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Ayurvedic Management of Secondary Uterine Hypoplasia (Arthava Kshaya): A Case Study

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Abstract

Background: Secondary uterine hypoplasia is a rare, acquired condition marked by regression or incomplete development of the uterus after normal growth. It often leads to amenorrhea and infertility. In Ayurveda, it correlates with *Arthava Kshaya* - a state of diminished or absent menstrual flow arising from *Vata–Pitta* imbalance, impaired *Agni*, and inadequate nourishment of *Rasa–Rakta dhatus*. Conventional hormone therapy shows only modest benefits.

Case Presentation: A 29-year-old woman presented with an 8-month history of secondary amenorrhea, weakness, abdominal pain, burning sensations, and anxiety. Baseline investigations revealed anemia (Hb 9 g/dL), ultrasonography findings (small uterus, thin endometrium, small ovaries), and suppressed gonadotropins (FSH 1 mIU/mL, LH 0.5 mIU/mL). Thyroid function was normal.

Intervention: Treatment was delivered in two phases: *Virechana* with Avipathi Choornam followed by *Samsarjana Krama*, and subsequent *Shamana* therapy with Gandharvahasthadi Kwath, Sukumara Ghritham/Kwath , Dhanwantharam Gulika, Evecare, Iogen Syrup, and a sesame–bharangi–trikatu decoction. Maintenance therapy included Abhayarishtam and Ashwagandhadi Lehyam. Dietary corrections were emphasized throughout.

Outcomes: Within seven months, menstruation resumed and became regular. Hemoglobin increased from 9 → 12.5 g/dL, weight from 45 → 50 kg, FSH from 1 → 4.8 mIU/mL, and LH from 0.5 → 2 mIU/mL. Ultrasonography confirmed normalization of uterine size (66 × 27 mm) and endometrium, with active ovaries. No adverse effects were reported.

Conclusion: This case highlights the potential of a structured Ayurvedic approach integrating *Shodhana, Shamana,* and *Rasayana* to reverse secondary uterine hypoplasia. Objective evidence of structural and hormonal recovery suggests Ayurveda may complement conventional care in reproductive medicine. Controlled trials are needed to validate these findings and assess fertility outcomes.

Keywords: Secondary Uterine Hypoplasia; Arthava Kshaya; Ayurveda; Virechana; Rasayana; Amenorrhea; Hypothalamic–Pituitary–Ovarian (HPO) Axis; Phytoestrogens

1. Introduction

Uterine hypoplasia refers to underdevelopment or abnormally small size of the uterus relative to age and developmental stage, often associated with menstrual irregularities, infertility, and adverse pregnancy outcomes. [1]

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It may be classified into two forms

- Primary (Congenital) uterine hypoplasia: Present from birth due to genetic or embryological defects such as MRKH syndrome or gonadal dysgenesis, and typically manifests with primary amenorrhea. [2]
- Secondary uterine hypoplasia: Develops after a period of normal uterine growth, usually due to hormonal, systemic, or environmental causes. It presents with secondary amenorrhea, infertility, or recurrent pregnancy loss, often linked to inadequate estrogenic stimulation or pelvic insults. [1]

In Ayurveda, menstrual disorders are broadly described under *Ashta Artava Dushti, Artava Kshaya, Anartava, Kashtartava,* and *Nashta Artava*. *Artava Kshaya* is usually described as a clinical manifestation rather than a distinct disease entity. Acharya Sushruta elaborates its features, and within *Ashta Artava Dushti*, it is equated with *Ksheena Artava* (diminished menstrual flow). [3,4]

The prevalence of congenital uterine anomalies, including hypoplasia, is estimated at 5.5–6.7% in the general female population [5]. Secondary uterine hypoplasia is rare, with isolated cases accounting for <1% of women overall, though its incidence is higher among those evaluated for infertility and menstrual disorders [6]. Because of its significant impact on reproductive health, prompt diagnosis through imaging and hormonal assessment is crucial for effective management. [1,6]

Conventional therapies such as hormone replacement and surgery provide only modest success, with limited restoration of uterine volume or fertility outcomes. [1,7] Moreover, these approaches often address only the anatomical or hormonal aspects, overlooking systemic or multifactorial contributions. This highlights the need to explore complementary approaches such as Ayurveda, which considers systemic balance, nourishment of *dhatus*, and restoration of *Agni* as central to reproductive health.

