

## A COMPARATIVE CLINICAL STUDY ON THE EFFECT OF PIPPALIMUL VARTI AND APAMARGA VARTI IN SUKHAPRASAVA

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### ABSTRACT :

Child birth is a very dynamic process and the women need to be well prepared for it. The contemporary system uses analgesia and anaesthesia to reduce pain during labour but have no proved measures to shorten the period of 1st stage of labour. In Ayurveda similar efforts are being incorporated by means of drugs, among them there are many formulations for the pregnant women to deliver with ease. When all three stages of labour occurs without any complications and in normal time period, then we can say it as *Sukhaprasava*. Ayurvedic texts have described at the onset of labour the head of the foetus gets turned and comes forward due to action of *prasuti maruta* and is expelled through the vaginal passage. This is *sukhaprasav*, other situations are abnormal. The present study was carried out to compare the effect *Pippalimul* and *apamarga* in the management of *sukhaprasava*. 30 female patients with 9 months amenorrhea were registered for the present research work and were divided into 2 equal groups. 15 patients were treated with group-I drug i.e. *Pippalimul varti* and 15 patients were treated with group-II drug i.e. *Apamarga Varti*. After conducting clinical study on 30 patients, observation and results were obtained. Statistical analysis shows that both drugs were significantly effective to conduct normal delivery. The comparison between group I and group II for the assessment parameters shows significant results ( $p < 0.001$ ). Normal labour with vaginal delivery in Group I patients was 80% at third follow up, whereas improvement (with operative delivery) was seen in 20 % cases. In Group II, it was 66.66% at third follow up and improvement (with operative delivery) is seen in 33.33 % cases.

**Key words:** Normal labour, *Sukhaprasav*, *Pippalimul*, *Apamarga*, *Varti*.

**INTRODUCTION:** Labour can be defined as the process by which regular painful contractions bring about effacement and dilatation of the cervix and descent of the presenting part, ultimately leading to expulsion of the fetus and placenta from the mother<sup>1</sup>. Though labour is a physiological process of the female sometimes it

may lead to abnormality which hampers the life of mother and foetus. A normal labour can become abnormal at any stage. Uterine inertia or uterine dysfunction, foetal distress, post partum haemorrhage etc are the abnormal conditions of labour<sup>2</sup>. According to Charaka<sup>3</sup> at the onset of labour the head of the foetus gets turned and

comes forward due to action of prasuti maruta and is expelled through the vaginal passage. This is normal, other situations are abnormal. According to Sushrut prasava avastha are Prajayini<sup>4</sup>, Prajanayishyamana (early first stage), Upasthita prasava<sup>5</sup> (late first stage) and Aparapatana<sup>6</sup> (third stage).

'Prasava' or Garbhanishkramana<sup>7</sup> is the function of 'Apana vayu'. Along with Apana vayu, vyana vayu also takes part in induction of labour or Aavi (uterine contractions). If function of both these vayus alters then 'Aavi' becomes exaggerated or diminished or irregular causing vilambita prasava. So any cause which vitiates apana vayu is cause for abnormal uterine function. The labour is said to be prolonged when the combined duration of first and second stage is more than the arbitrary time limit of 18 hours. In day today practice of obstetrics many patients are observed undergoing vilambita prasava<sup>8</sup> and main cause is Vilambita Aavi. At present drugs with good oxytocic activity like oxytocin, prostaglandins etc are used for the management of hypotonic inertia. Ayurvedic practitioner has some limitations to use the modern drug. So, a classical remedy to avoid all such adverse effects is necessary. Our acharyas told some drugs for Sukhprasava, with the help of these drugs labour can be completed without any complication. Pippalimul and Apamarga were told by Chakradatta<sup>9</sup> for sukhpasava. These drugs were administered in the form of yoni varti. In this study effects of the above drugs were compared clinically to evaluate most effective and appropriate for the purpose of Sukhprasava.

#### AIMS AND OBJECTIVES

1. To achieve normal vaginal delivery within normal duration and without any complications
2. To compare the efficacy of Pippalimul varti and Apamarga varti in sukha prasava.

