

Clinical Evaluation of *Kebuka* oil in the Management of Cervical Dystocia

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Abstract

Labour (Childbirth, Delivery, Parturition, Confinement etc.) is a physiologic process during which the products of conception (i.e., the fetus, membranes, umbilical cord and placenta) are expelled outside of the uterus. This is achieved with changes in the biochemical connective tissue and with gradual effacement and dilatation of the uterine cervix as a result of rhythmic uterine contractions of sufficient frequency, intensity and duration.

In cervical dystocia, cervix fails to dilate. Cervical dystocia if not diagnosed and treated can lead to maternal/fetal morbidity and even the mother's mortality. According to *Ayurveda*, the whole process of *Prasava* is completely based on *Prasuti Maruta or Apana Vayu*. It has got precise role in stimulation, regulation of myometrial contractions and expulsion of fetus in normal labour.

Kebuka (*Costus speciosus*) due to its *tikta – kashaya* property, aggravates vata. *Kebuka* acts through its *garbhashaya sankochak prabhava*. It helps in easy delivery because one of the most common cause of *garbhasanga* (cervical dystocia) is inadequate uterine contraction. *Kebuka* rhizomes are rich in diosgenin starch, which is hygroscopic in nature, due to which it absorbs water and soften the cervix.

This study has revealed a highly significant effect of *Kebuka taila* in cases of cervical dystocia. In this study only functional cervical dystocia has been included in which increase in uterine contraction gives positive results.

Keywords

Labour, Dystocia, Cervix, Kebuka



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INTRODUCTION

Normal labour is spontaneous in onset and at term, with vertex presentation¹. According to *Ayurveda* balanced *Apana Vayu* are responsible for the achievement of Eutocia². Abnormalities in either of these may result in dystocia or abnormal labour. In *Ayurvedic* texts, role of *Vata* especially *Apana Vayu* is considered in stimulation and regulation of normal labour³. It acts on myometrium causing regular uterine contractions associated with co-ordinated dilatation of cervix and laxity of perineum. Labour is accomplished by *Vayu*. If *Vayu* is functioning normally and there is no other pathological barrier in the passage and the passenger, labour completes with least pain and without discomfort and complication.

In functional cervical dystocia due to inadequate uterine contraction cervix fails to dilate⁴. Second stage of labour starts with full dilatation of cervix⁵. In cervical dystocia labour is arrested in first stage. Cervical dystocia is one of the most common indications for Caesarean Section. It accounts for about 30% of all caesarean section⁶.

The word “*Prasava*” is derived from “*Shun Prani Prasava*”, that is the process by which

a life is brought into existence in the cosmos⁷. The whole process of *Prasava* is completely based on *Prasuti Maruta* or *Apana Vayu*⁸. It has got precise role in stimulation, regulation of myometrial contractions and expulsion of fetus in normal labour.

One of the main causes of cervical dystocia is inadequate uterine contraction known as functional cervical dystocia⁹. In this study cervical dystocia due to organic pathology had been excluded so, these cases are of functional cervical dystocia in which increase in uterine contraction gives positive result. *Kebuka* (*Costus speciosus*) due to its *tikta – kashaya* property aggravates *vata* and thereby increases uterine contractions¹⁰. Hence, cervical dilatation increases gradually.

This study is a preliminary effort in the direction to evaluate the efficacy of vaginal application of *Kebuka Tail* (*Costus speciosus*.) in cervical dystocia, where cervix fails to dilate.

AIMS AND OBJECTIVES

1. The aim of present work is to evaluate efficacy of *Kebuka taila* in Cervical Dystocia.
2. To reflect an overview of cervical dystocia in *Ayurveda*.

