

Uttarabasti in Female Infertility: A Retrospective Analysis of Clinical Outcomes and Safety Profile

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Abstract

Background: Uttarabasti (UB) is a specialized Panchakarma procedure involving intrauterine instillation of medicated Sneha, classically indicated in Yonivyapad and Vandhyatwa. It facilitates targeted local drug delivery, bypassing gastrointestinal metabolism and enabling direct therapeutic action at the uterine level. In Ayurvedic understanding, UB achieves Garbhashaya Shuddhi and Apana Vata Anulomana – the two primary pathological corrections considered essential in Vandhyatwa. Infertility affects an estimated 10–15% of couples globally, with a substantial proportion seeking Ayurvedic management. Despite the widespread clinical utilization of UB, comprehensive and systematically documented retrospective institutional evidence on its multi-dimensional outcomes remains limited; therefore, retrospective evaluation provides valuable real-world insights into its clinical effectiveness, therapeutic variations, and safety profile. **Objectives:** To retrospectively evaluate the clinical outcomes of UB in patients with Vandhyatwa, with emphasis on conception rates, symptomatic relief, ultrasonographic changes, therapeutic drug variations, and safety profile. **Materials and Methods:** A retrospective observational study was conducted at the Department of Prasuti Tantra and Stree Roga, Sri Sri College of Ayurvedic Sciences and Research Hospital. Case records of female patients diagnosed with Vandhyatwa who underwent UB between March 2024 and October 2025 were retrieved from departmental digital archives, OPD/IPD registers, and Panchakarma treatment records. Of 142 records screened, a total of 98 case records fulfilling predefined inclusion and exclusion criteria were included for final analysis. Patients with incomplete documentation, concurrent major interventions, or systemic illnesses were excluded. Data were analyzed using descriptive statistics including frequency, percentage, and proportion using SPSS software. **Results:** An overall conception rate of 13.40% was observed, with 12.24% in Apraja Vandhyatwa and 14.58% in Sapraja Vandhyatwa. Among those who conceived ($n = 13$), 69.23% achieved natural conception without assisted reproductive techniques. Cycle-wise analysis revealed that 38.46% of conceptions occurred after the first UB cycle. Symptomatic improvement was noted in menstrual regularity (53.06%), dysmenorrhea (38.78%), and pelvic pain (35.71%). Objective ultrasonographic improvement was observed in 75.51% of cases, including improved endometrial thickness (34.69%), folliculogenesis (28.57%), and dominant follicle rupture (22.45%). Phalasarpi was the most commonly used medicated Sneha (40.82%), followed by Mahanarayana Taila (30.61%). UB was well tolerated, with procedural events reported in only 14.29% of cases, all of which were mild and transient; no serious adverse events were recorded. **Conclusion:** UB demonstrated clinically meaningful benefits across symptomatic, objective, and reproductive domains in the management of Vandhyatwa. Its multi-dimensional therapeutic effects – encompassing improved conception rates, endometrial responsiveness, menstrual regularity, and reduction in pelvic symptoms – highlight its holistic mechanism of action. The procedure's

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favorable safety profile, minimally invasive nature, and low cost further strengthen its role as a viable primary intervention in Ayurvedic gynecological practice. Further prospective, controlled studies with standardized protocols are warranted to validate these findings and establish a stronger evidence base for UB in reproductive medicine.

Keywords: Uttarabasti, vandhyatwa, female infertility, panchakarma, ayurvedic reproductive medicine

INTRODUCTION

Infertility is a significant reproductive health concern affecting an estimated 10–15% of couples of reproductive ages globally [1–3]. In India, the prevalence of primary infertility ranges from 3.9% to 16.8% and secondary infertility from 4.8% to 14.9%, with considerable regional variation (ICMR data; WHO 2023) [2, 3]. Among the identifiable causes of female infertility, anovulation accounts for 25–30% of cases, tubal factor for 20–25%, endometriosis for 10–15%, and uterine factors including fibroids 10–15%, with unexplained infertility comprising approximately 25% of cases [4, 5]. In Ayurvedic nosology, this broad spectrum of infertility corresponds to Vandhyatwa – classified as Apraja and Sapraja Vandhyatwa [6–9].

Despite the availability of modern assisted reproductive techniques, a substantial proportion of infertile couples seek Ayurvedic management either as a primary treatment or as a complementary approach. Panchakarma-based interventions, particularly UB, have gained prominence in Ayurvedic gynaecological practice for the management of Vandhyatwa [10–12]. However, comprehensive retrospective institutional evidence on the multi-dimensional outcomes of UB in heterogeneous Vandhyatwa populations remains scarce, highlighting the need for systematic evaluation of clinical outcomes, therapeutic protocols, and safety. The present study was undertaken to address this need by systematically analyzing the clinical records of patients who underwent UB at this institution, thereby contributing to the growing evidence base for Ayurvedic reproductive medicine [13, 14].