2. Line of Treatment

2.1. Phase I

The patient underwent *Virechana* with Avipathi Choornam (20 g), preceded by appropriate preparatory dietary regimen. The procedure resulted in five purgations, after which *Samsarjana Krama* (graduated post-purification diet) was followed without deviation. Table 1 outlines the mechanisms of action of Shodhana therapy, highlighting how Virechana and subsequent dietary regimen (Samsarjana Krama) act as foundational steps by restoring Agni, improving nutrient absorption, and setting the stage for systemic recovery.

Following *Virechana*, the following medications were prescribed

- **Gandharvahasthadi Kwath** – 15 ml, twice daily before meals
- **Dhanwantharam Gulika** – 1 tablet, thrice daily
- **Sukumara Ghritham** – 2 teaspoons at bedtime
- **Evecare Syrup** – 2 teaspoons, thrice daily
- **Homemade decoction** (Sesame seeds + Bharangi root, fortified with *Trikatu Choornam*, ghee, and honey) – administered twice daily

Dietary modifications included one cup of boiled green gram (*Mudga*), one banana, and one glass of milk daily. This regimen continued for 20 days.

Except for Evecare (Himalaya Wellness), all other formulations used in this case study were manufactured by Kerala Ayurveda Limited.

Table 2 summarizes the mechanisms of action of Shamana formulations. These therapies directly addressed anemia, hormonal imbalance, and uterine receptivity, through a combination of phytoestrogenic action, Rasayana support, and bioavailability enhancement

2.2. Phase II

A second *Virechana* with Avipathi Choornam was administered, resulting in four purgations. *Samsarjana Krama* again followed post-procedure. (Table 1)

During this phase

- Gandharvahasthadi Kwath was discontinued.
- Sukumara Kwath was introduced in place of Ghritham.
- Iogen Syrup was added to address anemia.

Clinical outcome: Menstruation resumed following this phase, with notable improvements in general weakness, lower abdominal pain, and burning sensations.

2.3. Follow-up and Maintenance

On follow-up (07/08/2012), investigations confirmed recovery

- Hemoglobin increased from 9 g/dL to 12.5 g/dL.
- Weight increased from 45 kg to 50 kg.
- Ultrasonography showed normalization of uterine size (66 × 27 mm), endometrial thickness, and ovarian function.
- Hormonal profile improved: FSH increased from 1 mIU/mL to 4.8 mIU/mL; LH from 0.5 mIU/mL to 2 mIU/mL.

Based on these results, the following maintenance regimen was advised for three months:

- **Abhayarishtam** – 15 ml, twice daily after meals
- **Ashwagandhadi Lehyam** – 1 teaspoon, twice daily
- **Iogen Syrup** – continued as before

Table 3 presents the role of follow-up Rasayana therapy in maintaining recovery. These formulations provided adaptogenic, anabolic, and systemic rejuvenation effects that supported long-term hormonal stability and endometrial regeneration.

3. Results

The patient demonstrated progressive clinical and biochemical improvement over the treatment course.

3.1. Menstrual Function

Menstruation resumed after Phase II and continued with regular cycles thereafter.

3.2. Symptomatic Relief

- Significant reduction in weakness, lower abdominal pain, burning sensations, and sleep disturbances.
- Psychological distress (fearfulness/anxiety) improved.

3.3. Nutritional and Hematological Status

- Body weight increased from 45 kg → 50 kg.
- Hemoglobin improved from 9 g/dL → 10.9 g/dL → 12.5 g/dL at final follow-up.

3.4. Hormonal Profile

- FSH improved from 1 mIU/mL → 4.8 mIU/mL.
- LH improved from 0.5 mIU/mL → 2.0 mIU/mL.

3.5. Ultrasonography Findings

- Before treatment (17/01/2012): Small anteverted uterus (5.6 × 2.2 cm), thin endometrium (4 mm), bilaterally small ovaries (20 × 12 mm).
- After treatment (07/08/2012): Normal uterine size (66 × 27 mm), normal endometrial thickness, and normal ovaries.

3.6. Safety and Tolerability

- No adverse effects were reported during or after either *Virechana* procedure.
- Good compliance with both medications and dietary regimen.

