WJPMR, 2026, 12(2), 86-92

Review Article

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Impact Factor: 6.842

ISSN (O): 2455-3301

ISSN (P): 3051-2557

A COMPARATIVE ANALYSIS OF AYURVEDIC MONTH-WISE FETAL GROWTH AND IT'S CLINICAL SIGNIFICANCE

[*1]Dr. Pooja Fulchand Rokade, [2]Dr. Shrikant B. Darokar, [3]Rachana Sharir

PMT'S Ayurved College, Shevgaon.

***Corresponding Author: Dr. Pooja Fulchand Rokade**

PMT'S Ayurved College, Shevgaon. **DOI:** https://doi.org/10.5281/zenodo.18428628

How to cite this Article: [*1]Dr. Pooja Fulchand Rokade, [2]Dr. Shrikant B. Darokar, [3]Rachana Sharir. (2026). A Comparative Analysis of Ayurvedic Month-Wise Fetal Growth and It's Clinical Significance. World Journal of Pharmaceutical and Medical Research, 12(2), 86–92.

This work is licensed under Creative Commons Attribution 4.0 International license.

Article Received on 18/12/2025 **Article Revised on 07/01/2026** **Article Published on 01/02/2026**

INTRODUCTION

The presence of a foetus in the womb has been recognized since ancient times. Throughout history, societies have made efforts to safeguard both pregnant women and the developing foetus. However, the detailed understanding of how a foetus develops from a single cell (the zygote) has evolved gradually over time. Renowned Ayurvedic scholars such as Charaka, Sushruta**,** and the Vagbhatas have described foetal development with remarkable clarity. Today, embryology, a key branch of anatomy, has reached an advanced stage with comprehensive knowledge of every developmental process. Yet, the concepts articulated by these ancient Ayurvedic authorities many centuries ago show striking parallels with the principles of modern embryology.

Each year, an estimated 295,000 newborns worldwide die within the first 28 days of life due to congenital anomalies. These conditions can also lead to long-term disabilities, creating substantial challenges for affected individuals, their families, healthcare systems, and society as a whole. The most serious and commonly occurring congenital anomalies include cardiac defects, neural tube defects, and Down syndrome. Many of these conditions are preventable—for example, through vaccination**,** adequate folic acid or iodine intake via food fortification or supplements, and proper antenatal care.[1]

In Ayurveda, this type of developmental disorder is referred to as Garbhaja Vikriti**.** Garbhaja Vikriti represents one of the most adverse outcomes of pregnancy, characterized by the birth of a malformed yet living fetus. Such abnormalities may result from inherent or acquired causes, including chromosomal abnormalities (Beejabhaga Vikriti), as well as exposure to certain medications, infections, or other harmful influences during pregnancy. The descriptions of Garbhaja Vikriti are dispersed throughout various Ayurvedic Samhitas.

The rising incidence of these congenital anomalies in the present era may be attributed to factors such as environmental changes, altered lifestyle patterns, dietary habits, and the use of new teratogenic drugs, along with increasing infections. Therefore, before understanding Garbhaja Vikriti in detail, it is essential to first study the concepts of Garbha (fetus) and the process of Garbha development**.**

Garbha

According to Acharya Charaka, the union of Shukra**,** Shonita, and Jeeva (Atma**)** within the uterus **(**Kukshi) is termed *Garbha*.[2] Maharshi Sushruta describes Garbha as the combined state of Shukra and Shonita within the Garbhashaya, blended with the Prakritis (the Mula-Prakriti and its eight categories) and their Vikaras (sixteen modifications), and animated by the presence of the Atma.[3]

Garbha Dharana

When unimpaired Shukra and unimpaired Shonita unite within a healthy uterus and a clean reproductive tract, *Garbha* is surely formed. This process is compared to the transformation of milk into curd, where milk abandons its previous state simply by the addition of a small amount of curd.[4]

