

# Garbha Masanumasik Vriddhi (Month-wise Fetal Development) and Its Anatomical Correlation: A Narrative Review of Ayurvedic and Modern Embryological Perspectives

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**Abstract**—The concept of Garbha Vriddhi (fetal growth and development) occupies a significant place in Ayurvedic literature. Classical texts describe month-wise fetal development (Masanumasik Vriddhi) with remarkable detail, emphasizing the sequential formation of organs and physiological functions. Modern embryology, through advances in anatomy and developmental biology, provides scientific insights into fetal morphogenesis. This review aims to analyze the month-wise description of fetal development in Ayurveda and correlate it with contemporary anatomical and embryological findings. A comprehensive literature review was conducted using classical Ayurvedic texts, including the Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, along with standard embryology references. The review reveals notable similarities between Ayurvedic observations and modern developmental milestones, highlighting the scientific relevance of traditional knowledge.

**Index Terms**—Garbha, Masanumasik Vriddhi, Fetal Development, Embryology, Anatomy, Ayurveda, Garbha harira.

## I. INTRODUCTION

The development of a fetus within the maternal womb represents one of the most complex biological processes. Ayurveda provides detailed descriptions of embryogenesis under Garbha harira, explaining the gradual transformation of the fertilized ovum into a fully developed infant. Ancient Ayurvedic scholars observed month-wise developmental changes and documented these findings as MasanumasikGarbha Vriddhi.

Modern embryology describes fetal growth through cellular differentiation, organogenesis, and maturation. Comparative evaluation of Ayurvedic descriptions with contemporary anatomical knowledge may offer valuable insights into the historical understanding of human development.

## II. AIM

To review the concept of MasanumasikGarbha Vriddhi described in Ayurveda and establish its anatomical relationship with modern embryological development.

## III. OBJECTIVES

1. To describe month-wise fetal development according to Ayurveda.
2. To correlate Ayurvedic observations with modern embryological milestones.
3. To analyze the anatomical significance of Garbha Vriddhi.

## IV. MATERIALS AND METHODS

This narrative review was prepared by analyzing classical Ayurvedic texts and contemporary embryology literature. Relevant information regarding month-wise fetal development was collected, interpreted, and compared with modern anatomical findings.

## V. CONCEPT OF GARBHA (EMBRYO) FORMATION

According to Sushruta Samhita, Garbha (embryo) is formed through the union of Shukra (sperm), Artava (ovum), and Atma (consciousness). This combination initiates the process of fetal development and represents the integration of physical and spiritual components of life. Ayurveda considers conception not only a biological event but also a manifestation of consciousness entering the developing body.

The growth and development of the embryo are further explained through the concept of Panchamahabhuta (five fundamental elements). Prithvi provides structure, Apas offers nourishment and cohesion, Tejas regulates transformation and metabolism, Vayu governs movement and growth, and Akasha creates space for development. Together, these elements support the formation and maturation of the fetus, reflecting Ayurveda's holistic understanding of embryogenesis.

## VI. STAGES OF FOETAL DEVELOPMENT

Sushruta Samhita describes fetal growth through the concept of Masanumasika Garbha Vriddhi (month-wise fetal development). During the first month, the embryo exists as a semi-fluid mass (Kalala). In the second and third months, the basic body form, including the head and limb buds, begins to develop. From the third to fifth months, major organs and body parts (Anga-Pratyanga) become differentiated, while sensory and mental faculties gradually mature. By the sixth month, the manifestation of Chetana (consciousness) is described, indicating the development of sensory and neurological functions.

Ayurveda identifies several factors influencing fetal growth, known as Garbha Vriddhi Karana Bhavas, including the quality of parental reproductive elements (Beeja), maternal nutrition (Ahara), lifestyle (Vihara), seasonal factors (Kala), and the mother's psychological state. Fetal nourishment is explained through the concepts of Rasa and Garbha Oshana, which describe the transfer of nutrients from mother to fetus. This holistic approach integrates physical, mental, and spiritual aspects of prenatal development.

## VII. DEVELOPMENT OF SPECIFIC ORGANS

According to Ayurvedic embryology, organ development occurs in a sequential manner. The head (Shiras) is considered the first major structure to form, followed by the heart (Hridaya), umbilical structures (Nabhi), limbs, and other body parts. The development of organs is governed by the coordinated action of Tridosha and Panchamahabhuta, which contribute to both structural formation and functional maturation.

The sensory organs and faculties (Indriyas) develop gradually between the fourth and sixth months. Ayurveda emphasizes that their growth is influenced not only by physical development but also by the mother's emotional and mental state. Thus, fetal development is viewed as a comprehensive process involving anatomical, physiological, psychological, and spiritual dimensions, reflecting the holistic perspective of Ayurvedic embryology.

### Overview of Modern Embryology

Modern embryology explains the development of a human being from fertilization to fetal maturation. The process begins when the sperm and ovum unite to form a zygote, which undergoes repeated cell divisions to become a morula and then a blastocyst. The blastocyst implants in the uterine wall, establishing the foundation for further growth and nourishment.

Following implantation, gastrulation leads to the formation of three primary germ layers: ectoderm, mesoderm, and endoderm. These layers give rise to all tissues and organs of the body. The period between the third and eighth weeks of gestation, known as organogenesis, is characterized by the formation of major organ systems and body structures.

