

**AN APPRAISAL ON AYURVEDA PERCEPTIONS OF FETAL DEVELOPMENT – A LITERARY REVIEW**

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**ABSTRACT**

Fetal development is the most crucial phase of life. It is the foundation for entire lifespan. Ayurveda is the holistic science and Ayurveda principles have great emphasis over healthy progeny. Many new investigation tools have evolved due to tremendous development in health science so, it has become very easy to get idea about fetal development but in ancient era there were no such techniques; still the description found in Ayurveda treatise is very scientific and somewhat similar to modern science. Acharyas have given a very detailed explanation of per month fetal development. physical and mental both the aspects are described in a scientific manner. So, here an effort has been done to write about Ayurveda perceptions of fetal development.

**KEYWORDS:** Ayurveda, fetal development, healthy progeny.

**INTRODUCTION**

Ayurvedic embryology explains month wise foetal development along with the antenatal care of the pregnant woman which is found to be true on the basis of modern science. By adopting various methods described

in Ayurvedic embryology, smooth pregnancy can be ensured. Similarly good health can be given to mother and child. Monthwise fetal development by Ayurveda Acharyas is described below in detail.

**Table 1: First formed body part in foetus as per debates.**

Sr. no.	First body part developed	Samhita		
		Charak	Sushrut	Bhel
1.	Head	Kumarshira Bharadvaj	Shounak	Bharadvaj
2.	Heart	Kankayan	Krutvirya	Parashar
3.	Umbilicus	Bhadrakapya		Khandakapya
4.	Pakvashaya	Bhadrashounak		Shounak
5.	Extremities	Badish	Markandey	Badish
6.	Indriya			
7.	Trunk		Gautam	
8.	Eyes			Kashyap
9.	All Parts Together	Dhanvantari And Atrey Punarvasu	Dhanvantari	Atrey Punarvasu

**First month**

According to Acharya Charaka, 'Atma' possessing concept all the qualities gets mixed up or vitiated by the *bhutas* to attain the shape resembling the '*shleshma*', in which all the body parts are present but not visible.<sup>[1]</sup> According to Sushruta the Embryo is in the shape of '*Kalala*'.<sup>[2]</sup> According to Vagbhata the description is same as done by Sushruta. Harita describes that during

first day it attains the form of '*Kalala*' after union with *Shukra*. In ten days *Shonita* (ova + sperm) becomes '*Budbuda*'. In 15 days it becomes *Ghana*'. In 20 days a mass of flesh and in 25 days it becomes more conspicuous.<sup>[3]</sup> According to Bhava Prakasha the *Shukra* and *Artava* deposited in the uterus remain in their original liquid state during 1st month.<sup>[4]</sup>

### Second month

According to Acharya Charaka the Embryo becomes a solid mass during the second month. If this solid mass has oval (*pinda*) shape the child would be a male, if elongated (*peshi*) the female and with rounded (*arbuda*) mass the hermaphrodite.<sup>[5]</sup> Sushruta opines that the accumulated *mahabhutas* get processed by the combined action of *Sleshma*, *Pitta* and *Vayu* and becomes solid.<sup>[6]</sup> The description of foetal development during second month in both Vagbhata and Bhava-prakash is almost the same as given in Sushruta. Harita, however, suggests that in 50 days buds of future parts in embryo come up in the second month.<sup>[7]</sup>

### Third month

According to Acharya Charaka during the third month all the *Indriyas* and minor body parts become apparent.<sup>[8]</sup> Sushruta is more specific in this regard and states that five buds, one for head and four for upper and lower extremities develop in the third month.<sup>[9]</sup> Ashtang Aangraha in this regard agrees with Sushruta with slight specification that all *Indriyas* and body parts develop simultaneously.<sup>[10]</sup> In Ashtang Hridaya it is said that in the third month with the development of head the embryo is capable of feeling sorrow and happiness.<sup>[11]</sup> Bhava Prakash and Charaka have the same opinion. Harita says that in this month, hands and legs grow. Acharya Kashyap describes that Embryo starts quivering, develops consciousness and can feel pain. Chakrapani mentions of development of body hair in the third month.<sup>[12]</sup>

