ISSN 2456-3110
Vol 9 · Issue 4
April 2024

JAiMS
INTERNATIONAL

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences

Maharshi Charaka
Ayurveda

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
ORIGINAL ARTICLE April 2024

Exploring the Ayurvedic Practice of *Potaki Taila Pichu* for Labor Facilitation among Rural Women in Northern India

Shashi Bharti[1], Sushma[2], Vidya Sagar Ram[3]

[1]*Assistant Professor, Department of Prasuti Tantra Evum Stri Rog, Dr. Vijay Ayurvedic College, Hospital and Research Center, Kaithi, Varanasi, Uttar Pradesh, India.*

[2]*Associate Professor, Department of Prasuti Tantra Evum Stri Rog, Dr. Vijay Ayurvedic College, Hospital And Research Center, Kaithi, Varanasi, Uttar Pradesh, India*

[3]*Professor, Department of Medicine, UPUMS, Saifai, Etawah, Uttar Pradesh, India*

ABSTRACT

Introduction: Childbirth is a profound experience in a woman's life, emphasizing the importance of promoting natural birthing processes to minimize discomfort and medical intervention. Ayurveda, an ancient holistic medical system, advocates for safe motherhood through herbal interventions like *Potaki* (*Basella alba*) *Taila Pichu*, which aims to alleviate imbalances in *Apana Vayu* and facilitate smooth labor. **Methods:** This study evaluated the efficacy of *Potaki Taila Pichu* in promoting easier labor by assessing its impact on cervical dilation and effacement. Sixty pregnant women meeting inclusion criteria were randomly assigned to a trial or control group. Various parameters, including cervical dilation, uterine contractions, and labor duration, were measured and compared between the two groups. **Results:** The trial group showed significant increases in cervical dilation and effacement compared to the control group, indicating the potential of *Potaki Taila Pichu* in facilitating labor progression. The intervention did not disrupt the natural rhythm of labor, as evidenced by consistent uterine contraction duration between groups. Moreover, the trial group experienced a significantly shorter latent phase of labor, suggesting accelerated onset of active labor. **Discussion:** These findings suggest that *Potaki Taila Pichu* may offer a safe and effective means of promoting smoother labor experiences while minimizing the need for medical interventions. Integrating traditional herbal remedies into modern obstetric care aligns with efforts to enhance maternal and neonatal outcomes. **Conclusion:** Herbal interventions like *Potaki Taila Pichu* hold promise in optimizing childbirth experiences by promoting natural labor progression. Further research is needed to validate these findings and explore long-term effects on maternal and neonatal health.

Key words: *Childbirth, Potaki Taila Pichu, Ayurveda, labor progression, cervical dilation, herbal intervention.*

INTRODUCTION

Becoming a mother is the pinnacle of a woman's journey. There's nothing more breathtaking than witnessing the beauty of pregnancy and the miracle of childbirth. Every woman aspires to embrace motherhood with as little discomfort and medical intervention as possible. Therefore, it is essential to strive towards facilitating the natural birthing process and reducing unnecessary stress for mothers-to-be.[1]

The natural process of childbirth involves the expulsion of the complete products of conception through the birth canal. However, several factors can impede this normal process. Labor typically comprises three stages. The initial stage commences with the onset of labor and concludes when the cervix is fully dilated. In primigravidae, the first stage typically lasts 10-12 hours, while in multigravidae, it typically lasts 6-8 hours.[2]

For the majority of pregnancies, spontaneous vaginal delivery is the anticipated outcome. However, assisted vaginal delivery may be necessary in situations where the second stage of labor is prolonged or when there

Address for correspondence:
Dr. Shashi Bharti
Assistant Professor, Department of Prasuti Tantra Evum Stri Rog, Dr. Vijay Ayurvedic College, Hospital and Research Center, Kaithi, Varanasi, Uttar Pradesh, India.
E-mail: sagar_197347@rediffmail.com

Submission Date: 09/02/2024 Accepted Date: 15/03/2024

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.9.4.6

ISSN: 2456-3110 ORIGINAL ARTICLE April 2024

are signs of distress in the baby, requiring expedited delivery.[3]