4. Discussion

Secondary uterine hypoplasia is a challenging reproductive disorder due to its multifactorial etiology and limited responsiveness to conventional hormone-based therapies. In this patient, an integrative Ayurvedic protocol was employed, combining *Shodhana* (bio-purification), *Shamana* (symptom-corrective therapy), and *Rasayana* (rejuvenation).

The therapeutic sequence was rationalized in line with Ayurvedic principles: *Virechana* to clear aggravated *Pitta–Vata* and rekindle *Agni*; followed by uterine tonics, hematinic and phytoestrogenic formulations to nourish *Rasa–Rakta dhatus* and strengthen the *Artavavaha srotas*; and finally, Rasayana therapy to maintain endocrine stability and systemic rejuvenation.

4.1. Correlation with Clinical Outcomes

- Resumption of menstruation and normalization of uterine size reflect reversal of *Artava Kshaya*.
- Hemoglobin correction and weight gain demonstrate improved *Rasa–Rakta dhatu* nourishment.
- Hormonal recovery (rise in FSH and LH) and improved endometrial thickness correlate with HPO axis reactivation and end-organ response.
- Symptomatic relief (fatigue, burning, anxiety) reflects reduced *Vata–Pitta* aggravation and systemic stabilization.

4.2. Mechanistic Insights

The observed improvements can be explained by the mechanisms summarized in Tables 1–3

- *Virechana* (Avipathi Choornam) optimized gut–hormone signaling, reduced inflammation, and enhanced nutrient assimilation, laying the foundation for systemic recovery.
- *Shamana formulations* (e.g., Gandharvahastadi, Sukumara Ghritham, Iogen, Evecare) acted via phytoestrogenic effects, improved uterine blood flow, anemia correction, and HPO axis modulation.
- The sesame–bharangi–trikatu decoction provided combined phytoestrogenic, anti-inflammatory, and bioavailability-enhancing actions.
- *Rasayana therapy* (Abhayarishtam, Ashwagandhadi Lehyam) supported long-term stability by improving gut absorption, reducing stress, and facilitating hormonal balance.

4.3. Comparison with Conventional Management

Unlike conventional estrogen replacement, which often shows only modest benefit, the multi-modal Ayurvedic approach addressed both systemic and local uterine factors, including digestion, inflammation, microcirculation, and endocrine modulation. Notably, the patient achieved structural uterine recovery, hormonal normalization, and clinical symptom resolution within seven months — outcomes rarely reported with hormone monotherapy.

4.4. Relevance to Ayurveda's Concept of *Artava Kshaya*

The presenting features - amenorrhea, weakness, and *dhatu kshaya* - align with *Ksheena Artava* in the context of *Ashta Artava Dushti*. The chosen therapeutic sequence specifically targeted *Agni restoration, Vata pacification, Rasa–Rakta nourishment,* and *Garbhashaya balya*, thereby reversing the pathogenesis of *Artava Kshaya*.

5. Conclusion

This case demonstrates that a structured Ayurvedic management plan - integrating *Shodhana karma* (bio-purification), targeted *Shamana* formulations, dietary regulation, and *Rasayana* therapy - can achieve significant recovery in secondary uterine hypoplasia (*Arthava Kshaya*).

Objective improvements were documented through

- **Ultrasound:** restoration of normal uterine size, endometrial thickness, and ovarian activity.
- **Hormonal assays:** normalization of FSH and LH levels.
- **Hematology and nutrition:** increase in hemoglobin and body weight.
- **Clinical outcomes:** resumption of menstruation, relief of systemic symptoms, and improved vitality.

Unlike conventional hormone monotherapy, which often yields only partial results, this integrative approach addressed both systemic and local factors - *Agni*, *Rasa - Rakta dhatus*, HPO axis modulation, and uterine nourishment.

This single case adds to growing evidence that Ayurveda offers promising complementary options in reproductive health. However, given the rarity and complexity of secondary uterine hypoplasia, controlled clinical trials are warranted to validate these findings, assess fertility outcomes, and further elucidate the underlying mechanisms.