**MATERIALS AND METHODS:** The clinical study was conducted on 30 patients, who were admitted with true labour pains in IPD of Prasooti tantra and Stiroga department of Major S. D. Singh P. G. Ayurvedic Medical College and Hospital, Farrukhabad. These 30 patients were divided into 2 groups. In each group 15 patients were taken. Patients who were properly diagnosed as true labour pains were registered for the study. The complete details of the patients were recorded as per case record proforma consisting of all the relevant data.

#### Treatment Protocol

**Group I:** Pippalimul varti was kept in posterior fornix at the interval of 2 hour according to response of patient. Recording of Pulse, B.P., F.H.S., and Partography was done after application of varti.

**Group II:** Apamarga Varti was kept in posterior fornix at the interval of 2 hour according to response of patient. Recording of Pulse, B.P., F.H.S., and Partography was done after application of varti.

#### SELECTION CRITERIA:

##### A) INCLUSIVE CRITERIA:

1. Patient willing to take part in this study
2. Age group 20 to 30 yrs
3. Primigravida with vertex presentation.
4. Patients who were given written informed consent.

##### B) EXCLUSIVE CRITERIA:

1. CPD
2. Multiparous women
3. Malpresentation
4. Placenta previa
5. APH
6. High risk pregnancies including jaundice, pre eclampsia, anemia, twins, PIH etc.
7. Elderly primigravida
8. Pre-existing diseases like DM, Heart disease etc.

**Diagnosis and clinical observation:** The diagnosis of true labour pains was done on the basis of detailed clinical study and with the help of per vaginal examination. In history taking following points are empha-

sized like age, occupation, socioeconomic status, past history (medical/ surgical) of illness, family history, history of present illness, chief complaints, associated complaints, investigations, previous menstrual history, contraceptive history, *ashtavidhapariksha*, , general examination, systemic examination, *garbhini pariksha*, abdominal examination, vaginal examination, partogram.

All investigations were done which includes haemogram, blood group, urine routine, HIV, VDRL, HbsAg, third trimester USG.

#### **Parameters of assessment:**

The main criteria for assessment of therapeutic trials were based on.

1. Maintaining partograph, duration of first and second stages of labour in hours.
2. No. of contraction/10 minutes before treatment and after treatment 3 hrs, 6 hrs, 9 hrs.
3. Duration of each contraction in seconds before treatment and after treatment 3 hrs, 6 hrs, 9 hrs.
4. Station of head in relation to ischial spine before treatment and after treatment, recorded in figures (-3,-2,-1,0,+1,+2,+3) 3 hrs, 6 hrs, 9 hrs.
5. Cervical dilatation in cms before treatment and after treatment at 3 hrs, 6 hrs, 9 hrs.
6. Cervical effacement in % before treatment and after treatment at 3 hrs, 6 hrs, 9 hrs.
7. Total duration of labour including three stages in hours.
8. Apgar score of delivered baby at 1st min. and 5th min. in figures (0-10)
9. Bishops score at the time of admission.

**Using the partograph:**<sup>10</sup> A partogram provides a composite record of all the important features of labour on a single sheet. Delay in labour can be detected early by the use of a partogram and timely correction of dysfunctional labour is possible. Many variations of the original partogram are now in use, modified to suit the local circumstances. The WHO partograph has been modified to make

it simpler and easier to use. The latent phase has been removed and plotting on the partograph begins in the active phase when the cervix is 4cm dilated.

#### **Record the following on the partograph:**

**Patient information:** Fill out name, gravida, para, hospital number date and time of admission and time of ruptured membranes.

**Fetal heart rate:** Record every half hour.

**Cervical dilatation:** Assessed at every vaginal examination and marked with a cross (X). Begin plotting on the partograph at 4 cm.

**Alert line:** A line starts at 4 cm of cervical dilatation to the point of expected full dilatation at the rate of 1 cm per hour.

**Action line:** Parallel and 4 hours to the right of the alert line.

**Apgar score:** It is used to assess neonatal oxygenation status at birth; calculated at 1st and 5th minutes after birth of baby. One minute score indicates need for immediate resuscitation of new born, while 5 minute score correlates well with long term neurological sequelae. It is based on degree of cardio respiratory and neurological depression present. It is introduced by Virginia Apgar (in 1953).

#### **BISHOPS SCORE<sup>11</sup>:**

**Bishop's score**, is a pre-labour scoring system to assist in predicting whether induction of labour will be required.

**Components :** The total score is achieved by assessing the following five components on vaginal examination: The Bishop score grades patients who would be most likely to achieve a successful induction. The duration of labour is inversely correlated with the Bishop's score; a score that exceeds 8 describes the patient most likely to achieve a successful vaginal birth. Bishop scores of less than 6 usually require that a cervical ripening method be used before other methods.