MATERIALS AND METHODS

- Study design: Clinical observational study
- Simple random sampling techniques.
- Approval No:PT/AY./IMS/2015-16/262
- Place of the study: Labour room of Department of *Prasuti Tantra*, Sir Sunder Lal Hospital, Banaras Hindu University
- Selection of drug: Kebuka(*Costus speciosus*) was applied in the form of oil in vagina.
- Drug dose: 25 ml of oil
- Drug review:

Drug review:

Rasa	Guna	Virya	Vipaka
Tikta Katu	Laghu, Grahi	Shita	Katu

Mode of administration

Pichu of diameter 4 to 6 cm were prepared by using cotton and gauze piece and autoclaved. Size of *pichu* varies in primi and multi patient according to laxity of vaginal canal. *Pichu* was soaked with *Taila* and inserted into vagina in aseptic conditions under normal body temperature. Before insertion of *pichu* p/v examination done and bishops score was assessed and noted.

Total four follow-ups were done, two with medication and two without medication. The *pichu* was inserted and removed after 2 hours and p/v examination done to assess the bishop's score and progress of cervical dilatation. When no progress was seen in cervical dilation *pichu* was inserted again and removed after 2 hours and p/v examination was done. The *pichu* was inserted only two times.

Inclusion criteria

1. Age between 18-36 years
2. Nulliparous to 4thgravida.
3. Gestational age between 36 – 40 weeks.
4. Height between 145 – 170cm.
5. Hemoglobin more than 7 gm.
6. No progress of labour without any pathological dysfunction.
7. Primi with cervical dilatation < 1.5cm for more than 10 hours in latent phase of labour.
8. Multi with cervical dilatation ≤ 1.5cm for more than 4 hours in latent phase.
9. Primi or multi having no change in cervical dilatation for at least two hours in active phase of labour.

Exclusion criteria

1. Women of age less than 18 years and greater than 36 years
2. Parity more than 5
3. The women with cephalo-pelvic disproportion.
4. Any other indication for elective caesarean section.
5. Women having Hb% less than 7gm%.
6. Women with any systemic diseases, Diabetes, Tuberculosis, Bronchial Asthma, Renal disease, Pregnancy induced hypertension, Eclampsia Cardiac diseases, Blood disorders etc.
7. Women with organic pathology like uterine or cervical fibroid, benign or malignant tumour, history of cervical tear during previous delivery, cervical stenosis etc causing cervical fibro

Obstetric history:

Detailed information about last menstrual period, expected date of delivery, gravidity, parity, number of live births, abortions were taken and noted.

Clinical examination

In selected 32 cases complete general and systemic examinations, per abdomen and per

vaginal examinations were performed and noted.

Bishop score was calculated on the basis of per vaginal examination.

After complete examination 10 women were excluded from the study due to cephalopelvic disproportion.

Investigations

Following investigations were done in total 22 cases:-

1. Hb gm%, Total Leucocytes count and Differential Leucocytes count, platelet count.
2. Blood group and Rh factor of both partners
3. VDRL, HIV, HBsAg for both partners
4. Fasting Blood Sugar (FBS) and blood urea
5. Urine test for routine and microscopic examination
6. USG was done to know exact gestational age, placental site, Amniotic Fluid Index and Bio Physical Profile or any other foetal congenital anomalies.
7. X ray and ECG were also done whenever needed

After all investigations 2 cases were dropped from the study because their Hb gm% was less than 7.

Criteria for assessment of result

Progress of labour was assessed on the basis of bishop's score by per vaginal examination.

Table 1 Showing scoring according to Bishop's score

Parameter	Score			
	0	1	2	3
Position of cervix	Posterior	Intermediate	Anterior	-
Consistency of cervix	Firm	Intermediate	Soft	-
Effacement of cervix	0-30%	31-50%	51-80%	>80%
Dilation of cervix	0 cm	1-2 cm	3-4 cm	>5 cm
Station of foetal head	-3	-2	-1, 0	+1, +2

Classification of the Results

Results were assessed on the following basis-

1. Anterior position of the cervix
2. Soft consistency of the cervix
3. More than 80% Effacement of the cervix
4. 8-9 cm Dilatation of the cervix

Satisfactory - When all of the above 4 parameters were fulfilled.

Non-Satisfactory- When 1 or 2 from the above 4 parameters were fulfilled.