Thousands of years ago, Ayurveda emphasized the significance of safe motherhood. The holistic system of medicine also outlined various herbal preparations for facilitating safe childbirth. Numerous herbs utilized in Ayurvedic formulations are easily accessible and commonly consumed as food. Ayurvedic literature highlights the role of Vata, particularly Apana Vayu, in stimulating and regulating normal labor. Any disturbances in these aspects may lead to dystocia or abnormal labor.[4]

Potaki possesses sweet taste, oily quality, sweet post-digestive effect, and actions that alleviate *Vata* and *Pitta*. These attributes enable *Potaki* to soothe imbalanced *Apana Vayu,* promoting a comfortable and effortless childbirth. Bhavaprakash also suggests that applying *Potaki* root paste with sesame oil inside the vagina aids in facilitating smooth delivery.[5]

This study represents an initial step towards assessing the effectiveness of using vaginal application of *Potaki* (*Basella alba*) *Taila Pichu* for promoting easy labor, termed as *Sukha Prasava.*

Aims and Objectives

1. Ensuring safe and efficient labor management for facilitating an easier childbirth experience.
2. Assessing the impact of applying *Potaki Taila* vaginally on cervical dilation and effacement leading up to delivery.

Materials and Methods

Once patients met the diagnostic criteria for "PRASAV," their names were enrolled for the study. A total of 60 patients from rural areas of Northern India were randomly registered. A comprehensive history was obtained using a proforma specifically designed for the study, which included all relevant points from both Ayurvedic and modern perspectives.

Laboratory investigation

1. Routine Blood Investigations - The parameters measured include ABO Rh, hemoglobin levels, total leukocyte count, differential leukocyte count, bleeding time, clotting time, blood sugar levels, serum creatinine levels, and blood urea levels.
2. Special investigations - The tests conducted encompass VDRL, HIV, HBsAG, TSH, and platelet count.
3. Ultrasound examinations were performed at least three times throughout the entire duration of the pregnancy.
4. Additional investigations such as ECG, glucose tolerance test, urine analysis for albumin, liver function test, and kidney function test were conducted if deemed necessary.

Inclusion Criteria:

1. Adequate pelvis structure:
    - Ischial spine not prominently protruding
    - Sacrosciatic notches adequately wide
    - Pubic arch capable of accommodating the palmar aspect of two fingers
    - Pubic angle fully corresponding to the fully abducted thumb and index finger
    - Transverse diameter of the outlet allowing the knuckles of a clinched fist between the ischial tuberosity.
2. Patients experiencing true labor pains and at full term.
3. Mother's psychosomatic condition should be healthy.
4. Baby must be in cephalic presentation.
5. Intact fetal membranes.

Exclusion Criteria:

1. Age below 18 years and above 40 years.
2. Patients with a history of previous lower segment cesarean section (LSCS).
3. Patients with a history of adverse obstetric outcomes.
4. Patients diagnosed with cephalopelvic disproportion (CPD).

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5. Patients with central placenta previa or placental abruption.
6. Presence of any vaginal obstruction.
7. Mal-presentation of the fetus.
8. Mother diagnosed with hypertensive disorders.
9. Non-reassuring fetal heart rate (FHR) indicating fetal distress.
10. Mothers with any existing medical disorder.

Parameters for assessment of results

1. Evaluation of cervical dilation and effacement:
   - Assessment conducted 1 hour before *Pichu* insertion.
   - Evaluation performed at 4th and 8th hours post-removal of *Pichu*.
2. Duration of labor stages:
   - Latent phase of the first stage of labor.
   - Active phase of the first stage of labor.
   - Second stage of labor.
   - Third stage of labor.
   - Total duration of labor.
3. Observation of partograph recordings.

Method of Administration:

Following sterile protocols, a sterile *Pichu* is saturated with *Taila* and introduced into the vaginal canal for a span of 2 hours. This insertion occurs upon the onset of the latent phase of the initial stage of labor, typically around 1-1.5 cm cervical dilatation. A vaginal examination is then conducted to assess cervical dilation, effacement, uterine contractions, membranes, and fetal station. Should cervical dilation not reach 3 cm, another *Pichu* is inserted for an additional 2 hours. This process may be repeated, if necessary, up to a maximum of 3 times until the active phase of labor commences. Subsequent to this, regular monitoring ensues until delivery without any active interventions. Observations were documented, and the impacts of medications were analyzed.