Table 1 Shodhana Chikitsa (Mechanism of action of Shodhana therapy in secondary uterine hypoplasia)

Phase / Therapy	Key Observations	Scientific Rationale (MoA)
Virechana Karma (Avipathi Choornam – 20 g)	5 purgations (Phase I), 4 purgations (Phase II); relief from burning and fatigue	Primary: Mild laxative (Triphala, Trikatu) improves bowel clearance and motility. Secondary: Antacid effect balances gastric pH, relieving burning/hyperacidity. Supportive: Antioxidant and NF-κB inhibition reduce gut inflammation; possible proton pump inhibitory effect provides mucosal protection. [8-9]
Paschat Karma (Samsarjana Krama)	Good appetite recovery; no adverse effects	Primary: Restores *Agni* gradually through phased diet. Secondary: Enhances nutrient absorption required for hematopoiesis and hormone synthesis. Supportive: Aids gut mucosa recovery post-purification. [10]

Table 2 Shamana Chikitsa (Shamana formulations and their mechanisms of action)

Medicine	Ayurvedic Action	Mechanism of Action (Modern)
Gandharvahasthadi Kwath	*Vatanulomana, Shoola prashamana, Mridu virechaka, Deepana*	Primary: Relieves abdominal pain and regulates peristalsis (*Vatanulomana*). Secondary: Ricinoleic acid stimulates intestinal and uterine smooth muscle via EP_3 receptor activation. Supportive: Improves pelvic circulation aiding endometrial receptivity. [11]
Dhanwantharam Gulika Tablets	*Vata-Kapha hara, Agni deepana, Rasayana*	Primary: Balances *Vata-Kapha* doshas. Secondary: Stimulates *Agni*, improving metabolism and assimilation. Supportive: Rasayana effect contributes to tissue rejuvenation and endometrial health. [12]
Sukumara Ghritham/Kwath	*Vata-Pitta shamana, Garbhashaya balya, Rasayana*	Primary: Uterine tonic (*Garbhashaya balya*) and *Vata-Pitta* pacification. Secondary: Ghee base enhances absorption of phytoactives (esp. Shatavari phytoestrogens), modulating HPO axis and LH/FSH balance. Supportive: Supports endometrial regeneration and reduces uterine irritability. [13 – 14]
Evecare Syrup	*Artavajanana, Rasayana, Balya*	Primary: Stimulates menstruation (*Artavajanana*). Secondary: Normalizes LH/FSH ratio and improves cyclicity (supported by PCOS trials). Supportive: Rasayana and Balya actions enhance vitality. [15]
Iogen Syrup	*Raktavardhaka, Agni deepana, Rasayana*	Primary: Corrects anemia and increases hemoglobin. Secondary: Vitamin C-rich Amalaki enhances non-heme iron absorption ($Fe^{3+} \rightarrow Fe^{2+}$). Supportive: Punarnava and Rasayana herbs promote erythropoiesis and reduce inflammation. [16 – 17]
Homemade decoction (Sesame seeds, Bharangi, Trikatu, Ghee, Honey)	*Artavavardhaka, Vatanulomana, Deepana, Balya*	Primary: Sesame seeds enhances ERβ expression, stimulating endometrial proliferation. Secondary: Bharangi exerts anti-inflammatory activity via COX-2 and TNF-α inhibition.

		Supportive: Trikatu enhances bioavailability of active phytochemicals. [18- 20]

Table 3 Follow-up Rasayana (Role of Rasayana therapy in maintaining recovery)

Medicine	Ayurvedic Action	Mechanism of Action (Modern)
Abhayarishtam Syrup	*Amapachana, Vatanulomana, Rasayana*	Primary: Improves digestion and clears *Ama*. Secondary: Fermentation enhances phytochemical bioavailability and antioxidant activity. Supportive: Improves gut motility, nutrient absorption, and *Rasa-Rakta* dhatu nourishment aiding endometrial regeneration. [21 – 22]
Ashwagandhadi Lehyam	*Balya, Rasayana, Vrishya*	Primary: Adaptogenic *Rasayana* reduces stress and supports endocrine balance. Secondary: Anabolic effects promote healthy weight gain and dhatu replenishment. Supportive: Modulates HPO axis and facilitates menstrual resumption. [23]