UB is a specialized Panchakarma therapy indicated in Yonivyapad and Vandhyatwa [6–8]. It uniquely delivers medicated Sneha directly into the uterine cavity, enabling direct local and systemic pharmacological action. A defining advantage of UB is that it bypasses the gastrointestinal tract entirely, ensuring that the therapeutic properties of the medicated Sneha reach the target organ – the uterus – in an unaltered, bioavailable form, free from the digestive degradation that limits the bioavailability of oral formulations. In Ayurvedic understanding, this approach directly achieves Garbhashaya Shuddhi and Apana Vata Anulomana, which are considered the two primary pathological corrections required in Vandhyatwa [6, 15]. The procedure is performed by instilling a measured quantity of medicated oil or ghee through a sterile catheter passed via the cervical os into the uterine cavity, typically administered in a series of sittings following prior Shodhana procedures such as Vamana, Virechana and Basti [16, 17]. UB is well tolerated when performed under strict aseptic precautions by skilled practitioners [10, 11]. Its direct-to-target delivery, low cost, and holistic mode of action make it a highly acceptable therapeutic option for women seeking Ayurvedic management of infertility and related gynaecological disorders. The present study aims to retrospectively analyze case records to evaluate the clinical outcomes of UB in routine Ayurvedic gynecological practice at a teaching hospital.

MATERIALS AND METHODS

Cases were retrospectively identified from patient case records maintained in the departmental digital archives. Relevant clinical information pertaining to patients diagnosed with Vandhyatwa and associated gynecological conditions was retrieved from the records of the Department of Prasuti Tantra and Stree Roga and subjected to descriptive analysis.

Study Setting and Duration

The study was conducted at the Department of Prasuti Tantra and Stree Roga, Sri Sri College of Ayurvedic Sciences and Research Hospital. Case records of female patients who had undergone UB

were retrieved from the departmental digital archives, OPD/IPD registers, and Panchakarma treatment records. Records of patients who received UB between March 2024 and October 2025 were included for analysis.

Inclusion Criteria

- Infertility associated with etiological factors such as anovulation.
- Infertility associated with endometriosis.
- Infertility associated with tubal blockage.
- Infertility associated with uterine fibroids.
- Patients with complete documentation of therapy and follow-up details.

Exclusion Criteria

- Incomplete case records or missing data.
- Patients who had undergone major concurrent treatments (modern surgical or hormonal interventions).
- Patients with systemic illnesses (e.g., uncontrolled diabetes, hypertension) that could influence outcomes.
- Patients presenting with isolated gynecological conditions, such as endometriosis, tubal blockage, or uterine fibroids, without an associated diagnosis of infertility.

Sample Size

A total number of 98 case sheets of female patient were included in the study based on predefined inclusion and exclusion criteria, after a thorough search of previous case records maintained in the departmental archives (Table 1 and Figure 1).

Table 1. (Methods). patient screening summary – UB case records assessed for eligibility.

Parameter	Number
Total UB Performed (Screened)	142
Included	98
Excluded	22
Drop outs	22

Patient Screening & Study Population

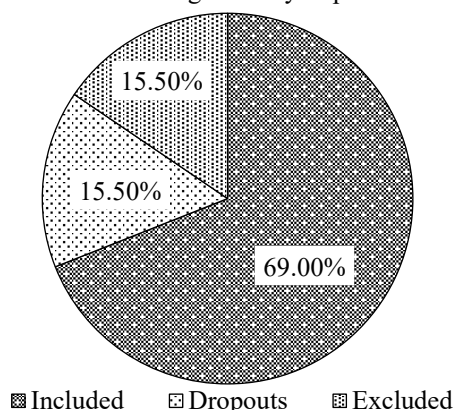


Figure 1. Patient screening and selection flowchart.

Parameters for Assessment

Outcomes were assessed across the following domains:

- *Conception Rate*: Documented pregnancy following completion of the UB course, recorded in cases of Apraja Vandhyatwa.

- *Symptomatic Relief (Subjective Outcome)*: Improvement in menstrual regularity, reduction in dysmenorrhea, pelvic pain, and general symptoms such as fatigue and weakness, recorded as Reduced / Not Reduced.
- *Objective Improvement*: Changes in ultrasonographic parameters including endometrial thickness, folliculogenesis, evidence of dominant follicle rupture and change in fibroid size and endometriosis.
- *Therapeutic Variations in Medicated Sneha*: The type of medicated Sneha used for UB (Phalasarpī, Mahanarayana Taila, Narayana Taila, or combinations) was recorded as prescribed based on individual patient presentation and classical indications; outcomes were analyzed across the cohort.
- *Adverse Events*: Any procedure-related adverse events documented in case records were noted and reported with frequency and percentage.

Data Analysis

All collected data were tabulated and analyzed using descriptive statistics, such as frequency, percentage, and proportion, with the aid of Statistical Package for the Social Sciences (SPSS) software. The results were expressed in tabular and graphical form to illustrate the clinical outcomes across all assessed parameters.