RESULTS

Table 1: Duration of uterine contractions observed during the 1st, 4th, and 8th hours of labor.

Group	Duration of uterine contraction (mean + SD)		
	1st Hour	4th Hour	8th Hour
Trial group	30.93 + 3.34	32.00 + 3.62	32.00 + 3.62
Control group	30.68 + 3.20	31.6 + 3.51	31.6 + 3.51
Comparison between the groups	t = 0.290 p > 0.05 (NS)	t = 0.43 p > 0.05 (NS)	t = 0.43 p < 0.05 (NS)

The table presents the mean duration of uterine contractions at 1st, 4th, and 8th hours for both trial and control groups, with respective standard deviations. Mean durations ranged from 30.68 to 32.00 hours across the intervals. Statistical analysis using unpaired t-tests revealed no significant difference ($p > 0.05$) between the groups at each interval. This suggests that there were comparable levels of uterine contraction duration between the trial and control groups throughout the specified time points, indicating consistency in uterine activity irrespective of the intervention.

Table 2: Interval of uterine contraction in 1st, 4th and 8th hour during labour

Group	Interval of uterine contraction (mean + SD)		
	1st Hour	4th Hour	8th Hour
Trial group	7.66 ± 2.25	7.33 ± 2.29	4.45 ± 1.34
Control group	6.63 ± 2.35	6.36 ± 2.41	5.20 ± 1.31
Comparison between the groups Unpaired 't' test	t = 1.63 p > 0.05 NS	t = 1.59 p > 0.05 NS	t = 2.19 p < 0.05* S

The table displays the mean duration of uterine contractions at the 1st, 4th, and 8th hours for both the

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trial and control groups, along with their standard deviations. Mean durations ranged from 6.63 to 7.66 hours across the intervals. Statistical analysis using unpaired t-tests indicated no significant difference ($p > 0.05$) between the groups at the 1st and 4th hours. However, at the 8th hour, there was a significant difference ($p < 0.05$), suggesting differing uterine contraction durations between the groups.

Table 3: Cervical Dilatation

Group	Cervical dilatation (mean + SD)		
	1st Hour	4th Hour	8th Hour
Trial group	1.47±0.47	3.07±0.37	5.95±0.92
Control group	1.54+0.53	1.77+0.32	2.6+0.48
Comparison between the groups Unpaired 't' test	t = 1.54 p > 0.05 NS	t = 14.55 p < 0.001** HS	t = 17.68 p < 0.001** HS

The table presents the cervical dilatation (mean + SD) at the 1st, 4th, and 8th hour for both the trial group and the control group. In the trial group, cervical dilatation increases over time, with mean values of 1.47 ± 0.47 at the 1st hour, 3.07 ± 0.37 at the 4th hour, and 5.95 ± 0.92 at the 8th hour. In comparison, the control group shows a slower progression, with mean values of 1.54 ± 0.53, 1.77 ± 0.32, and 2.6 ± 0.48 at the corresponding time intervals. Unpaired t-tests indicate significant differences between the groups at the 4th and 8th hours, with p-values less than 0.001 (**HS**), suggesting highly significant changes. However, at the 1st hour, the difference is not statistically significant ($p > 0.05$, NS).

Table 4: Cervical Effacement

Group	Cervical effacement (mean + SD)		
	1st Hour	4th Hour	8th Hour
Trial group	28.00+ 6.10	48.00 + 6.89	69.00 + 6.35
Control group	26.5 + 6.03	42.00 + 7.26	2.6+0.48
Comparison between the groups Unpaired 't' test	t = 0.957 p > 0.05 NS	t = 3.28 p < 0.05* S	t = 7.33 p < 0.001** HS

The table displays the cervical effacement (mean + SD) at the 1st, 4th, and 8th hour for both the trial and control groups. In the trial group, cervical effacement increases progressively, with mean values of 28.00 ± 6.10 at the 1st hour, 48.00 ± 6.89 at the 4th hour, and 69.00 ± 6.35 at the 8th hour. Conversely, the control group demonstrates slower effacement, with mean values of 26.5 ± 6.03, 42.00 ± 7.26, and 2.6 ± 0.48 at the respective time points. The unpaired t-tests reveal a significant difference between the groups at the 4th and 8th hours ($p < 0.05$* and $p < 0.001$** respectively), indicating statistically significant changes. However, no significant difference is observed at the 1st hour ($p > 0.05$, NS).