#### **Scoring**

Each component is given a score of 0-2 or 0-3. The highest possible score is 13.

Scoring is done with following values and observations.

Table.no.1

Parameter\Score	0	1	2	3
Position	Posterior	Intermediate	Anterior	-
Consistency	Firm	Intermediate	Soft	-
Effacement	0-30%	31-50%	51-80%	>80%
Dilation	0 cm	1-2 cm	3-4 cm	>5 cm
Fetal station	-3	-2	-1, 0	+1, +2

### Interpretation

A score of 5 or less suggests that labour is unlikely to start without induction. A score of 9 or more indicates that labour will most likely commence spontaneously. A low Bishop's score often indicates that induction is unlikely to be successful. Some sources indicate that only a score of 8 or greater is reliably predictive of a successful induction.

**RESULTS:** The result of whole study is graded as follows

(67-100%) - Normal labour with vaginal delivery.

(34-66%) - Improved (with operative delivery)

(0-33%) - No improvement

### DRUG REVIEW:

#### Properties of Pippali (*Piper longum*)<sup>12</sup>

Rasa – katu

Guna – Laghu, snigdha

Virya – ushna

Vipaka – madhura

Doshakarma – kapha vataghna ,  
deepaniya ,kantya.

#### Chemical Analysis of Pippalimula<sup>13</sup>:

The roots contains the alkaloids, piper longuminine (0.2 – 0.25%), piper longumine (0.02%) and piperine which show abortifacient action means creates myometrial contraction in an effort to expel out the fetus.

#### Apamarga (*Achyranthes aspera*)<sup>14</sup>

#### Properties:

- Rasa – katu , tikta ,
- Vipaka – katu
- Veerya- ushna
- Gunas – laghu , ruksha , teekshna , sara.

- Doshghnata – khaphavataghna.

#### Pharmacological Actions:

**Anti fertility activity:** It is extensively used as an anti fertility, contraceptive, abortifacient in folk medicine .<sup>15</sup>

**Method of preparation of Varti<sup>16</sup>** Usually the varti is prepared by two methods. Medicinal drug powdered were made in to fine powder form. The contents are mixed uniformly in syrup made of jaggery and molded in to required size and shape of varti. Varti are also made up by grinding the fine powder of the drugs with the fluids specified in the formulae to form a soft paste. Then this is made into varti form according to required size and shape. For making the guda varti the guda [jaggery] is used as a base. In certain condition the guda should be equal to the quantity of the dravya churna. First of all guda and appropriate quantity of water is mixed and guda is dissolved in water. This liquid is filtered with cloth. The obtained liquid is allowed to make paka by heating when proper paka is attained, during that time the vessel is taken out from the fire and respective dravya churna is mixed little by little uniformly. **Varti:** “Vartate anyate eti varti’ is one among the sthanika chikitsa having shodhana properties and stay for longer duration in site is selected for this study. A varti basically comes under kalka kalpana.

Various varieties are explained in our classics. They differ in shape and sizes are elongated with tapering end and slightly broader in the middle, they help in expelling the collected mala, mutra, puya,

*rakta, kapha etc doshas*. Depending upon the site and action *varti* is classified in to different types in that *yonivarti* is one among them. In this study *Pippalimul (1000mg) varti* and *Apamarga(1000mg)*

*varti* were prepared for *sukhprasava*. From these drugs 1 gm *varti* was prepared. The *varti* was administered at onset of true labour pains and repeated at 2 hourly duration according to progress of labour.

### OBSERVATIONS AND RESULTS

Table no 2 : Showing overall effect of therapy

	Group I						Group II					
	AT1		AT2		AT3		AT1		AT2		AT3	
	No. of pts	%	No. of pts	%	No. of pts	%	No. of pts	%	No. of pts	%	No. of pts	%
Normal labour with vaginal delivery (67-100%)	0	0	3	20%	12	80%	0	0	2	13.33	10	66.66
Improved (with operative delivery)(34-66%)	9	60%	9	60%	3	20%	6	40%	7	46.66	5	33.33
No Improvement (0-33%)	6	40%	3	20%	0	0	9	60%	6	40	0	0

Above table shows overall effect of therapy with percentage of improvement of both groups at first, second, third follow up. The comparison between group I and group II for the assessment parameters shows significant ( $p < 0.01$ ) Normal labour with vaginal delivery in Group I patients is 80% at third follow up, whereas improvement (with operative delivery) is seen in 20 % cases. In Group II, it was 66.66% and improvement (with operative delivery) is seen in 33.33% cases.