Shukra

The substance responsible for initiating the formation of *Garbha* is referred to as Shukra by the learned scholars. It is composed of the four Mahabhutas—Vayu, Agni, Prithvi, and Ap—and originates from the six Rasas.[5]

Raja / Artava
In women, the menstrual blood—known as Raja or Artava—is derived from the Rasa Dhatu, from which Rakta is formed.[6]

Garbhadhana
According to Sushruta, the Teja **(**heat**)** generated during coitus stimulates Vayu, and under the combined influence of these two forces, Shukra is propelled into the Yoni. There it mixes with Artava, leading to the formation of Garbha.[7]

Process of Garbhadhana
During coitus, after Shukrachyuti (ejaculation)**,** Vata propels the Shukra through the Yoni and deposits it in the Garbhashaya. There, the Shukra combines with Shuddha Artava, resulting in the formation of Garbha.[8]

Garbha Sambhav Samagri
Acharya Sushruta states that four essential factors—Ritu (proper menstrual period), Kshetra (a healthy uterus), Ambu (Ahara Rasa), and Beeja (pure Shukra and Shonita)—constitute the fundamental requirements for the formation of *Garbha*. The process of fetal development in Ayurveda is referred to as Garbhavakranti.

In Ayurvedic science, the Shadbhavas play a significant role in the development of the fetus. As described by Acharya Charaka, Sushruta, and Kashyapa, these six contributing factors are Matrija**,** Pitrija**,** Atmaja**,** Satmyaja**,** Satvaja, and Rasaja.

According to Maharshi Charaka, these factors collectively support and regulate the growth of *Garbha* within the mother's womb.
- Satbhava Sampat
- Upasneha and Upasweda
- Ahara, Vihara of mother
- Kala Parinama
- Svabhava

Garbha Vridhi
The overall growth and development of the *Garbha* are influenced by the Triguna and the Panchamahabhutas. According to Ayurveda, the Rasa Dhatu is essential for fetal development. In addition to fulfilling the nutritional needs of the developing fetus, Rasa Dhatu also supports the mother's health and plays a crucial role in the formation of breast milk.

Garbha Poshana
The nourishment of the *Garbha* occurs through Ahara Rasa**.** The fetal Nabhi Nadi is connected to the mother's Rasavaha Nadi, through which the essence of food and vital nutrients are conveyed. Sustained by this nourishment, the fetus grows from the moment of conception until all its major and minor structures become fully developed. Throughout this period, the fetus receives its sustenance by the Upasneha mechanism, through the Rasavaha Dhamanis that extend obliquely throughout its body, ensuring its survival.

Masanumasik Garbha Vridhi (According to Brahattrayi)

Month	Charaka	Sushruta	Vagbhata (A.H. & A.S.)
1st Month	The Atma, possessing all qualities, mixes with the Dhatus (Bhutas) and takes a mucus-like (Sleshma**)** form, where all body parts exist but are indistinct.	Product of conception is in the form of Kalala (semi-liquid mass).	During the first seven days, the embryo becomes Kalala (A.H.). Throughout the first month, Kalala formation occurs (A.S.).
2nd Month	Shape determines sex. Fetus takes a compact form: Pinda**,** Peshi**,** or Arbuda. Pinda → male, Peshi → female, Arbuda → hermaphrodite (Napumsaka).	Tridoshas and Panchamahabhutas process Kalala into solid shape. Peshi → female, Arbuda → hermaphrodite.	Kalala develops into Ghana (solid), Peshi (muscle), or Arbuda, leading to male, female, or hermaphrodite respectively (A.H./A.S.).
3rd Month	All sense organs (Indriyas**)** and body parts (Anga-Upanga) start manifesting simultaneously.	Five buds appear: two for arms, two for legs, one for the head. Major and minor parts distinguishable.	Five branches develop: head, two arms, two legs. Pleasure and pain sensations begin (A.H.). Major and minor parts become visible (A.S.).
4th Month	Fetus stabilizes; pregnant woman feels heaviness.	Organs and sub-organs (Anga-Pratyanga) are demarcated. Chetana Dhatu manifests as heart develops. Mother called Dauhridini; ignoring desires may cause deformities in the child.	All major and minor parts clearly visible (A.H./A.S.). Fetus stable and fully formed.
5th Month	Mind (Manas) begins to develop in the fetus; external stimuli influence fetal responses.	Mind manifests; fetal movements become more coordinated and observable.	Mental and sensory functions develop; fetus can respond to maternal stimuli (A.H./A.S.).
6th	Intellect (Buddhi**)** starts to develop; fetal	Buddhi and Manas become	Fetus' mental and sensory