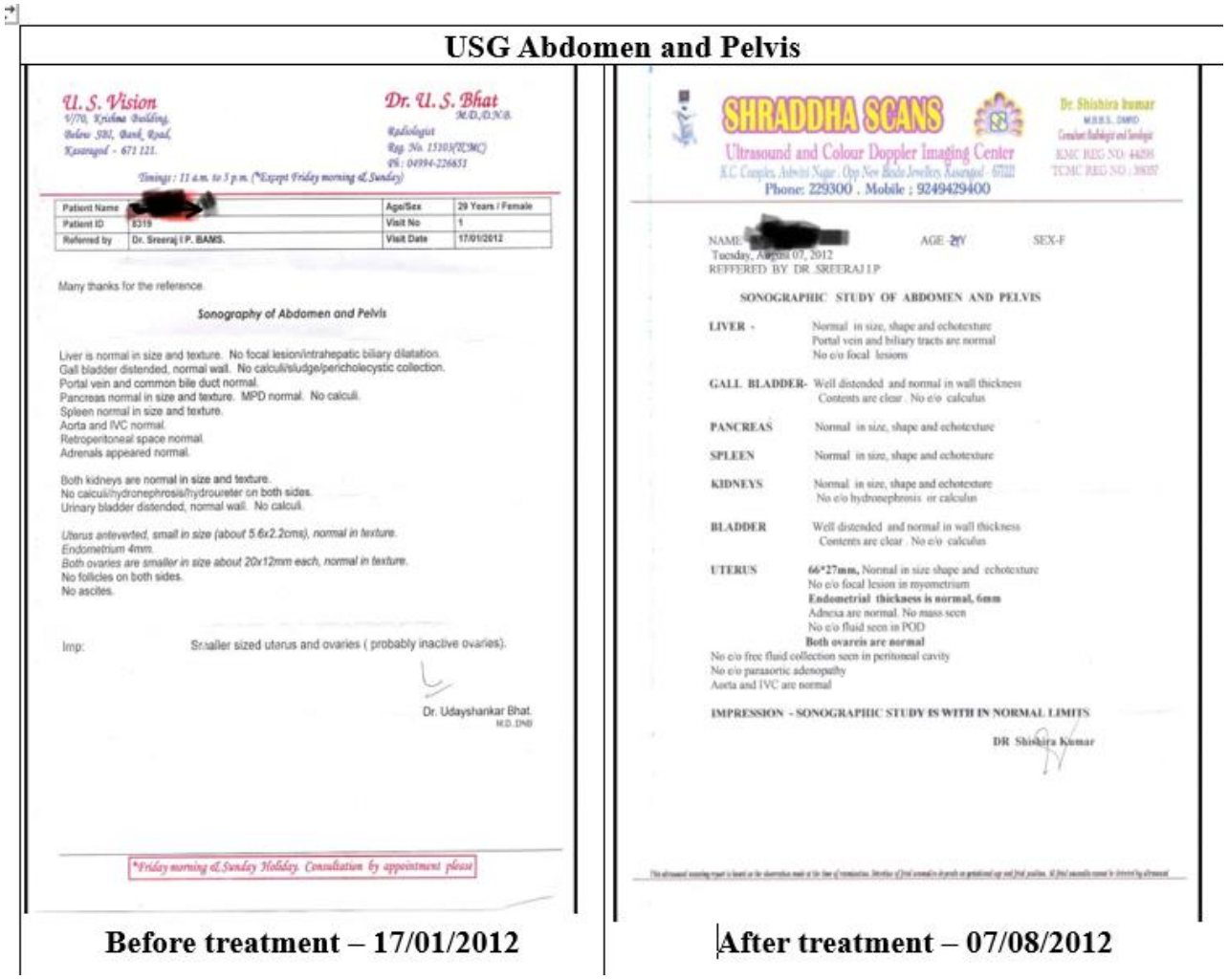

Figure 1 Ultrasonography findings of the uterus and ovaries before treatment and after Ayurvedic management, showing restoration of uterine size, endometrial thickness, and ovarian activity