RESULTS

Patient Screening and Study Population

A total of 142 patients were screened, of which 98 completed the full course of UB and were included for final analysis. The patient screening flow and outcome distribution are presented in Table 2 and Figure 2.

Table 2. Patient screening flow and outcome distribution (n = 142).

Parameter	Number	Percentage
Total UB performed (screened)	142	100%
Included	98	69.00%
Excluded	22	15.50%
Drop outs	22	15.50%

Patient Screening & Study Population

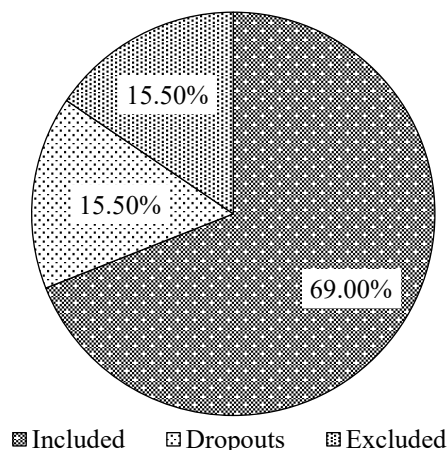


Figure 2. Patient screening and inclusion flowchart (n = 142).

Type of Infertility

Out of the total 98 cases analyzed, Apraja Vandhyatwa constituted 50.00% (n = 49), Sapraja Vandhyatwa 50.00% (n = 49) presented in Table 3 and Figure 3.

Table 3. Distribution of type of infertility (Apraja vs. Sapraja Vandhyatwa).

Category	Number of cases	Percentage (%)
Apraja Vandhyatwa	49	50.00%
Sapraja Vandhyatwa	49	50.00%
Total	98	100%

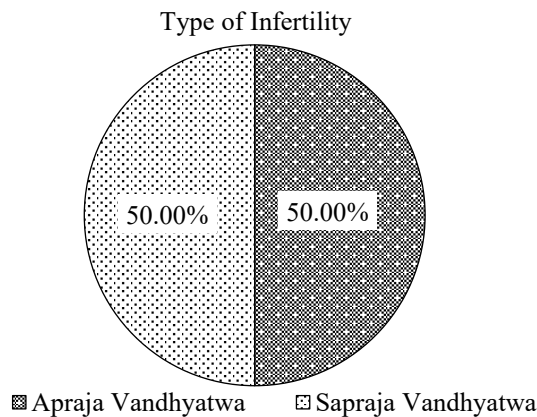


Figure 3. Distribution of type of infertility (Apraja vs. Sapraja Vandhyatwa).

Etiological Distribution (Causes of Infertility)

Among patients with Apraja Vandhyatwa, anovulation was the most common cause (40.82%), followed by unknown etiology (32.65%), endometriosis (14.29%), uterine fibroids (10.20%), and tubal blockage (2.04%) presented in Table 4 and Figure 4.

Table 4. Etiological distribution in Apraja Vandhyatwa (primary infertility).

Cause of primary infertility	Number of patients	Percentage (%)
Anovulation	20	40.82%
Endometriosis	7	14.29%
Tubal Blockage	1	2.04%
Uterine Fibroids	5	10.20%
Unknown Cause	16	32.65%
Total	49	100%

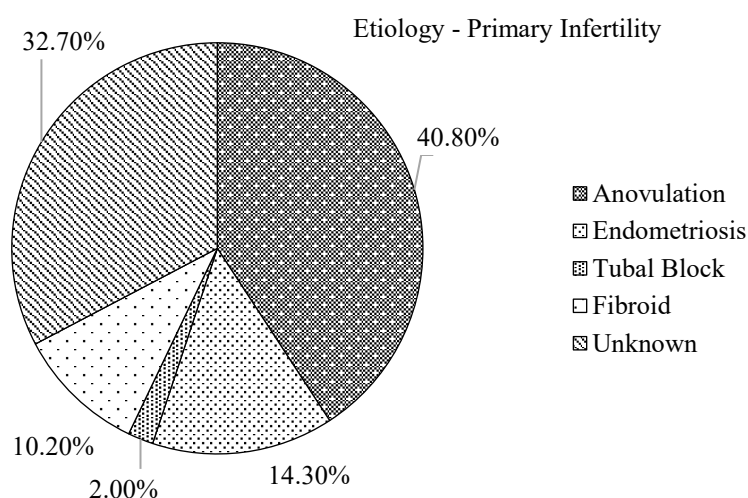


Figure 4. Etiological distribution in Apraja Vandhyatwa (primary infertility).

In Sapraja Vandhyatwa, unknown etiology (41.67%) was most prevalent, followed by anovulation (31.25%), endometriosis (20.83%), and uterine fibroids (6.25%) presented in Table 5 and Figure 5.

Table 5. Etiological distribution in Sapraja vandhyatwa (secondary infertility).

