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# **Review Article**

# A SCIENTIFIC APPROACH TO PRASAVA PRAKRIYA (LABOUR) AN AYURVEDIC VIEW

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## **ABSTRACT**

Pregnancy is the most important event in the life of every woman. Passage throw the birth canal is the most hazardous journey made by an individual in his or her life, the amount of pain and discomfort a woman has to face is far more than any pain imaginable. The normal labour can turn to pathological at any time and rightly described that at the time of child birth, women's one leg lies in this *loka* and other in *Yamaloka*. It is necessary to know the causes of initiation of labour, duration of labour, the various stages of labour and the proper mechanism to carry out process of labour normally in order to prevent life threatening complications to the mother as well as to the foetus. An elaborate description of *Prasava* is given in Ayurvedic *samhitas* which help us tremendously to understand concept of *Prakrit prasava* (normal labour). People are not aware of concept of labour in Ayurveda though it is a very scientifically described in Ayurvedic texts. In the present article an attempt is made to throw light on the scientific outlook of management of labour described in Ayurveda.

**KEYWORDS:** Pregnancy, Prasava Prakriya, Prakriatprasava.

## INTRODUCTION

Woman is the unique creation of God and he has blessed the females with the most valuable gift of motherhood. To bear a child is undeniably the ultimate dream of every woman. Pregnancy is one of the most important events in the life of every woman. Passage through the birth canal is the most critical journey to the foetus and amount of pain and discomfort faced by a woman is beyond imagination. The risk and agony is enormously increased when labor is prolonged and the mother faces agonizing pain there is anxiety and fear of operative interventions. So to minimize this and to get a healthy child proper knowledge of process of labour is essential. Keeping all these aims in mind, our Acharyas have described the Masanumasika Garbhini Paricharya from the first day of conception and Prasav paricharya till labour.

Pregnancy especially during course of labour is the most critical stage. As *Acharya Kashyapa* has described this as¹ "when a women approaches labour at every moment there is fear of death to the mother so it is said that her one leg lies in this loka and one in *Yamaloka*". So to ease her at this juncture of time understanding of *Prasava prakriya* (process of labour) is essential to provide proper care and management during this critical phase of life. The timely intervention medications, management of complications, all depends on the proper knowledge of process of labour.

## Aims and objectives

- To study about the concept of *Prasava* and its importance.
- To study the mechanism of labour described in various Ayurvedic texts.
- To prove it is more comprehensive and scientific.

### **Material and Methods**

Literary references are collected from Charak samhita, Sushrut samhita, Kashyapa samhita and various other Ayurvedic samhitas and books of modern medical science of obstetrics branch.

### Prasava

## **Derivation**

The term 'Prasava' is derived from 'Shuyan Prani Prasave' by prefixing "Pra" and applying Panini Sutra "Ridrop".

According to modern science, the term 'Labour' is derived from latin word which means 'to suffer' or 'to toil'.

## **Definition**

The term '*Prakrit prasav*' <sup>2</sup> (normal labour) is applicable if it fulfills the below given criteria.

• Svabhavika - Spontaneous onset

• *Upasthitha kala*- Onset on completion of term

• Avaksira - Cephalic presentation

• Svabhavika kala - Without undue prolongation

· Upadravarahita- Without having any complications

At the onset of labour, the head of the foetus gets turned and comes forward due to the action of *Prasuti Maruta* and then is expelled out through *Apatyapatha* (birth canal). This is termed as "*Prakrita Prasava*" (normal labour). The same view is expressed by *Acharya Sushruta*<sup>3</sup> and *Dalhana* has clarified that *Poorvajanmakrita Karma* is responsible for this *Svabhavika Prasava*<sup>4</sup>.

### **Synonyms of Labour**

1. Garbha mochana, 2. Garbha mukti, 3. Garbha tyagam 4. Prasavam, 5. Delivery 6. Parturition

## Samanya Prasaya Kala

According to *Acharya Charaka* normal period of labour starts from first day of ninth month to tenth month and the stay of foetus beyond this is considered as abnormal. The birth of the baby within nine to ten month period is normal but birth beyond this is considered as abnormal and is associated with difficulties and may cause problems to both mother and the foetus.

Table 1: Various Opinions Regarding Prasavakala

Name of the Acharya	Prasava Kala (in <mark>m</mark> onths)
Charaka <sup>5</sup>	9 and 10
Sushruta <sup>6</sup>	9, 10, 11 and 12
Vridha vagbhat <sup>7</sup>	9-12
Laghu vagbhat <sup>8</sup>	9-12
Kashyapa <sup>9</sup>	9 onwards
Harita <sup>10</sup>	10 and 11
Chakrapani <sup>11</sup>	Best <i>Prasavakala</i> - 9 and 10
Bhavaprakash <sup>12</sup>	9-12
Yogaratnakarakar <sup>13</sup>	9-12
Modern Medicine <sup>14</sup>	
From the date of LMP	280days
From the date of	266days
conception	

## Causes of onset of Labor

Thus five factors are responsible for the onset of labour.