OBSERVATIONS

Table 2 Showing Position of cervix initially and during subsequent Follow-ups

Position of cervix	Initial	Follow-ups			
		FU I	FU II	FU III	FU IV
Posterior	11 (55%)	10 (50%)	0 (0%)	0 (0%)	0 (0%)
Intermediate	7 (35%)	2 (10%)	4 (20%)	4 (20%)	4 (20%)
Anterior	2 (10%)	8 (40%)	16 (80%)	16 (80%)	16 (80%)

Table 3 Showing comparison of Position of cervix between initial and different follow-ups

Comparison between initial and different Follow-ups	Z-value (Wilcoxon signed Ranks Test)	P-value
Initial vs FU I	3.680	<0.001 H.S.
Initial vs FU II	3.777	<0.001 H.S.
Initial vs FU III	3.777	<0.001 H.S.
Initial vs FU IV	3.777	<0.001 H.S.

Table 4 Showing Consistency cervix initially and during subsequent Follow-ups

Consistency of cervix	Initial	Follow-ups			
		FU I	FU II	FU III	FU IV
Firm	12 (60%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Intermediate	5 (25%)	12 (60%)	0 (0%)	0 (0%)	0 (0%)
Soft	3 (15%)	8 (40%)	20 (100%)	20 (100%)	20 (100%)

Table 5 Showing comparison of Consistency of cervix between initial and different follow-ups

Comparison between initial and different Follow-ups	Z-value (Wilcoxon signed Ranks Test)	P-value
Initial vs FU I	3.690	<0.005 S
Initial vs FU II	3.787	<0.001 H.S.
Initial vs FU III	3.787	<0.001 H.S.
Initial vs FU IV	3.787	<0.001 H.S.

Table 6 Showing Effacement of cervix initially and during subsequent Follow-ups

Effacement of cervix (%)	Initial	Follow-ups			
		FU I	FU II	FU III	FU IV
10-30	14 (70%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)
31-50	6 (30%)	5 (25%)	4 (20%)	4 (20%)	4 (20%)
51-80	0 (0%)	9 (45%)	2 (10%)	2 (10%)	0 (0%)
80-100	0 (0%)	5 (25%)	14 (70%)	14 (70%)	16 (80%)

Table 7 Showing comparison of Effacement of cervix between initial and different follow-ups

Comparison between initial and different Follow-ups	Z-value (Wilcoxon signed Ranks Test)	P-value
Initial vs FU I	3.787	<0.001 H.S.
Initial vs FU II	3.944	<0.001 H.S.
Initial vs FU III	4.035	<0.001 H.S.
Initial vs FU IV	4.023	<0.001 H.S.

Table 8 Showing Dilatation of cervix initially and during subsequent Follow-ups

Dilatation of	Initial	Follow-ups
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cervix (in cm)		FU I	FU II	FU III	FU IV
1.5-2.5	20 (100%)	5 (25%)	4 (40%)	4 (20%)	4 (20%)
2.5-3.5	0 (0%)	8 (40%)	1 (5%)	1 (5%)	0 (0%)
3.5-4.5	0 (0%)	1 (5%)	1 (5%)	1 (5%)	0 (0%)
4.5-5.5	0 (0%)	6 (30%)	8 (40%)	4 (20%)	0 (0%)
5.5-6.5	0 (0%)	0 (0%)	6 (30%)	3 (15%)	0 (0%)
6.5-7.5	0 (0%)	0 (0%)	0 (0%)	3 (15%)	0 (0%)
7.5-8.5	0 (0%)	0 (0%)	0 (0%)	4 (20%)	0 (0%)
8.5-9.5	0 (0%)	0 (0%)	0 (0%)	0 (0%)	16 (80%)

Table 9 Showing comparison of Dilatation of cervix between initial and different follow-ups

Comparison between initial and different Follow-ups	Z-value (Wilcoxon signed Ranks Test)	P-value
Initial vs FU I	4.001	<0.001 H.S.
Initial vs FU II	4.017	<0.001 H.S.
Initial vs FU III	4.035	<0.001 H.S.
Initial vs FU IV	4.023	<0.001 H.S.