Cause of secondary infertility	Number of patients	Percentage (%)
Anovulation	15	31.25%
Endometriosis	10	20.83%
Uterine Fibroids	4	6.25%
Unknown Cause	20	41.67%
Total	49	100%

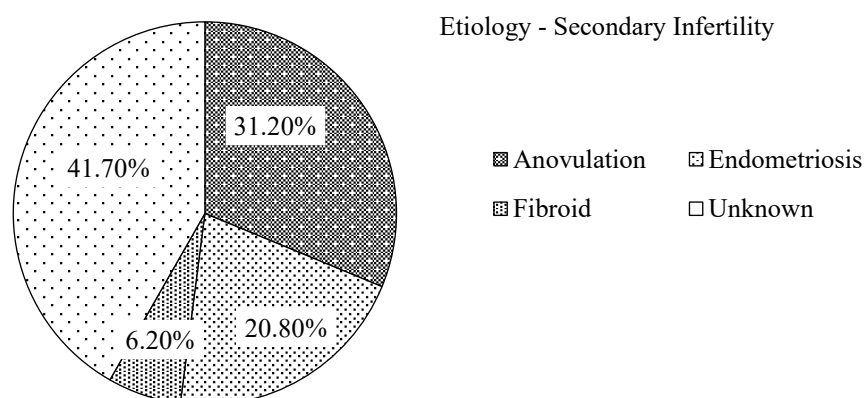


Figure 5. Etiological distribution in Sapraja Vandhyatwa (secondary infertility).

Therapeutic Variations (Medicated Sneha Used)

Phalasarpī was the most commonly used medicated Sneha (40.82%), followed by Mahanarayana Taila (30.61%), Narayana Taila (25.51%), and combination therapy (3.06%) presented in Table 6 and Figure 6.

Table 6. Therapeutic variations – type of medicated Sneha used for Uttarabasti.

Drug / medication used	Number of cases	Percentage (%)
Phalasarpī	40	40.82%
Mahanarayana Taila	30	30.61%
Narayana Taila	25	25.51%
Combination (Phalasarpī 2 ml + Mahanarayana Taila 2 ml)	3	3.06%
Total	98	100%

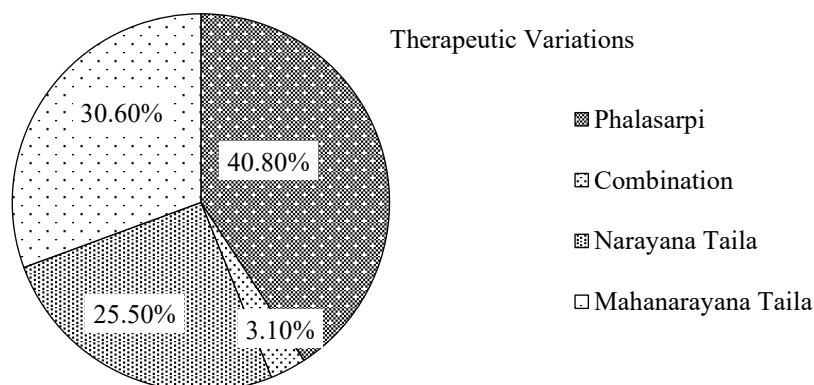


Figure 6. Therapeutic variations – medicated Sneha used for Uttarabasti.

Pre-procedural Therapies

Pre-treatment therapies included Yoga Basti with Virechana in 61.22% of cases, Kala Basti in 20.41%, and direct UB without prior Shodhana in 18.37% presented in Table 7 and Figure 7.

Table 7. Distribution of pre-procedural Shodhana therapies.

Pre-treatment therapy	Number of cases	Percentage (%)
Kala Basti	20	20.41%
Yoga Basti + Virechana	60	61.22%
Direct UB	18	18.37%
Total	98	100%

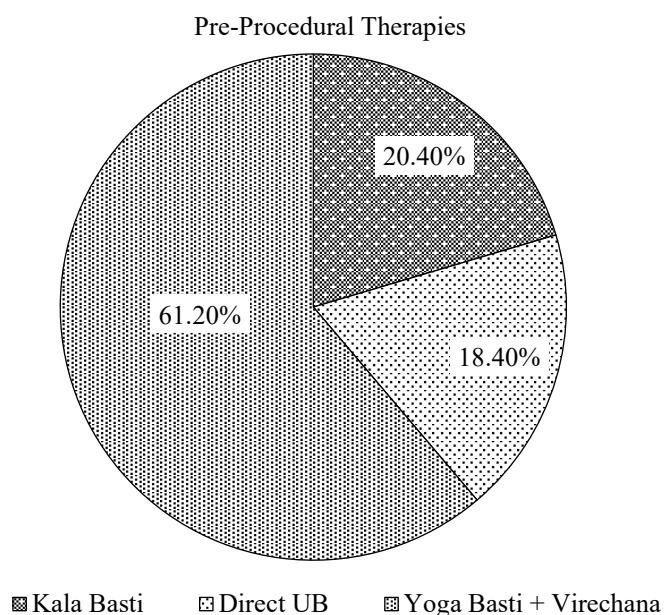


Figure 7. Distribution of pre-procedural Shodhana therapies.