- 1. Kalaprakarsha
- 2. Nadivibandha mukti
- 3. Svabhava
- 4. Garbha sampurnta
- 5. Garbhavasa vairaqya

Sage *Sushruta* has laid down two conditions as the causes of onset of labour. Those are *Kala Prakarsha* and *Nadivibandha mukti*<sup>15</sup>. As a ripened fruit detaches from the tree at its own course of time, once the term is

completed, the foetus also detaches from the mother due to the detachment of *Nadi*. Here *Nadivibandamukti* can be understood in two ways one as the sensory or motor fibers (nervous system and brain) or umbilical cord.

**1. Nervous system:** Oxytocin is the first uterotonin to be implicated in parturition; this is nanopeptide magnocellular neurons of supraoptic and paraventricular nucleus of hypothalamus and is transported in its proharmones form to posterior pituitary for storage and subsequent release <sup>16</sup>. So at the time of parturition or due to *Kalaprakarsha* there is release of bonds that is *Nadivibandh mukti* can be compared to release of this stored hormone at the end of gestation oxytocin itself acts as uterotonic and in turn promote prostaglandins release <sup>17</sup>.

**2.Umblical cord:** The foetus derives its nutrition through umbilical cord which is attached to placenta, as term approaches infarcts appears at maternal site which hamper free flow of oxygen causing anoxia to the foetus and thus causes labour initiation<sup>18</sup>. In other words attachments situated between rasvahanadi, placenta and maternal body or uterus detaches, which initiate labour. It can also be considered that placenta release CRH (cortico releasing harmone), which enhance fetal cortisol which in turn initiate myometrial contractility, indirectly by initiating protaglandin synthesis<sup>19</sup> which ultimately leads to parturition.

- ♦ *Garbhavasa vairagya* (indifference of the foetus from intrauterine stay) is the reason for the detachment of foetus from the mother, is quoted by sage *Harita*<sup>20</sup>.
- ♦ Garbha sampurnata i.e. due to full maturity of the foetus, the Garbha detaches from the mother is explained by sage Bhela<sup>21</sup>.
- According to modern science it could be explained as the mature foetus is the source of initial signal for parturition. At term fetal adrenal glands weighs as those in adults and are similar in size to the adjacent foetal kidney, significant amount of cortisol is not present in foetal glands until last trimester. Foetal cortisol increases during the last weeks of pregnancy, in the same period the dehydroepiandrosterone sulphate (DHEA-S) level also increase maternal estrogens particularly estriol which help initiating labour<sup>22</sup>.
- ➤ Foetal lung surfactant: Surfactant protein- A (SPA) is required for lung maturation, its level increases in amniotic fluid at term in women. Pulmonary surfactant and components of surfactants such as platelet activation factor when secreted in human amniotic fluid have been reported to stimulate prostaglandin synthesis PGE2 and uterine cotractality<sup>23</sup>.
- ➤ SP-A concentration in amniotic fluid activates macrophages to migrate in to myometrium and induce a transcription factor nuclear factor Kb

(Condon and coworkers 2004). This activates inflammatory response genes in myometrium which in turn promote uterine cotractality $^{23}$ 

- ➤ Some foetal anamolies such as brain anamolies can delay parturition. An anencecphalic foetus that was prolonged to 374 days or 53 weeks has been reported by Malpass in 1933. He concluded the association between anencephaly was attributed to anamolous fetal brain-pituitary-adrenal glands.
- So it can be said that immaturation or *Asampurna* gatratva can be the cause of delay as said in text that fully matured foetus causes parturition.

#### **Duration of Labour**

In *Ayurveda*, the duration of labour is not clearly mentioned though the deleterious effects and methods of treatment of *Vilambita Prasava* (prolonged labour) are available. But, in *Vandhya Kalpadrima*, the duration of labour has been mentioned as four to five *Praharas* (i.e.12-15 hours).