**DISCUSSION:** During labour *Apana Vayu* plays a great role. Detailed description about process of labour and its management is given in ayurvedic and modern classics. Present study was carried out between *Varti* prepared by *Pippalimula* and *Apamarga* which were placed in pos-

terior fornix during onset of true labour pains. Animal studies have shown oxytocic activity in *Pippalimul* and *Apamarga* without any major side effects and complications. Vital parameters related to normal labour like change in station of head, cervical dilatation and effacement, number of contractions in 10 minutes, duration of contractions were analyzed after insertion of '*varti*' at 2 hourly interval and observations were noted at 3 hrs, 6 hrs, and 9 hrs duration. Two groups were made for study. Group I consists 15 patients to whom *Pippalimul varti* was placed and Group II consists 15 patients to whom *Apamarga Varti* was placed. In each group, all patients were 18 to 30 years of age and primigravida. To assess effect of *Pippalimul varti* the drug has been tried on

primigravida patients only to nullify the effect of laxity of muscles on labour and to avoid precipitate labour if at all, as generally occurs in multigravida. For progress assessment Partograph was prepared for all patients.

At first follow up, in Group I there was highly significant effect on cervical dilatation, effacement, descent of head and duration of contraction as p value is  $< 0.001$  and has shown significant effect on number of contractions as the p value is  $< 0.01$ . At second follow up also in Group I there was highly significant effect on cervical dilatation, effacement, descent of head and duration of contraction as p value is  $< 0.001$  and has shown significant effect on number of contractions as the p value is  $< 0.01$ . In third follow up, group A patients has shown highly significant results on all the parameters.

It was observed that in Group II patients in first follow up there was highly significant effect on cervical dilatation, effacement, descent of head and duration of contraction as p value is  $< 0.001$  and has shown significant effect on number of contractions as the p value is  $< 0.01$ . At second follow up in Group II there was significant effect on cervical dilatation, effacement, descent of head and duration of contraction as p value is  $< 0.01$  and has shown significant effect on number of contractions as the p value is  $< 0.01$ . In third follow up, group II patients has shown significant results on all the parameters. The difference of observations of both groups were statistically proved to be significant ( $p < 0.01$ )

Total duration of all three stages taken by patients in Group I was between 8 – 10 hrs and that of Group II patients was between 10 – 12 hrs. In group I twelve patients delivered vaginally with normal labour without any complication and good neonatal apgar score. In group I, out of remaining three patients one delivered vaginally with cervical tear and mild PPH, one was assisted delivery with ventouse and third one underwent caesarian section for fetal dis-

stress in which it was found to have cord around neck twice and baby weight 3.5 kg

#### Probable mode of action of Apamarga<sup>17</sup>

**Varti:** The use of Apamarga is versatile. It is used in various conditions of gynecological and obstetric disorders. In *Ayurveda* it was mentioned in *pumsavana*, *sukhaprasava* and *prasavottararaktaśrava*. The presence of alkaloids, glycosides, pro-teins, free amino acids, lignin, carbohydrates, flavonoids, tannins and a phenolic compound were identified in *Apamarga*. The phytosteroids, polyphenols and sapon-ins are known to increase the prostaglandin activity helping the conception products to evacuate irrespective of the gestational age. The inner meaning also exhibit that it can be for initiating labour as well as in the form of an abortifacient agent. The methanolic leaf extract is the major potent content in it which has an important action in this process. The chloroform soluble basic fraction showed spasmolytic action against various spasmogens on intestine and uterine muscles of guinea pigs.

#### Probable mode of action of Pippalimul<sup>18</sup>

**Varti:** The varied studies of *Pippali* show that the crude extract, its different fractions and the major pure compound from the active fraction of the powdered fruits of *Piper longum* were studied for the antifertility effect in female rats. The crude extract and its hexane fraction exhibited 100 and 86% efficacy respectively (day 1-7 post-coitum schedule). On the other hand, 1-butanol soluble, 1-butanol insoluble and chloroform fractions were inactive. As the studies were further evaluated, the action seems to be similar in cases for myometrial contraction required for the expulsion of fetus at term.