Month	movements more coordinated.	mature; fetus reacts to mother's emotions.	functions mature; Dhatus stabilize (A.H./A.S.).
7th Month	Dhatus grow; final development of organs occurs. Fetus moves lightly and shows sensory reactions.	Fetus nearly fully developed; survival requires further maturation.	Organs almost fully developed; fetus stable and distinct (A.H./A.S.).
8th Month	Ojas circulates irregularly in fetus; fetus still somewhat unstable; premature birth may lead to weak infant.	Ojas presence noted; fetal nutrition exchanged with mother; fetus fragile if born prematurely.	Ojas unstable; premature infants weaker; fetus continues maturation (A.H./A.S.).
9th Month	Ojas stabilizes; all organs fully mature; fetus ready for delivery.	Fetus fully developed, capable of independent life; delivery imminent.	Fetus fully mature physically and mentally; natural process of childbirth begins (A.H./A.S.).

According to Modern Science

The branch of science that deals with fetal development is called Embryology. In its broadest sense, embryology is the study of growth from the one-cell stage to the fully developed adult**.** It primarily focuses on prenatal life**,** which is generally divided into three periods: the ovum period**,** the embryonic period, and the fetal period. The total duration of development is approximately nine months, equivalent to 38 weeks or 266 days.

The first two months are particularly critical, as the unborn baby undergoes the embryonic period**,** during which all primitive organs and systems are formed and just begin to be recognizable as human. This process is referred to as general embryology. It also includes the development of accessory structures such as the chorion, amnion, umbilical cord, and placenta.

The subsequent growth and functional maturation of various organs and systems that occur during the fetal period are studied under systemic embryology. In brief, fetal development encompasses both the formation of the embryo and the subsequent maturation of its structures.

Month	Development
1st Month	Fertilized egg grows within the amniotic cavity. Placenta begins to develop (nutritive & excretory functions). Morula forms from the embryoblast, a multicellular mass with fluid, which transforms into a blastocyst. The blastocyst gives rise to the three germ layers: Endoderm, Ectoderm, and Mesoderm, which develop into all tissues.
2nd Month	At 6 weeks, the heart begins to separate into four chambers and beats ~150/min. Head is large relative to trunk. CNS, sensory organs, and digestive system start to develop. Neural pathways form via nerve cell branching. External genitalia begin forming at 9th week, though sex is not reliably determined until after 15 weeks.
3rd Month	Ossification centers appear. Fingers and toes differentiate. Skin, nails, and hair start developing. External genitalia begin to show variation.
4th Month	Eye movements begin, indicating midbrain maturation. Brain regions for complex thought (problem-solving, memory) start forming (~13th week). External genitalia show definitive male/female signs, allowing sex determination. Average maternal weight gain is ~11 kg, mostly in 2nd & 3rd trimesters (~5 kg each).
5th Month	Fetus becomes more active. Lanugo hair covers body; scalp hair develops. Cochlear function matures; fetus responds to sound. Brain areas specialized for smell, taste, hearing, vision, touch begin forming (~19th week). Maternal weight loss may occur due to fetal anabolism.
6th Month	Eyebrows and eyelashes become visible. Lung development nearly complete (terminal sacs absent, so survival unlikely if born). Neural pain system develops.
7th Month	Skin becomes red and covered with vernix caseosa. Fetus shows isolated eye blinking. Blood cell production begins in bone marrow (previously in liver and spleen).
8th Month	Brain becomes more complex. Bones continue to harden. Skin smoothens. Most internal systems fully developed. Hormonal changes may cause maternal mood swings, especially in first and third trimesters.
9th Month	Pregnancy reaches full term. Fetus swallows lanugo and vernix caseosa, forming meconium.