Fourth month Charaka describes that in the fourth month various body parts become more observable and stability to the foetus comes in this month. According to Sushruta body parts become conspicuous. Manifestation of heart and consciousness associated with heart also occurs in the fourth month.<sup>[14]</sup> The opinion of Vagbhata is similar to Charaka. Whereas the description of growth in fourth month in Bhava Prakash is same as done by Sushruta. Kashyapa mentions the Stability of the foetus in this month.<sup>[15]</sup> According to Harita in 3 and 1/2 month head becomes stronger and in 4th month lanugo appear.<sup>[16]</sup>

### Fifth month

According to Charaka accumulation of flesh and blood in foetus is relatively more in fifth month.<sup>[17]</sup> Sushruta says 'Mana' becomes more enlightened. Ashtanga Sangrahaakar describes the accumulation of more flesh and blood and 'mana' become more enlightened.<sup>[18]</sup> According to Astanga Hridayakar consciousness developed in this month.<sup>[19]</sup> Bhava Prakash opines same as Sushruta. Kashyapa opinion is same as Charaka. Harita says that Foetus becomes capable to live independently in fifth month.<sup>[20]</sup>

### Sixth month

Acharya Charaka describes relatively more accumulation of energy and complexion.<sup>[21]</sup> Sushruta says more enlightenment of 'buddhi' occurs in sixth month.<sup>[22]</sup> Ashtanga Sangrahaakar describes development of hair, body hair, nails, bones, tendons and increase in energy and complexion in sixth month.<sup>[23]</sup> while Astanga Hridaya describes development of tendons, vessels, body hair, hair, skin, energy and complexion.<sup>[24]</sup> Opinion of Bhava Prakash is same as Sushruta. Acharya Kashyap says more development of energy, complexion and 'ojas' occurs in sixth month.<sup>[25]</sup> Harita describes Quivering of foetus.

### Seventh month

According to Charaka all the tissues of foetus (muscles, blood, bone etc.) get proper nourishment.<sup>[26]</sup> Sushruta says all the major and minor body parts are more visible.<sup>[27]</sup> According to Vagbhata all body parts are fully developed. Acharya Kashyapa says whole body gets completely associated with vata, pitta and kapha in seventh month.<sup>[28]</sup> Bhava Prakash opinion is same as Sushruta.

### Eighth month

The description of foetal growth in the eighth month given in Charaka, Vagbhata, Kashyapa and Bhavaprakash is more or less the same. According to them due to immaturity of foetus, the 'ojas' remains unstable. It moves from mother to foetus and from foetus to the mother through rasa carrying channels. Due to the transfer of 'ojas' mother and foetus become happy and dull alternatively. If delivery takes place the life becomes doubtful and they do not consider this month for delivery. According to Sushruta due to instability of 'ojas' child born in this month dies due to absence of 'ojas' and influence of 'Nairruta' portion.<sup>[29]</sup> According to Harita in this month '*pachakagni*' (digestive enzymes) starts functioning and in ninth month activities are more apparent.<sup>[30]</sup>

**Ninth month:** According to Acharya Charaka after 9th month it is time to deliver the foetus. Sushruta says the fully developed fetus is ready to deliver and normal time described for delivery is 9 month to 12 months.

