ultrasound:** An ultrasound can provide a view of the ovaries to check for the



development of follicles or the presence of cysts, which are common in PCOS.

## 5. Endometrial Biopsy

- **Overall Goals of Treatment**<sup>[17]</sup>

1. Reduce the production and circulating levels of androgens.
2. To protect the endometrium against the effects of unopposed estrogen.
3. Achieve normal body weight by supporting lifestyle changes.
4. Lower the risk for cardiovascular disease.
5. Avoid the effects of hyperinsulinemia to reduce the risks of cardiovascular disease and diabetes mellitus.

## 6. Ovulation induction to achieve pregnancy

- **Medications**<sup>[18]</sup>: Clomiphene citrate, Letrozole, Metformin, Gonadotropins, Hormone Replacement Therapy
- **Surgical Treatments**- Laparoscopic Ovarian Drilling
- **Assisted Reproductive Technologies** - Intrauterine Insemination (IUI), In Vitro Fertilization (IVF)

## Ayurvedic View of Anovulation

The karya of beeja is to form sharira.<sup>[19]</sup> Which gives birth to another object by removing its covering or secrecy is called Beeja. Beeja has capability to produce another thing.<sup>[20,21]</sup>

Charaka in sharirsthana 3 suggested, Beeja indicates both Shukra i.e. spermatozoa and Artava i.e. ovum, in male and female respectively. Beeja is the substance which is responsible for reproduction.<sup>[22,23]</sup>

In classics different terms are used to denote the ovum / Beeja such as, Beeja, Shonita, Artava, Antahpushpa etc. words denote both ovum and menstrual blood.<sup>[24,25,26,27,28]</sup>

Indicates ovum as ARTAVA, while raja is menstrual blood. Raja is upadhatu of rasa, whereas artava is itself seventh dhatu in stree sharira as that of shukra present in purush sharira.

Hemadri Acharya while quoting on vaghbhata sutrastana 1/8 stated the difference between raja i.e. menstrual blood and artava i.e. beeja or ovum which is secreted in rutukala. The Pramana of raja i.e. menstrual blood is four Anjali whereas Pramana of artava i.e. ovum at the time of ovulation is said to be two or three bindu matra.



Ayurveda, the ancient Indian system of medicine, views anovulation through the lens of the three fundamental bodily energies or doshas: Vata, Pitta, and Kapha. According to Ayurveda, reproductive health is governed by a balance between these doshas. When there is an imbalance, conditions like anovulation can occur. Ayurveda describes four essential factors i.e. Rutu (fertile period), Kshetra (reproductive organs), Ambu (proper nutrient fluid) and Beeja (ovum / sperm) are responsible for the formation of Garbha in comparison to germination of a seed.<sup>[29]</sup>

Defect in any one of them can cause Vandhyatva (infertility). Among these four factors, beeja (seed) is directly related to ovulation process.

Absence of this beeja in women is termed as anovulation. The main reason for anovulatory cycles is vitiation of Artava. Irregular dietetic and behavioural habits results into Dosha vitiation and mal-absorption which lead to Margasya avarana (obstruction) and causes anovulation i.e. abeejotsarga or pushpa asamjanana. Anovulation is an upadrava of yonivyapada.

### Causes of Anovulation in Ayurveda

- 1. Kapha Dosha Imbalance-** Kapha plays imperative role in Beeja, Nirmana. Prithvi and Jala plays important role in Nirmana Prakriya. Acharya Charaka has mentioned Upachya<sup>[30]</sup> as one of the important Karma of Kapha and Acharya Sushruta states Kapha Karma as BALAKRUTA and STHAIRYAKRUTA.<sup>[31]</sup> All these virtues help in formation of Beeja. Moreover Kapha and Rasa have Ashrayasharyi Bhava, rasadushti can cause further dhatus to become vitiated and hence vikrut artava dhatu formation. Hence vitiation of kapha can cause anovulation by disturbing the formation of beeja or by causing margavarodha.
- 2. Vata Dosha Imbalance-** Vata controls movement and circulation in the body. Without Vata Yoni never gets vitiated.<sup>[32]</sup> When Vata is aggravated, it can affect the normal functioning of the reproductive organs, leading to irregular or absent ovulation. Vata Dosha is the governing factor of the whole reproductive physiology; ovulation is also under the control of Vata. Therefore any vitiation of Vata will certainly affect the ovulation.



- 3. Pitta Dosh Imbalance-** Vikrut pitta can cause anovulation. Pitta is responsible for metabolism and transformation. Pitta and rakta are ashrayashrayi, hence vitiated pitta can vitiate rakta dhatu and hence further dhatu vitiation results in vikrut aartava formation or anartava or anovulation.

### Treatment for Anovulation

Ayurvedic treatment focuses on restoring balance to the doshas through diet, herbal remedies, lifestyle modifications, and yoga.

#### 1. Shamana chikitsa

Some specific Shamana drugs are also indicated:-

- Churna: Pippalyadi yoga<sup>[33]</sup> ○ Gutika: Yogaraja guggulu<sup>[34]</sup> ○ Kwatha: Maharasnadi<sup>[35]</sup> ○ Taila: Narayana Taila<sup>[36]</sup>, Shatavari Taila<sup>[37]</sup>, Shatapushpa Taila<sup>[38]</sup>, Shatapaki Taila<sup>[39]</sup> ○ Ghrita: Phala Ghrita<sup>[40,41]</sup>, Lasuna ghrita<sup>[42]</sup>, Shatavari Ghrita<sup>[43,44]</sup>
- Arishta: Dashamoolarishta<sup>[45]</sup> ○ Shatavari, Ashwagandha, Dashamoola, Kumari.

#### 2. Diet and Lifestyle Changes

○ Avoid kaphakara aahara and vihara i.e. avoid bakery products, fast food, oily, fried, packaged food. Avoid sedentary lifestyle.

- Avoid vatahara aahara vihara i.e. excessive exercise, avoid eating ruksha, katu, tikta Dravya in regular diet. Take fruits which have multiple seeds in it such as watermelon, guava etc., Tila, Atasi such foods can induce natural ovulation.
- **Dinacharya:** Establishing a regular daily routine, including waking up early, regular meals, and adequate sleep, helps in balancing the doshas.

- 3. Yoga:** Specific yoga poses that promote reproductive health include Bhujangasana (Cobra Pose), Supta Baddha Konasana (Reclining Bound Angle Pose), and Ustrasana (Camel Pose).

- 4. Shodhana chikitsa** ○ Panchakarma therapies, such as Virechana, Basti (medicated enema) and uttarbasti are used to regulate vitiated doshas and supporting regular ovulation.
- Basti is said to be best chikitsa as vata is always a primary causative factor for yoniroga and the best chikitsa of vitiated vata is basti chikitsa.



## CONCLUSION

Anovulation is a common and treatable cause of infertility, but it requires an understanding of its underlying causes. Whether due to hormonal imbalances, lifestyle factors, or medical conditions, identifying and addressing the root cause is crucial. With appropriate lifestyle modifications, medications, and in some cases, assisted reproductive technologies, many women with anovulation can successfully conceive. Early diagnosis and intervention are key to managing this condition effectively. Both Ayurveda and modern medicine offer valuable perspectives on the diagnosis and treatment of anovulation. Modern medicine focuses on addressing the underlying hormonal or ovarian issues with medications, lifestyle changes, and assisted reproductive technologies, while Ayurveda emphasizes restoring balance to the doshas through holistic practices, including diet, aushadhi chikitsa, yoga, and panchkarma. Depending on the cause and severity of anovulation, a combination of these approaches may be used to restore ovulation and support overall reproductive health.

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