Garbha Vikriti

Garbha Vikriti refers to fetal abnormalities occurring during intrauterine life, arising due to defects in genes, the individual's past deeds (Atmakarma), the uterus, timing (Kala), or maternal factors such as diet and behavior. Vitiated Doshas during this period can lead to abnormalities in shape, complexion, and sense organs.[22]

According to Charaka, congenital abnormalities result from specific pathological conditions of Beeja (sperm

and ovum), Atmakarma (past life deeds), Ashaya (uterus), Kala (time factors), and Matuahar-Vihar (mother's diet and regimen). Beeja is further classified into Beeja Bhaga and Beeja Bhaga-Bayava, and abnormalities in these can be correlated with defects in chromosomes, genes, and DNA, leading to various forms of fetal morbidity.

Atmakarma encompasses the influence of past life deeds, which may predispose the fetus to vulnerability from environmental factors, thus contributing to congenital susceptibility.

According to Sushruta, birth defects arise due to Adibala and Janmabala**.** Adibala is caused by parental factors—Matrija (maternal) and Pitrija (paternal), whereas Janmabala results from Rasakrita (dietary indiscretions) and Dauhrida Bimanan (maternal behavioral faults).[23]

Vagbhata classifies these abnormalities as Sahaja (congenital/genetic) and Garbhaja (acquired during gestation).[24]

The Adibala and Sahaja defects correspond to genetic abnormalities**,** including autosomal dominant, autosomal recessive, and sex-linked dominant traits. In contrast, Janmabala and Garbhaja abnormalities arise from maternal diet and lifestyle factors during pregnancy.

Excessive unrighteous maternal behavior can lead to congenital malformations, where the fetus may exhibit forms such as Sarpa (snake), Vrischika (scorpion), Kusmanda (pumpkin), reflecting anomalies like conjoined twins (especially monozygotic, monochorionic, monoamniotic) and parasitic twins**,** including associated extra limbs.

Other deformities caused by Dauhrida Bimanan include conditions such as Kubja, Kudi, Pangu**,** Muka, and Minmin.[26]

Hereditary or genetic abnormalities in the fetus are determined by the condition of the Beeja (sperm or ovum), rather than the physical health of the parents. In other words, any defect in a specific portion of the Beeja will result in malformation of the body part that develops from that portion

Charaka describes conditions such as Sandi Yonivyapat, which arise due to Beejadosha.[27] Vandhyaa occurs due to defects in Beejabhaga, while Trinaputrika results from abnormalities in Beejabhagabayava and Beejabhaga.[28]

In modern terms, these correspond to conditions like trisomy, Klinefelter syndrome, and Down syndrome**.** Additionally, Acharya Bhavamishra describes Dosha Vishistha Ahara, which can lead to fetal abnormalities through the influence of maternal diet and other factors during conception.[29]

SN	Maternal Dosha-Vitiating Diet	Effect on Progeny
1	Vata Dosha	Dumb, hoarse, or nasal voice; lameness; dwarfism; abnormal number of body parts
2	Pitta Dosha	Baldness; premature graying of hair; absence of facial hair; tawny-colored skin, hair, and nails
3	Kapha Dosha	Kushta (leprosy), Kilas (skin disorder), and congenital presence of teeth

Acharya Charak has also described various types of Ahara which led to disease in foetus.[30]