# Intra Uterine Situation of *Garbha* (Foetus) During *Prasava*

- ➤ The foetus stays in the uterus with all its body parts fully flexed and facing towards the back of the mother and head upwards.
- Vagbhata senior also tells as like Acharya Charak and also added that foetus keeps its both joined together over its forehead
- At the onset of labour the head of foetus gets turned and then is expelled through the vaginal passage, this is normalcy, other situation are abnormal.
- According to modern science also foetus remains in unstable lie but as it proceeds term the lie become stable and normally presents as longitudinal lie with cephalic presentation as absolute majority i.e. in 96.5% of cases.
- According to Acharya Vagbhata-I after delivery of foetus Apara (placenta) getting detached from Matru hridya comes out<sup>27</sup>.
- ➤ *Bhela* says that foetal part positioned in front (at the pelvic brim) delivers first *Punervasu Atreya* opines that head being heaviest comes first<sup>28</sup>.

# Mechanism of labour

In *Ayurveda*, though the steps in mechanism of labour are not clearly mentioned, the scattered references give some idea about these steps. Here, it has been tried to correlate these stages with the steps mentioned in modern medicine.

## **Stages of Labour**

On the basis of clinical features, the different stages of labour mentioned in *Ayurveda* can be explained in the following way.

# 1. Prajayini stage<sup>29</sup>

Women in this stage feel laxity of *Kukshi* release of bonds of *Hridya* pain in thighs. *Bhavprakash* has termed this stage as *Prasavotsuka*.<sup>30</sup>

The clinical features of *Prajayini* stage are

- ♦ Kukshi Sithilata (laxity of Kukshi)
- Hridaya Bandhana Mukti (release of bond of Hridya)
- ♦ *Jaghana Sula* (pain in thighs)

The same has been expressed by *Bhavamishra* under the stage of "*Prasavotsuka*" (eager to deliver).

There is no structural attachment between maternal *Hridaya* and *Garbha*. As the foetus descends down, the mother feels relief from pressure of heart which is termed as *Hridayabandhana mukti*. This relief of compression results in laxity of *Kukshi*. As, it descends further down, the flanks become full and so, she expresses pain in flanks. In modern science following symptoms are observed as Lightening due to sinking of presenting part.

# 2. Prajanana Kalabhimata stage 31

When the woman is likely to deliver shortly it is said as *Prajanana Kalabhimata*, following features are present at this stage:

- Gatra Klamata
- Mukha Glani
- Akshi Sithilata
- Vaksha Bandhana Mukti
- Avasramsanam in Kukshi
- ♦ Adhogurutvam
- Vankshana-Vasti-Kati-Kukshi-Parsva and Prista Sula
- ♦ Yoneh Prasravanam
- Anannabhilasha

The relief of bonds of chest, *Avasramsana* of *Kukshi* and *Adhogurutva* are the symptoms which appear prior to labour. These resemble the symptoms of *Prajayini* (pre-labour stage). The rest of the symptoms resemble the symptoms of first stage of labour according to modern medicine.

Vagbhata, under the heading of "Asanna Prasava" has added few more symptoms to the above. They are Nisthivika (tendency to spit repeatedly), Atipravritti of Mootra and Pureesha, Toda, Bheda, Sula and Sphurana of Yoni<sup>32</sup>.

Acharya Kashyapa has mentioned the same features as others. He has added dilatation of *Yoni* as a sign<sup>33</sup>. As, the labour progresses, the foetus causes pressure on bladder and rectum which leads to increased frequency of micturition and defecation. Subsequently, the labour pains (*Avi*) starts and the *Garbhodaka* (amniotic fluid) flows out.

# 3. Upasthita Prasava stage34

In this stage, severe pain exists throughout *Kati and Prishta*, excretion of *Mootra* and *Pureesha* increases and discharge of *Sleshma* from *Yonimukha* occur. As per modern science, this is the end of first stage and starting of second stage of labour, presence of show, existence of true labour pain and dilatation of rectum coincide with the above citations.

## 4. Garbha Parivartana Stage<sup>35</sup>

When the foetus descends further or is going to be expelled (*Parivartita*) it leaves *Hridya*, enters or descends in lower abdomen, catches or stays at the region of neck of bladder and the frequency and duration of labour pains increases. *Acharya Kashapa* had added languor, feeling of severe compression and tearing pain in vagina. In this context it refers to internal rotation occurring in pelvis after descent and exaggerated flexion. Internal rotation of vertex fits better in the word *Parivartana*. *Acharya Bhela* has included discharges per vagina in clinical features.

## Effect of Aavi on Prasava36

The woman having normally situated foetus, dilatation of *Aparamukha* (cervix uteri) and presence of *Aavi* (normal uterine contractions during labour i.e. contraction, relaxation and retraction) along with the *Grahishula* (seizing pain arising due to contraction of abdominal wall i.e. secondary force of labour) is very much ready to deliver the fetus.