Conception Rate

In Apraja Vandhyatwa, 12.24% of patients conceived, whereas in Sapraja Vandhyatwa, the conception rate was 14.58% presented in Tables 8 & 9 and Figure 8, respectively.

Table 8. Conception outcome in Apraja Vandhyatwa (primary infertility).

Primary infertility outcome	Number	Percentage (%)
Conceived after Uttarabasti	6	12.24%
Did Not Conceive	43	87.76%
Total	49	100%

Table 9. Conception outcome in Sapraja Vandhyatwa (secondary infertility).

Secondary infertility outcome	Number	Percentage (%)
Conceived after UB	7	14.58%
Did Not Conceive	42	85.42%
Total	49	100%

Cycle-wise Conception Outcome after UB

Cycle-wise analysis demonstrated that most conceptions occurred after the first cycle of UB (38.46%), with a gradual decline in subsequent cycles. Both Apraja and Sapraja Vandhyatwa patients

showed comparable distribution across cycles, with slightly higher conception observed in Sapraja cases presented in Table 10 and Figure 9.

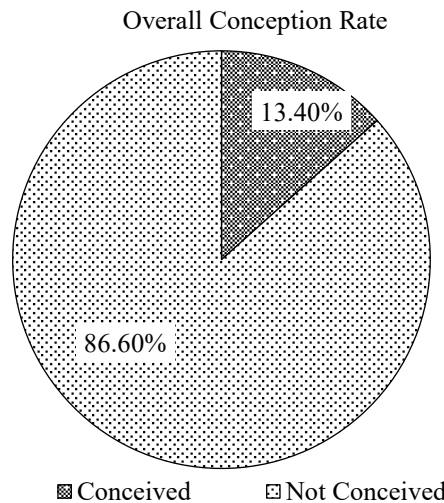


Figure 8. Overall conception rate in Apraja and Sapraja Vandhyatwa.

Cycle-wise Conception Outcome after UB

Cycle-wise analysis demonstrated that most conceptions occurred after the first cycle of UB (38.46%), with a gradual decline in subsequent cycles. Both Apraja and Sapraja Vandhyatwa patients showed comparable distribution across cycles, with slightly higher conception observed in Sapraja cases presented in Table 10 and Figure 9.

Table 10. Cycle-wise conception outcome after Uttarabasti.

Cycle of UB	Apraja Vandhyatwa (n)	Sapraja Vandhyatwa (n)	Total conceived (n)	Percentage (%)
After 1st Cycle	2	3	5	38.46%
After 2nd Cycle	2	2	4	30.77%
After 3rd Cycle	1	2	3	23.08%
After >3 Cycles	1	0	1	7.69%
Total	6	7	13	100%

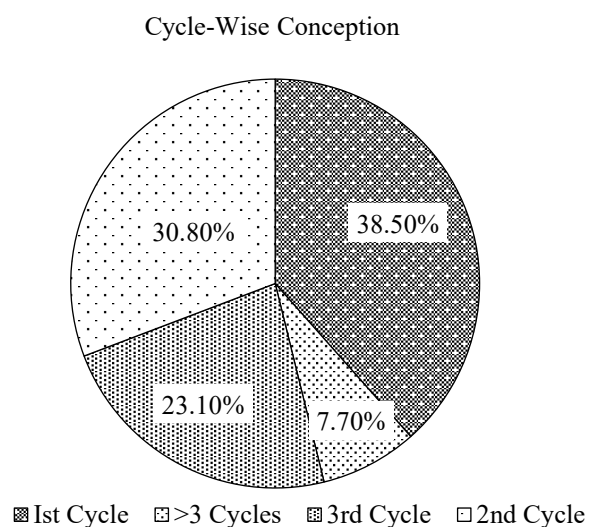


Figure 9. Cycle-wise conception outcome after Uttarabasti.

Conception Outcome – Natural vs Assisted (Post-UB)

Among the patients who conceived, the majority (69.23%) achieved natural conception following UB, while 30.77% required adjuvant assisted reproductive techniques (ART), indicating a substantial role of UB in facilitating spontaneous conception presented in Table 11 and Figure 10.

Table 11. Mode of conception – natural vs. assisted reproductive techniques (post-UB).

Mode of conception	Apraja Vandhyatwa (n)	Sapraja Vandhyatwa (n)	Total (n)	Percentage (%)
Natural Conception (Without ART)	4	5	9	69.23%
Conception with Adjuvant ART	2	2	4	30.77%
Total	6	7	13	100%

Natural vs Assisted Conception

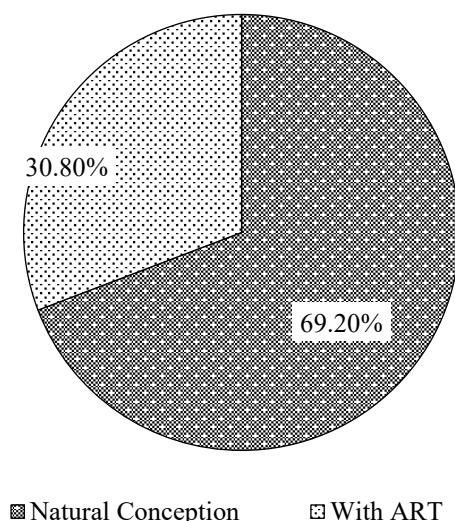


Figure 10. Mode of conception – natural vs. assisted (post-UB).