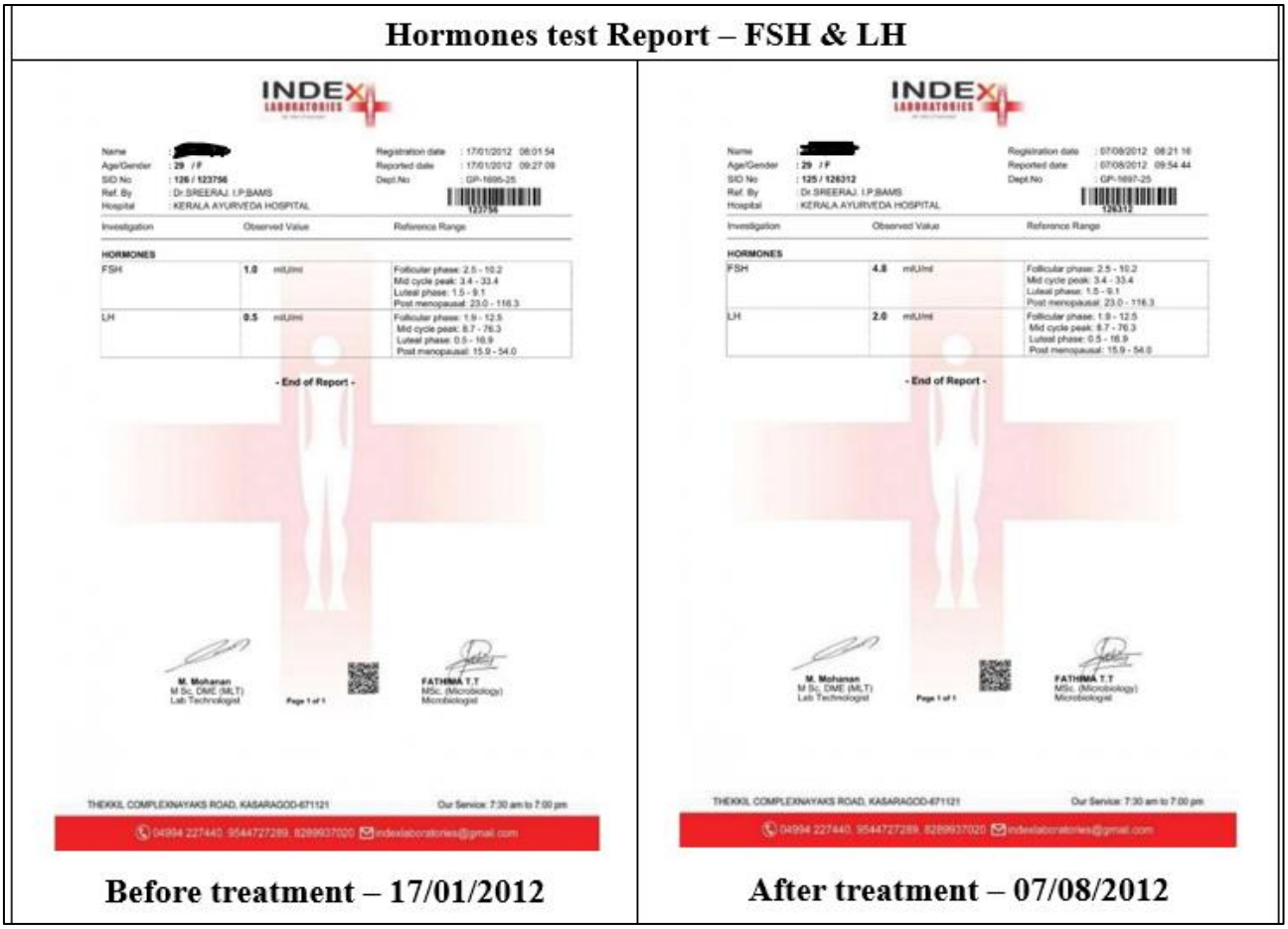

Figure 2 Serum gonadotropin profile (FSH, LH) before treatment and after Ayurvedic management, demonstrating hormonal recovery