Embryonic development is regulated by complex interactions among genes, cellular signaling pathways, and molecular mechanisms that ensure proper growth and differentiation. Modern embryology provides a scientific understanding of prenatal development and offers interesting parallels to the systematic descriptions of fetal growth found in classical Ayurvedic literature.

### Correlation of Ayurvedic Monthly Descriptions with Modern Embryology

Sushruta Samhita, particularly in the Sharira Sthana, describes fetal growth through the concept of Māsānumāsika Garbha Vikas (month-wise fetal

development). Although expressed using Ayurvedic terminology and philosophical concepts, these descriptions follow a chronological pattern that closely corresponds with several stages recognized in modern embryology. The sequential account of fetal growth, organ formation, and functional maturation demonstrates notable similarities with contemporary understanding of embryonic and fetal development.

MasanumasikGarbha Vriddhi and Anatomical Correlation

#### 1. First Month (Prathama Masa)

तत्र प्रथमे मासि कललं जायते।

The embryo exists as a semi-fluid mass (Kalala), without distinct body parts.

Anatomical Correlation - Modern embryology describes implantation, gastrulation, and formation of the trilaminar germ disc during the first four weeks. Major organ systems are not yet distinguishable.

#### 2. Second Month (Dvitiya Masa)

द्वितीये शीतोष्मानिलैरभिप्रपच्यमानानां महाभूतानां सङ्घातो घनः सञ्जायते, यदि पिण्डः पुमान्, स्त्री चेत् पेशी, नपुंसकं चेदर्बुदमिति

The embryo becomes compact and begins assuming a definite shape. Different forms such as Pinda, Peshi, or Arbuda are mentioned.

Anatomical Correlation -nWeeks 5-8 involve organogenesis. Limb buds appear, facial structures begin developing, and primitive organ systems become recognizable.

#### 3. Third Month (Tritiya Masa)

तृतीये हस्तपादशिरसां पञ्चपिण्डका निर्वर्तन्तेऽङ्गप्रत्यङ्गविभागश्च सूक्ष्मो भवति

Formation of hands, feet, head, and other body parts becomes evident.

Anatomical Correlation - By the end of the first trimester, limbs are well formed, digits separate, and major external anatomical features become visible.

#### 4. Fourth Month (Chaturtha Masa)

चतुर्थे सर्वाङ्गप्रत्यङ्गविभागः प्रव्यक्तो भवति, गर्भहृदयप्रव्यक्तिभावाच्चेतनाधातुरभिव्यक्तो भवति

The fetal heart becomes prominent and consciousness (Chetana) is believed to manifest.

Anatomical Correlation - The fetal heart is fully functional and circulatory activity is established. Neural development progresses rapidly.

#### 5. Fifth Month (Panchama Masa)

पञ्चमे मनः प्रतिबुद्धतरं भवति

Mental faculties (Manas) become more active and growth accelerates.

Anatomical Correlation - Rapid brain development occurs. Neuromuscular coordination improves and fetal movements increase.

#### 6. Sixth Month (Shashtha Masa)

षष्ठे बुद्धिः

Development of intellect (Buddhi) and physical strength is emphasized.

Anatomical Correlation - Cerebral cortex development advances. Muscle mass increases and sensory organs become functional.

#### 7. Seventh Month (Saptama Masa)

सप्तमे सर्वाङ्गप्रत्यङ्गविभागः प्रव्यक्ततरः

The fetus becomes almost complete and potentially viable.

Anatomical Correlation - Most organ systems are developed. Although premature, survival outside the uterus becomes possible with medical support.

#### 8. Eighth Month (Ashtama Masa)

अष्टमेऽस्थिरीभवत्योजः

Ojas is considered unstable and moves between mother and fetus.

Anatomical Correlation - Rapid maturation of lungs, immune mechanisms, and metabolic systems occurs.

#### 9. Ninth Month (Navama Masa)

नवमदशमैकादशद्वादशानामन्यतमस्मिञ्जायते

The fetus attains complete development and prepares for birth.

Anatomical Correlation - All organ systems are sufficiently mature for extrauterine life. The fetus assumes the birth position.

### VIII. COMPARATIVE ANALYSIS

Ayurvedic Month	Major Description	Modern Anatomical Correlation
1st	Kalala stage	Germ disc formation
2nd	Shape formation	Organogenesis
3rd	Limb development	External anatomy visible
4th	Heart prominence	Functional cardiovascular system

5th	Mental development	Brain growth and fetal movement
6th	Buddhi development	Cortical maturation
7th	Complete fetus	Viability stage
8th	Ojas instability	Organ maturation
9th	Full development	Term fetus

## IX. DISCUSSION

Ayurvedic descriptions of Masanumasik Garbha Vriddhi demonstrate a systematic understanding of fetal growth. Although classical authors employed philosophical terminology, many observations show remarkable parallels with modern embryological events. Concepts such as organ differentiation, cardiac activity, neurological maturation, and fetal viability correspond closely to contemporary developmental milestones.

The concept of Ojas may be interpreted as representing physiological vitality, immune competence, and systemic maturation necessary for survival after birth. These correlations suggest that Ayurvedic scholars possessed sophisticated observational knowledge regarding prenatal development.

## X. CONCLUSION

Masanumasik Garbha Vriddhi provides a comprehensive framework for understanding fetal growth from an Ayurvedic perspective. Comparison with modern embryology reveals significant anatomical and developmental correlations. Integrating traditional concepts with contemporary scientific knowledge may enrich research in developmental anatomy, prenatal care, and Ayurvedic embryology.

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