Symptomatic Relief (Subjective Outcomes)

Improvement in menstrual regularity was observed in 53.06% of patients. Reduction in dysmenorrhea and pelvic pain was noted in 38.78% and 35.71% of cases, respectively. General symptoms, such as fatigue and weakness, improved in 30.61% of patients presented in Table 12 and Figure 11.

Table 12. Symptomatic (subjective) improvement across clinical parameters.

Parameter	Sub-parameter	Reduced n (%)	Not reduced n (%)
Menstrual Regularity	Regularity of Menstrual Cycle	52 (53.06%)	46 (46.94%)
Pain Related	Dysmenorrhoea	38 (38.78%)	11 (11.22%)
	Pelvic Pain	35 (35.71%)	14 (14.29%)
General Symptoms	Fatigue / Weakness	30 (30.61%)	68 (69.39%)

Objective Improvement (Ultrasonographic Findings)

Objective improvement on ultrasonography was observed in multiple parameters; including improved endometrial thickness (34.69%), improved folliculogenesis (28.57%), and evidence of dominant follicle rupture (22.45%). Reduction in fibroid size was noted in 8.16% of cases, while 6.12% showed no objective improvement in endometriosis size presented in Table 13 and Figure 12.

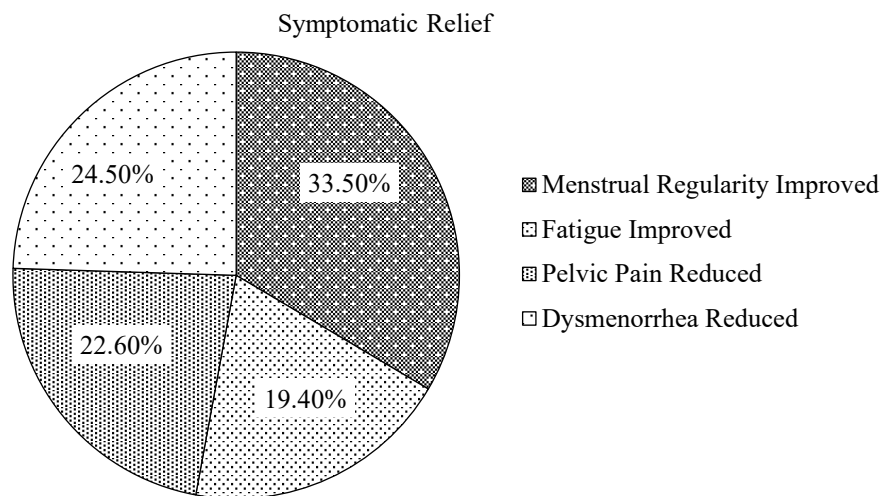


Figure 11. Symptomatic (subjective) improvement across clinical parameters.

Table 13. Ultrasonographic (objective) improvement across parameters.

USG parameter	Cases with improvement	Percentage (%)
Improved Endometrial Thickness (ET)	34	34.69%
Improved Folliculogenesis	28	28.57%
Improvement in evidence of dominant follicle rupture	22	22.45%
Reduction in Fibroid Size	8	8.16%
No Objective USG Improvement in endometriosis size	6	6.12%

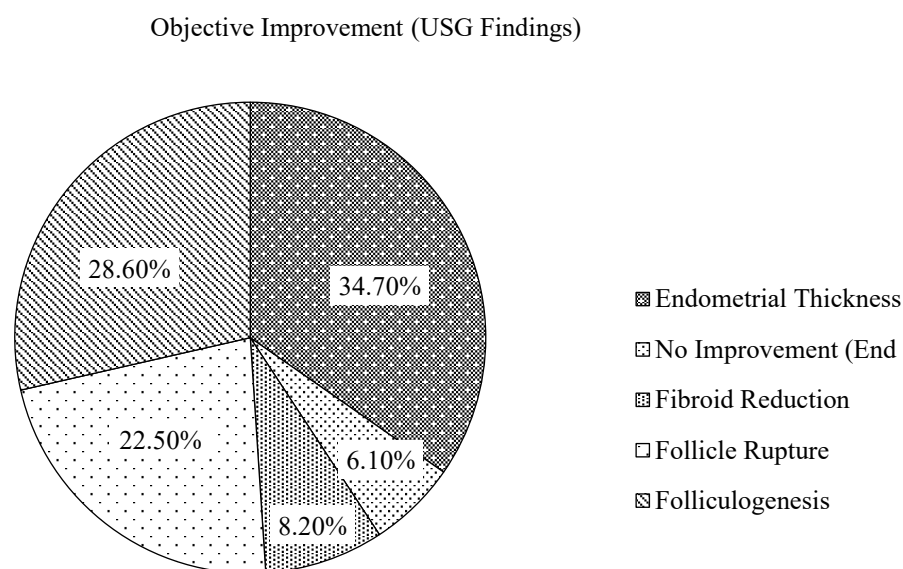


Figure 12. Ultrasonographic (objective) improvement across parameters.