**CONCLUSION :** All the drugs which were described for the sake of *sukhaprasava* i.e natural vaginal delivery seems to have oxytocic action on the term uterus to initiate and stabilize the uterine contractions. In third follow up, group I

patients have shown significant results on all the parameters. It is economic, easily available and easy to administer. It doesn't cause any adverse effects on fetus. No local and systemic adverse effects seen on mother. It can be taken into consideration for routine practice for active management of labour. A further research is required for using *Pippalimul* and *Apamarga* drugs for induction of labour.

#### REFERENCES:

1. Daftary, Shrish N, Chakravathi S., Manual of obstetrics, 1st edition, New Delhi, B.J.Churchill Livingstone Pvt. Ltd., (2002).
2. Dawn, C.S., Dawn S., Text Book of Obstetrics and Neonatology, 16th edition, Kolkata, Dawn Books, (2004).
3. Shastri Kashinath, edited by Pandey Gangasahay, Charak Samhita, Vidyotini Hindi Commentary, Part-I, Shareer Sthan 6/24, Reprint Edition, Choukhambha Bharati Academy, Varanasi, 2001. Pp.906.
4. Shastri Ambikadutta, Sushruta Samhita, Ayurveda Tatwa Sandipika Hindi Commentary, Shareer Sthana 10/8; Reprint edition, Chaukhamba Sanskrit Sansthan, Varanasi. 2006.pp. 74.
5. Shastri Ambikadutta, Sushruta Samhita, Ayurveda Tatwa Sandipika Hindi Commentary, Shareer Sthana 10/9; Reprint edition, Chaukhamba Sanskrit Sansthan, Varanasi. 2006.pp. 74.
6. Shastri Ambikadutta, Sushruta Samhita, Ayurveda Tatwa Sandipika Hindi Commentary, Shareer Sthana 10/14; Reprint edition, Chaukhamba Sanskrit Sansthan, Varanasi. 2006.pp. 75.
7. Shastri Kashinath, edited by Pandey Gangasahay, Charak Samhita, Vidyotini Hindi Commentary, Part-I, Shareer Sthan 6/24, Reprint Edition, Choukhambha Bharati Academy, Varanasi, 2001. Pp.906
8. Sarang Jadhav, Padmasaritha K, Sunita Siddesh, B. Mishra. A Comparative Clinical Study on the Efficacy of

Sukumaragritha in Sukhprasava. Int. J. Ayur. Pharma Research. 2014;2(6):35-41.

9. Chakradutta by chakrapani dutta, edited and translated by Indradev tripathi, stree Roga Chikitsa Prakaran, Choukhambha Sanskrit Samsthan, 4<sup>th</sup> edition, Varanasi, 2002, pp387.

10. Stud John, Progress in obstetrics and Gynaecology Volume-12, 1st edition, New Delhi, Churchill Livingstone Pvt. Ltd., (1992).

11. D.C. Dutta. Textbook of Obstetrics. New Central Book Agency, 6th edition 2004, pp.666, pg no.522

12. Arya V. Indian Medicinal Plants A Compendium of 500 species, (Orient Lonhman, Vol- IV , 1995) pp. 290-291.

13. Kirtikar KR, Basu BD, Indian Medicinal Plants, Vol.III, 2<sup>nd</sup> edition, Lalit Mohan Basu,Allahabad, 2006. Pp.2129.

14. Haindavi and Mahesh: Pharmacological Action of Sukha prasav Drugs; IAMJ: Valume 1, issue 4; July-Aug 2013.

15. Ibid.

16. Sarangadhara, Sarangadhara samhita, traslated by Dr.P. Himasagara Chandra Murthy, Madhyama khanda, Chowkhamba sanskrit series, Varanasi, 2001.

17. Dravya Guna Vignan by J.L.N Shastry, Chaukhamba Sanskrit Sansthan, Varanasi, Apamarga drug,P-446.

18. Haindavi and Mahesh: Pharmacological Action of Sukha prasav Drugs; IAMJ: Valume 1, issue 4; July-Aug 2013.

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Declared