Modern science has described fetal development which is tabulated in table no.1

**Table 1: Fetal development according to Modern Science.<sup>[31]</sup>**

Sr. No.	Intrauterine age	Development
1.	First month	As the fertilized egg grows, a water-tight sac forms around it, gradually filling with fluid. This is called the amniotic sac, and it helps cushion the growing embryo. The placenta also develops. baby is about 1/4 inch long
2.	Second month	baby's facial features continue to develop. Each ear begins as a little fold of skin at the side of the head. Tiny buds that eventually grow into arms and legs are forming. Fingers, toes and eyes are also forming. The neural tube (brain, spinal cord and other neural tissue of the central nervous system) is well formed. The digestive tract and sensory organs begin to develop. Bone starts to replace cartilage. At about 6 weeks, baby's heart beat can usually be detected.
3.	Third month	Baby's arms, hands, fingers, feet, and toes are fully formed baby can open and close its fists and mouth. Fingernails and toenails are beginning to develop and the external ears are formed. The beginnings of teeth are forming. Baby's reproductive organs also develop, but the baby's gender is difficult to distinguish on ultrasound. By the end of the third month, baby is fully formed. All the organs and extremities are present and will continue to mature in order to become functional. The circulatory and urinary systems are working and the liver produces bile. At the end of the third month, baby is about 4 inches long and weighs about 1 ounce.
4.	Fourth month	Baby's heartbeat may now be audible through an instrument called a Doppler. The fingers and toes are well-defined. Eyelids, eyebrows, eyelashes, nails, and hair are formed. Teeth and bones become denser. Baby can even suck his or her thumb, yawn, stretch, and make faces. The nervous system is starting to function. The reproductive organs and genitalia are now fully developed. Baby is about 6 inches long and weighs about 4 ounces.
5.	Fifth month	Quickening starts. Hair begins to grow on baby's head. Baby's shoulders, back, and temples are covered by a soft fine hair called lanugo. This hair protects your baby and is usually shed at the end of the baby's first week of life. The baby's skin is covered with a whitish coating called vernix caseosa. This "cheesy" substance is thought to protect baby's skin from the long exposure to the amniotic fluid. This coating is shed just before birth. By the end of the fifth month, baby is about 10 inches long and weighs from 1/2 to 1 pound.
6.	Six month	Baby's skin is reddish in color, wrinkled, and veins are visible through the baby's translucent skin. Baby's finger and toe prints are visible. The eyelids begin to part and the eyes open. Baby responds to sounds by moving or increasing the pulse. By the end of the sixth month, baby is about 12 inches long and weighs about 2 pounds.
7.	Seventh month	Baby's hearing is fully developed. He or she changes position frequently and responds to stimuli, including sound, pain, and light. The amniotic fluid begins to diminish. At the end of the seventh month, baby is about 14 inches long and weighs from 2 to 4 pounds.
8.	Eighth month	Baby will continue to mature and develop reserves of body fat. Baby's brain is developing rapidly at this time, and your baby can see and hear. Most internal systems are well developed, but the lungs may still be immature. Baby is about 18 inches long and weighs as much as 5 pounds.
9.	Ninth month	Baby continues to grow and mature: the lungs are nearly fully developed baby's reflexes are coordinated so he or she can blink, close the eyes, turn the head, grasp firmly, and respond to sounds, light, and touch.

**Dauhrivadavastha-** It is the phase that every pregnant mother experiences and has its own importance. During this period, fetal heart is developed and it expresses the feelings through mother. It is advised not to ignore these

cravings because it can hamper the natural fetal development. *Dauhrida avastha* period described by different Acharyas is mentioned below in Table no. 3.

**Table 3: Dauhrida Avastha Kaal according to different Acharyas.**

Sr. No.	Acharya	Kaal
1	Charaka	In third month of pregnancy
2	Sushruta	In fourth month of pregnancy
3	Vagbhata	3 Paksha (45days) to fifth month of pregnancy
4	Kashyapa	In third month of pregnancy

**CONCLUSION**

From above review, it can be concluded that, at ancient time, though the technology was not so developed, Ayurveda Acharyas have studied embryology in detail. There was a trend of conferences, where fetal development was discussed in very scientific manner. Ayurveda texts not only focus on physical development but psychological and mental development also. Ayurveda concepts should be studied and promoted to rule out and treat the genetic, hereditary and other diseases.

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