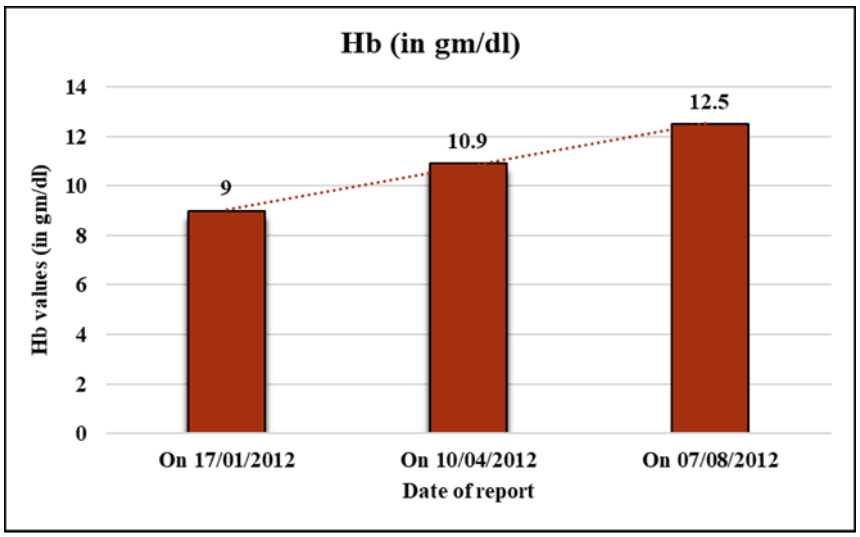

Figure 3 Hemoglobin (g/dL) values before, during, and after treatment, indicating progressive correction of anemia.

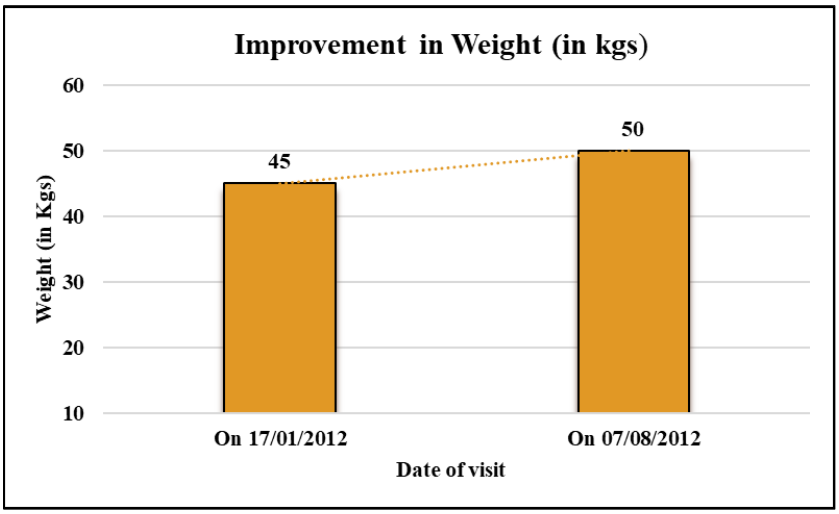

Figure 4 Body weight (kg) at baseline and follow-up, showing improvement in nutritional status

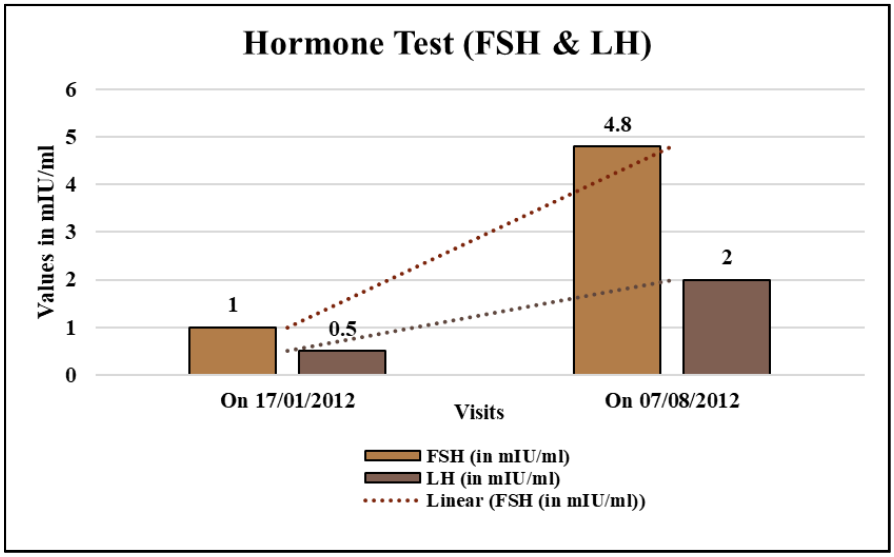

Figure 5 Serum FSH and LH (mIU/mL) at different time points, showing hypothalamic–pituitary–ovarian (HPO) axis reactivation

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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