SN	Maternal Consumption	Effect on Progeny
1	Wine	Thirsty, poor memory, unstable mind
2	Iguana, gravels, stone, or Shanermeha	Developmental anomalies (specifics not detailed)
3	Pork	Red eyes, obstructed respiration, rough body hair
4	Fish	Delayed eye closure, stiff eyes
5	Madhur Rasa (Sweet taste)	Diabetes (Prameha), dumb (Mook), or obesity (Atishoulya)
6	Amla Rasa (Sour taste)	Internal hemorrhage (Raktapitta), eye disorders (Akshiroga), skin disorders (Twakroga)
7	Lawan Rasa (Salty taste)	Wrinkles, grey hairs (Valita Palita), baldness (Khaliyta)
8	Katu Rasa (Pungent taste)	Weakness (Durbal), deficient semen (Alpashukra), infertility (Anapatya)
9	Tikta Rasa (Bitter taste)	Consumptive (Shosh), weak (Abala), underdeveloped (Anupchita)
10	Kashaya Rasa (Astringent taste)	Blackish skin color (Shyav Varna), abdominal distension (Anaha), constipation (Udavarta)

Shad Garbhakara Bhavas[31]

SN	Bhava	Features / Attributes
1	Matrija (Maternal)	Twak (skin), Rakta (blood), Mamsa (muscle), Meda (fat), Majja (bone marrow); Nabhi (navel), Hridayam (heart), Kloma (spleen), Yakrit (liver), Pleeha (spleen), Vrikka (kidney), Vasti (bladder), Purishadhanam (rectum), Amashaya (stomach), Pakvashaya (intestine), Uttara Guda (upper genital), Adhara Guda (lower genital), Kshudrantra, Sthulantra, Vapa, Vapavahanam
2	Pitrija (Paternal)	Sukra (sperm), Kesha (hair), Smasru (eyebrows), Nakha (nails), Loma (body hair), Danta (teeth), Asthi (bones), Sira (vessels), Snayu (ligaments/tendons), Dhamani (arteries)
3	Atmaja (Self / Soul)	Tasu/Taasu, Yonishu Utpatti (origin of reproductive organs), Ayu (lifespan), Atmagnanam (self-knowledge), Vignanam (wisdom), Prerana of Prana and Apana (vital forces), Swara (voice), Sukha/Duhkha (pleasure/pain), Ichcha/Dvesha (desire/aversion), Chetana (consciousness), Dhriti (fortitude), Buddhi (intellect), Smriti (memory), Ahankara (ego), Prayatna (effort), Kama (desire), Krodha (anger), Lobha (greed), Bhaya (fear), Harsha (joy), Dharmadharmaseelata, Upachaya, Mana (mind), Indriyas (senses), Akriti (body shape), Varna (complexion)
4	Satmyaja (Compatibility / Adaptation)	Arogyam (health), Analasyam (industriousness), Alolupatvam (appetite), Indriya Prasadanam (satisfaction of senses), Svara, Varna, Beeja Sampat, Praharsha (pleasure), Veeryam (strength), Balam (vigor), Medha (intelligence), Ayu (lifespan), Ojas, Prabha (radiance), Uthanam (growth), Santosham (contentment)
5	Rasaja (Nutritional / Rasa-related)	Sharirasya Abhinivritti (body vitality), Sharirasya Abhivriddhi (growth), Prananubandhata (life-force connection), Tripti (satisfaction), Pushti (nourishment), Utsaham (enthusiasm), Balam (strength), Varnam (complexion), Sthiti Hani (loss of stability), Aloulyam (weakness), Buddhi (intellect), Vritti (mental function)
6	Sattvaja (Psychological / Mental)	Bhakti (devotion), Sheelam (character), Saucham (purity), Dvesham (hatred), Smriti (memory), Moham (delusion), Tyagam (renunciation), Matsaryam (envy), Souryam (bravery), Bhayam (fear), Krodham (anger), Tandra (lethargy), Utsaham (enthusiasm), Taikshnyam (sharpness), Mardavam (gentleness), Gambhiryam (seriousness), Anavasthitatvam (steadiness)

Garbhaja Vikrati

Garbhaja Vikrati primarily arises due to disturbances in the Shadbhava (six fundamental factors) and the maternal diet during pregnancy. Ayurvedic texts describe Garbhini Paricharya—care and management of the pregnant woman—detailing measures for fetal well-being during each month of gestation.