Table 10 Showing Duration of uterine contraction initially and during subsequent Follow-ups

Duration of uterine contraction in second	Initial	Follow-ups			
		FU I	FU II	FU III	FU IV
25-30	15 (75%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
30-35	5 (25%)	10 (50%)	6 (30%)	4 (20%)	4 (20%)
35-40	0 (0%)	10 (50%)	12 (60%)	14 (70%)	12 (60%)
40-45	0 (0%)	0 (0%)	2 (10%)	2 (10%)	2 (10%)
45-50	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (10%)

Table 11 Showing Number of uterine contractions in ten minutes initially and during subsequent Follow-ups

Number of uterine	Initial	Follow-ups			
		FU I	FU II	FU III	FU IV

contractions in 10 min.					
1-2 cont.	14 (70%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2-3 cont.	6 (30%)	10 (50%)	6 (30%)	4 (20%)	4 (20%)
3-4 cont.	0 (0%)	10 (50%)	14 (70%)	16 (80%)	16 (80%)

Table 12 Showing results in total cases

Result	(n=20)
Satisfactory	16 (80%)
Non-Satisfactory	4 (20%)

DISCUSSION

Mean age group was 25-50 years in total cases while mean gravidity and parity were 1.60 & 0.42, respectively. Majority of women (67.5%) were non working and only 32.5% of women were working, majority of women complained of pain and tightness in abdomen i.e., 75% and 70%, respectively.

Vata-pittaj, *pitta-kaphaj*, *vata-kaphaj* and *sannipataj prakriki* were seen in 30%, 25%, 25% & 20% of women, respectively. Most of the women (87.5%) were of *madhyama sara*, majority of women (90%) had *madhyama samhanana*

In this examination fundal height, foetal lie, presentation and uterine contraction were observed and noted. Fetus was found in longitudinal lie and cephalic presentation in

all of the women. Fundal height 36-37 wks was seen in 70% of women, duration of uterine contraction was 25-30 seconds in 85% of women, while it was found 30-35 seconds only in 15% of women (Table 10).

Station of foetal head was seen -3 and membrane was present in all of the women.

During P/V examination *adequate pelvis* was noted in all of the women.

Change in position and consistency of cervix was seen from the 1st follow-up. Anterior position of cervix was seen initially in 2 women, while it was seen in 14 women after 1st follow-up. Anterior position of cervix was seen initially in 2 women, while it was seen in 14 women after 1st follow-up in Table 2 and 3. Effacement of cervix was increased gradually and reached up to 51-80% in 14 women during 1st follow-up (Table 6 and 7).

Initially 1.5-2.5 cm dilatation of cervix was seen in all of the women. Dilatation of cervix increased gradually and reached upto 2.5-3.5 cm in 8 women during 1st follow-up.

Further dilatation of cervix was seen 4.5-5.5 cm in 8 women during 2nd follow-up. Dilatation of cervix was seen 6.5-7.5 cm in 3 women during 3rd follow-up, while 8.5-9.5 cm dilatation of cervix was seen in 14 women during 4th follow-up.(Table 8nd9)

Satisfactory results were seen when all of the above 4 parameters were fulfilled. Non-Satisfactory results were seen when 1 or 2 from the above 4 parameters were fulfilled. Satisfactory and non-satisfactory results were seen in 70% and 30% of women respectively.(Table 12)

CONCLUSION

1. Cervical dystocia is a condition where cervix fails to dilate during labour. Cervical dystocia is mainly seen in primi women.
2. One of the main cause of cervical dystocia is inadequate uterine contraction known as functional cervical dystocia.
3. In this study cervical dystocia due to organic pathology had been excluded so, these cases are of functional cervical dystocia in which increase in uterine contraction gives positive result.

4. *Kebuka*(*Costus speciosus*) due to its *tikta – kashaya* property, aggravate vata and thereby increases uterine contractions. Hence cervical dilatation increases gradually.

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