Procedural Events Profile (Complication associated with UB)

UB was well tolerated, with no procedural events reported in 85.71% of cases. Mild and transient adverse events included abdominal cramps (5.10%), spotting (4.08%), giddiness (3.06%), and nausea (2.04%). No cases of vasovagal shock or pelvic infection were observed (Table 14 and Figure 13).

Table 14. Procedural events profile – adverse events associated with Uttarabasti.

Procedural event profile	Number of cases	Percentage (%)
Abdominal Pain / Cramps (mild, transient)	5	5.10%
Giddiness	3	3.06%
Spotting / Light Bleeding (post-procedure)	4	4.08%
Vasovagal Shock	0	0.00%
Nausea	2	2.04%
Sepsis / Pelvic Infection	0	0.00%
No Procedural Events	84	85.71%
Total	98	100%

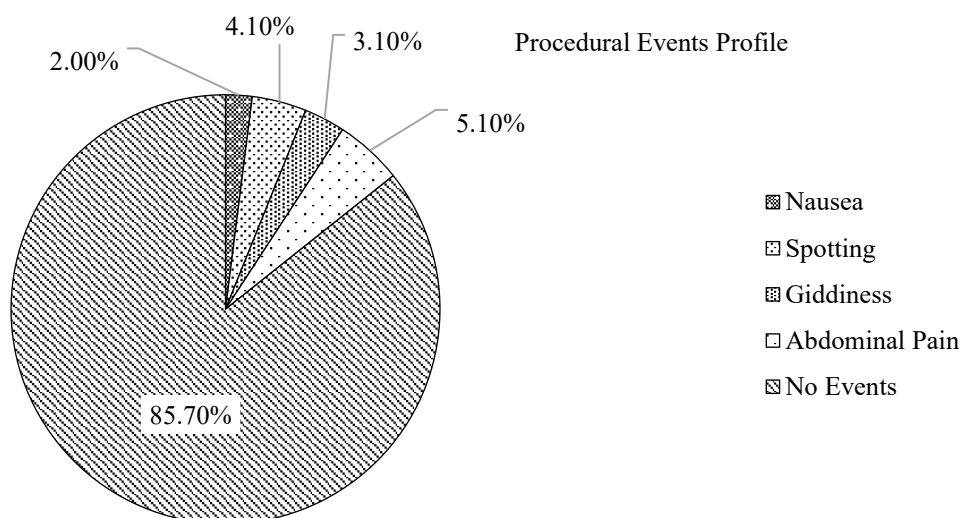


Figure 13. Procedural events profile – adverse events associated with Uttarabasti.

DISCUSSION

The present retrospective study evaluated the clinical outcomes of UB in 98 female patients with Vandhyatwa at an Ayurvedic teaching hospital. Apraja Vandhyatwa constituted 50% of cases (n=49) and Sapraja Vandhyatwa 50% (n=49), reflecting a nearly equal distribution of primary and secondary infertility in clinical practice. This pattern may be attributable to increasing hormonal factors affecting ovulation, as well as rising incidence of secondary infertility due to post-inflammatory or post-procedural reproductive tract changes. Anovulation emerged as the leading cause in both groups, likely due to underlying hypothalamic–pituitary–ovarian (HPO) axis dysregulation [5]. In Ayurvedic terms, this correlates with Artava Dushti and Apana Vata Vaigunya, which impair follicular maturation and ovulatory mechanisms [6, 8, 15].

Conception was achieved in 12.24% of Apraja and 14.58% of Sapraja cases, with an overall rate of 13.40%. This outcome can be explained by the direct intrauterine administration of medicated Sneha in UB, which bypasses systemic metabolism and delivers the drug directly to the target organ, thereby enhancing endometrial receptivity, improving local tissue nutrition, and facilitating Apana Vata Anulomana. This creates a favorable uterine milieu for implantation. The slightly higher conception rate in Sapraja Vandhyatwa may be due to prior proven fertility, better baseline endometrial responsiveness, and relatively preserved ovarian reserve compared to Apraja cases [10, 12].

Phalasarpī was the most frequently used Sneha, likely due to its classical indication in Vandhyatwa and its Garbhasthapaka, Balya, and Rasayana properties [18–21]. It is Snigdha and Madhura qualities promote endometrial nourishment and improve implantation potential by enhancing uterine receptivity. Mahanarayana Taila and Narayana Taila, owing to their Vatahara and anti-inflammatory

properties, may have contributed to improved outcomes in conditions, such as endometriosis and dysmenorrhea, by reducing pelvic inflammation, relieving pain, and correcting Vata imbalance [22–24]. The predominance of Yoga Basti with Virechana as a pre-procedural intervention reflects the importance of Shodhana in eliminating Dosha Dushti, clearing Srotas, and enhancing drug bioavailability, thereby potentiating the therapeutic efficacy of UB [11, 16, 17].