Disruption of the Shadbhava at specific stages of fetal development can lead to abnormalities in the corresponding organs. During organogenesis, the fetus requires specialized nutrition to support proper formation of organs.

By the fourth month, the Garbhini is termed Dauhrida, and if her wishes and desires are neglected, it may result in the birth of a child with physical deformities such as paralysis, hump-backed posture, crooked arms, lameness, dwarfism, eye defects, or blindness**.**

Other forms of *Garbhaja Vikrati* include Pangu (paralysis), Sheershambu (hydrocephalus), **and** Hraday Roga (congenital heart disease)**,** among others.

DISCUSSION

At the beginning of embryological development, the origin of organs is not yet distinguishable, and during this period, only Garbh Sthapaka Dravyas (fetal-supportive substances) are required. Acharya Sushruta recommends Madhura (sweet), Sheeta (cool), and Drava Ahara (liquid diet) for the first three months of pregnancy.[32]

Different Acharyas have described Masanumashik Vikashkrama (month-wise fetal development) in detail, specifying diet (Ahara) and medications (Ausadh) according to the requirements of organogenesis. This structured approach helps in preventing fetal deformities.

For example

- In the first month, rituals like Punsavana Karma are performed for the birth of a healthy child.
- In the fourth month, during cardiac development, specific diets are prescribed, and certain herbal preparations like Lakshmana, Vatankur, Sahadeva, Vishvadeva, mixed with milk, are administered as nasal drops to promote the birth of a healthy offspring (Uttam Santana Prapti).
- In the fifth month, as mental faculties start developing, prevention of mental disorders becomes

possible. Selected Medhya Dravyas (intellect-promoting substances) can be given to the mother, ensuring they are safe for pregnancy and do not harm the fetus.

- Similarly, modern medical science recognizes that the development of the cerebrum is largely completed by the sixth month of intrauterine life, a period critical for intellectual development. During this stage, preventive measures can be considered to reduce the risk of cognitive or intelligence-related disorders, such as Alzheimer's disease or other mental impairments. Ayurvedic texts also recommend the use of Medhya Dravyas (intellect-promoting substances) during this month to support proper mental development.
- If delivery occurs in the seventh month, the child has a higher chance of survival, as most body parts are well-defined and adequately formed. For ensuring a healthy progeny and proper fetal development, six key factors outlined in Ayurveda must be considered.
- In Ayurveda, diagnosis is performed through Trividhapariksha, which includes Darshana (inspection), Sparshana (palpation and percussion), and Prashna (questioning). This forms the foundation for other diagnostic methods described in both Ayurveda and modern medicine. Ayurvedic diagnostic procedures are broadly classified into Rogi Pariksha (examination of the patient) and Roga Pariksha (examination of the disease).

According to Masanumashik (month-wise) maternal characteristics and risk factors, appropriate screening methods can be applied to monitor fetal development and detect potential anomalies. Ultrasound (USG) is commonly used:

- First-trimester screening focuses on detecting chromosomal abnormalities.
- Second-trimester screening, performed between 15th and 20th weeks, includes anomaly ultrasound to assess fetal growth parameters and identify any birth defects.

Additional diagnostic techniques include fetoscopy, radiography, Sparshanapariksha (palpation and percussion), and Prashnapariksha (questioning). In Ayurveda, detailed history-taking is considered a crucial part of screening, helping to identify pregnancies at high risk for congenital anomalies.

These evaluations are also valuable for carrier screening of common recessive disorders, such as thalassemia and sickle cell disease. Maternal factors—such as age, addictions, daily activities (Matrij Vihar), and diet (Ahara)—are significant contributors to the risk of congenital abnormalities.