Table 5: Duration of Labour

Variable	Trial Group (Mean ± SD)	Control Group (Mean ± SD)	t score	p value
Duration of latent phase (hours)	5.45 ± 0.92	7.95 ± 1.05	9.80	< 0.05* S
Duration of active phase (hours)	6.6 ± 0.93	6.7 ± 1.02	0.693	> 0.05 NS
Duration of first stage (hours)	12.05 ± 1.44	14.65 ± 0.88	8.4	< 0.001**HS
Duration of second stage (mins)	48.5 ± 12.2	46.5 ± 8.21	0.744	> 0.05 NS

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Duration of third stage (mins)	4.15 ± 1.22	4.16 ± 1.00	0.034	> 0.05 NS

The table presents the comparison of various durations of labour between the trial and control groups. The trial group shows a significantly shorter duration of latent phase compared to the control group ($t = 9.80$, $p < 0.05$). However, no significant differences were observed in the duration of the active phase, second stage, and third stage between the two groups ($p > 0.05$). The duration of the first stage was significantly shorter in the trial group compared to the control group ($t = 8.4$, $p < 0.001$).

Discussion

The findings of this study underscore the potential benefits of using vaginal application of *Potaki* (*Basella alba*) *Taila Pichu* in promoting smoother labor experiences, as evidenced by various parameters assessed throughout the labor process. The traditional Ayurvedic approach to childbirth, emphasizing the importance of natural interventions and holistic well-being, aligns with contemporary efforts to minimize medical interventions and enhance maternal and neonatal outcomes.[6]

The observed increase in cervical dilation and effacement in the trial group compared to the control group indicates that *Potaki Taila Pichu* may facilitate the physiological progression of labor, potentially reducing the need for medical interventions such as augmentation or assisted delivery. This is further supported by the significantly shorter duration of the latent phase of labor in the trial group, suggesting that the intervention may help expedite the onset of active labor.[7]

The consistency in uterine contraction duration between the trial and control groups suggests that *Potaki Taila Pichu* does not interfere with the natural rhythm of labor, indicating its safety and compatibility with the labor process. Additionally, the absence of significant differences in the duration of the active phase, second stage, and third stage of labor between the two groups implies that the intervention does not adversely affect the overall progress of labor.[8,9]

These findings contribute to the growing body of evidence supporting the use of herbal interventions, rooted in traditional medical systems like Ayurveda, in modern obstetric care. By harnessing the potential of natural remedies such as *Potaki Taila Pichu*, healthcare providers can offer women additional options for promoting comfortable and efficient childbirth experiences while respecting their preferences for minimal medical intervention.[10-12]

Further research is warranted to validate these findings with larger sample sizes and randomized controlled trials. Additionally, exploring the long-term effects of *Potaki Taila Pichu* on maternal and neonatal outcomes would provide valuable insights into its potential role in optimizing childbirth experiences. Overall, this study underscores the importance of integrating traditional knowledge with modern medical practices to enhance maternal and neonatal health outcomes infant health.

Conclusion

From a functional perspective, the critical aspects of labor are cervical dilatation and effacement. However, there is a rising trend in cesarean deliveries due to various factors deviating from the normal process of spontaneous vaginal delivery. Ayurveda attributes labor disorders to imbalances in *Apana Vayu*. *Potaki* oil aids in calming *Apana Vayu,* promoting increased uterine contractions, cervical dilatation, and effacement. Consequently, it facilitates a smoother and easier delivery process.

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How to cite this article: Shashi Bharti, Sushma, Vidya Sagar Ram. Exploring the Ayurvedic Practice of Potaki Taila Pichu for Labor Facilitation among Rural Women in Northern India. J Ayurveda Integr Med Sci 2024;4:40-45. http://dx.doi.org/10.21760/jaims.9.4.6

Source of Support: Nil, **Conflict of Interest:** None declared.

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