The observed symptomatic improvement in menstrual regularity, dysmenorrhea, and pelvic pain can be attributed to the combined effects of local Snehana, Vata Shamana, and neuromuscular relaxation. UB facilitates Apana Vata Anulomana, thereby regulating menstrual cyclicity and reducing uterine spasm. The reduction in dysmenorrhea and pelvic pain may be explained by the anti-inflammatory and analgesic effects of medicated Sneha on the endometrial and pelvic tissues. Improvement in general symptoms, such as fatigue and weakness, may be due to the systemic Rasayana effect, improved metabolic efficiency, and overall restoration of reproductive health.

Objective ultrasonographic improvements, including increased endometrial thickness, enhanced folliculogenesis, and evidence of dominant follicle rupture, suggest that UB exerts measurable effects on the uterine and ovarian microenvironment. Improved endometrial thickness may result from enhanced local tissue nutrition, improved glandular activity, and better endometrial receptivity. Enhanced folliculogenesis and follicular rupture may be attributed to indirect regulation of the HPO axis through Vata normalization and improved ovarian perfusion at a micro-level [10, 25]. However, variability in radiological findings may also be influenced by factors such as timing of ultrasonography in relation to the menstrual cycle, inter-observer variability, and limitations inherent to retrospective data documentation.

The selection of therapeutic interventions and the observed variability in outcomes may also be influenced by patient-related and practical factors inherent to real-world clinical settings. Variations in financial affordability may limit the number of treatment cycles undertaken, while patient compliance and availability for repeated procedures may influence continuity of therapy. Additionally, differences in baseline clinical condition, severity of pathology, and chronicity of disease may affect responsiveness to treatment. These factors are particularly relevant in retrospective analyses and may contribute to heterogeneity in therapeutic outcomes [13, 14].

Procedural events were minimal and transient, occurring in a small proportion of patients. This favorable safety profile can be attributed to the minimally invasive nature of the procedure, strict adherence to aseptic techniques, and appropriate patient selection. The absence of serious complications, such as vasovagal shock or pelvic infection, further supports the safety of UB when performed by skilled practitioners [10, 11, 22, 26, 27]. The mild adverse events observed may be related to transient uterine irritation or autonomic response to intrauterine instillation, which typically resolves spontaneously.

Safety and Acceptability

UB was found to be a safe and well-tolerated therapeutic procedure in the present study. Most patients did not report any adverse events, indicating a favorable safety profile when the procedure is performed under strict aseptic precautions and by trained practitioners.

The adverse events observed were minimal, mild, and transient in nature. These included abdominal pain or cramps, spotting or light bleeding, giddiness, and nausea. All such events were self-limiting and resolved spontaneously without requiring any specific medical intervention. Importantly, no serious complications, such as vasovagal shock, pelvic infection, or sepsis, were encountered.

The safety of UB can be attributed to its minimally invasive nature, careful patient selection, and adherence to standard procedural protocols. The intrauterine administration of medicated Sneha, when performed appropriately, does not adversely affect uterine integrity and is generally well tolerated.

In terms of acceptability, the procedure demonstrated good patient compliance, with most patients completing the prescribed course of therapy. The acceptability may be influenced by factors such as ease of administration, minimal recovery time, and perceived clinical benefits. Additionally, its relatively lower cost compared to assisted reproductive techniques may contribute to its preference among patients seeking Ayurvedic management.

However, individual factors, such as patient comfort, psychological readiness for intrauterine procedures, time commitment for repeated sittings, and financial considerations, may influence overall acceptability. Despite these considerations, the findings suggest that UB is a clinically feasible and acceptable therapeutic modality in the management of Vandhyatwa.

CONCLUSION

The present study demonstrates that UB is an effective and clinically relevant therapeutic modality in the management of Vandhyatwa. The procedure showed beneficial outcomes in terms of conception, symptomatic relief, and objective ultrasonographic improvements, indicating its role in improving both functional and structural aspects of reproductive health.

The therapeutic effects of UB may be attributed to its direct intrauterine administration of medicated Sneha, facilitating enhanced endometrial receptivity, regulation of Apana Vata, and correction of underlying doshic imbalances. The observed improvements across multiple domains highlight its holistic mechanism of action, addressing both local uterine factors and systemic reproductive physiology.

Additionally, the procedure was found to be safe and well tolerated, with minimal and self-limiting adverse events, supporting its feasibility in routine clinical practice. Its acceptability among patients, along with its relatively low cost and minimally invasive nature, further strengthens its potential as a preferred Ayurvedic intervention in infertility management.

Despite the inherent limitations of a retrospective design, the findings of this study provide valuable real-world evidence supporting the role of UB in Vandhyatwa. Further well-designed prospective studies with standardized protocols are warranted to validate these findings and establish stronger clinical evidence.

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