In spite of existence of very severe *Grahishula* the woman does not get early delivery (strong *Grahishula* can not affect labour, presence of *aavi* is must). If the *Aavis* are delayed the foetus is troubled (weak uterine contractions can delay the labour resulting in asphyxia to foetus).

The series of movements that occur on the head of the foetus in the process of adaptation, during its journey through pelvis is said to be mechanism of labour. It is well documented in *Ayurvedic* text by *Acharya Kashypa* in *Jatisutriya adhyaya*. The women having normally situated foetus, dilatation of *Aparamukh* (cervix uteri) and presence of *Avi* (normal uterine contractions during labour i.e. contraction, relaxation, and retraction along with *Grahisula* (seizing

like pain arising due to contraction of abdominal wall etc., i.e. secondary force of labour s very much ready to deliver the foetus. Inspite of existence of very severe *Grahisula* the women does not get early delivery (strongest *Grahisula* cannot effect labour, presence of *avi* is must). If the avis are delayed the foetus is troubled (weak uterine contractions can delay the labour resulting in asphyxia to the foetus). In nut shell it can be compared as follows

Avyavrate striya garbhe: Decrease in fundal height

*Vivrate cha aparamukhe*: Dilatation of cervix increases

*Grahisuvartmanasu*: Intensity of pain increases duration & interval decreases

## Visikhantara Pravesanam

Dalhana defines Visikhantara as Apatyapath<sup>37.</sup> No sooner the foetus descends down, the release of Nadibandhana occurs and Sroni, Vankshana, Vasti sirah sula starts. As, it descends furthermore, it enters the Apatyapatha. At this stage, woman has to be instructed to do Pravahana (bearing down) strongly. This stage can be taken as second stage of labour as per the modern science.

## 5. Apara Patanam

Though expulsion of placenta has been mentioned in all the classics, however, distinct description has been given only by *Acharya Charaka*, *Vagbhata and Kashyapa*.

Acharya Charaka says that after delivery of foetus, one of the attendants must inspect carefully that whether placenta is expelled or not<sup>38</sup>.

*Vagbhata-I* defining normal labour says that delivery of foetus in vertex presentation followed by expulsion of placenta is normalcy (*Prakriti*)<sup>39</sup>.

Acharya Kashyapa says that without expulsion of placenta the woman cannot be termed as puerperal women<sup>40</sup>. So the process of labour is completed after the expulsion of placenta only, the women is called *Sutika* and treated with *Sutika* paricharya.

On the basis of clinical features these different stages of labour can be explained as follows  $^{41}$ .

Table 2: Comparison of different stages of labour

S. No.	Name given in classics	Author	Probable stage of labour
1.	Prajayini or Prasavotsuka	Sushruta and Bhavprakasha	Prelabour stage or just beginning of
			1ststage or Premonitory stage
2.	Prajanankalabhimata	Charaka, Vagbhata, Kashyapa	1st stage of labour.
	or Aasanaprasava		
3.	Upasthita Prasava	Sushruta and Bhavaprakasha	End of 1st stage or beginning of 2nd stage
4.	Prajanishyaman	Charaka, Vagbhata and	2 <sup>nd</sup> stage of labour
	Parivartita Garbha	Kashyapa	
5.	Apara Patana, Prajata,	All Acharyas	3 <sup>rd</sup> stage of labour
	Prasuta, Sutika		

Table 3: Correlation of Mechanism of Labour in Ayurvedic and Modern Views<sup>42</sup>

S. No.	Steps in modern medicine	Stages in Ayurveda	
1.	Engagement	Prajayini Stage (C/F Jaghana Sula)	
2.	Descent	Prajayini Stage	
		(C/F Hridaya Bandhana Vimukti	
		Prajanana Kalabhimata stage	
		(C/F Vaksha-Bandhana Mukti)	
3.	Flexion	Visikhantara Pravesam Sankocha	
4.	Internal rotation	Parivartana	

Note: C/F means clinical feature

## **DISCUSSION**

So after this elaboration of *Prasav prakriyas* (labour), it can be said that our *Acharya* had described a scientific description about the *Prakriya*. The exact knowledge gives the physician an idea about the correct management during the process of parturition. A brief regimen for each and every step (*Prasava paricharya*) is also explained in texts which help to prevent any untoward phenomenon during labour. By having the exact knowledge of process and mechanism of labour and following the *Prasava paricharya* complications can be prevented.

#### CONCLUSION

- So here it is concluded that by having the correct knowledge about the stages of labour exact treatment and proper intervention can help to get healthy baby.
- Proper knowledge can prevent maternal mortality and morbidity by correct intervention and medication.
- It is also concluded that concept of Ayurveda can be proved in modern aspects as a very scientific description is provided by the Acharayas.

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