Other Blood and Serum Analysis

First trimester blood test*: beta-hCG hormone and low levels of pregnancy associated plasma protein A (PAPP-A) are related with certain birth defects.*

2nd trimester blood test

Triple screen test/ quad screening*:* involves three specific substances: Alpha-fetoprotein (AFP), Human Chorionic Gonadotrophin (hCG), and Estriol, which are measured for assessment.

The **integrated test**, which combines first-trimester screening with second-trimester quad screening, can detect Down syndrome in the majority of cases. For a definitive diagnosis, **additional tests** such as amniocentesis, chorionic villus sampling, cell-free fetal DNA analysis, or further ultrasounds may be required.

CONCLUSION

The world is increasingly turning to Ayurveda for guidance on a healthier lifestyle and the prevention of congenital anomalies and hereditary disorders. A malformed yet living fetus represents one of the most challenging complications in pregnancy, impacting the lives of parents, society, and the nation. Despite significant government expenditure on child health, congenital disorders remain a concern.

Ayurveda emphasizes that the prevalence of congenital anomalies can be minimized through various approaches, including: maintaining a proper dietary regimen for the pregnant woman (Garbhini Paricharya), avoiding Garbhopghatkar Bhava, and controlling Tridosha vitiation. A healthy progeny can be achieved by adhering to Ayurvedic principles, particularly by understanding Garbha and its Masanumashik (month-wise) development.

Different fetal anomalies arise at specific stages of development, and early intervention through appropriate Ausadh (medications), Ahara (diet), and Vihara (daily routines) can prevent or manage them effectively. Following Masanumashik Garbhini Paricharya not only helps prevent fetal defects but also promotes normal delivery. Thus, proper knowledge of fetal development stages, combined with a healthy lifestyle and diet, is essential for preventing anatomical Garbhaja Vikritis, as emphasized in Ayurveda.

REFERENCES

1. https://www.who.int/news-room/fact-sheets/detail/congenital-anomalies
2. Shastri Kashi Nath, Gorkkha Nath Vidyotini Commentary on Charka Samhita, Varanashi, Chaukhamba Bharti Academy, 2009. Cha.Sharir 4/5 Page-867.
3. Ghanekar Dr. Bhaskar Govind. Ayurveda Rahusya Deepika Hindi commentary on Sushruta Samhita sharirSthanam. New Delhi, Mehar Chand

Lachmandas Publication 1998. Su. Sharir 5/2 page 156.
4. Shastri Kashi Nath, Gorkkha Nath Vidyotini Commentary on Charka Samhita, Varanashi, Chaukhamba Bharti Academy, 2009. Cha.Sharir 3/17 Page-865.
5. Shastri Kashi Nath, Gorkkha Nath Vidyotini Commentary on Charka Samhita, Varanashi, Chaukhamba Bharti Academy, 2009. Cha.Sharir 2/4 Page-837.
6. Shastri Ambikadutta, Sushruta Samhita Ayurveda Tattva Sandipika, 1st edition Varanasi: Chaukhambha Sanskrit Sansthan; 2104. Vol. I,. Su. Sutra 14/6 page 64.
7. Shastri Ambikadutta, Sushruta Samhita Ayurveda Tattva Sandipika, 1st edition Varanasi: Chaukhambha Sanskrit Sansthan; 2104. Vol. I,Su. Sharir 3/3 page 26.
8. Shastri Ambikadutta, Sushruta Samhita Ayurveda Tattva Sandipika, 1st edition Varanasi: Chaukhambha Sanskrit Sansthan; 2104. Vol. I, Su. Sharir 3/31-32 page 34-35 (dalhan commentery)
9. Shastri Kashi Nath, Gorkkha Nath Vidyotini Commentary on Charka Samhita, Varanashi, Chaukhamba Bharti Academy, 2009. Cha.Sharir 4/9-25 Page-869-877.
10. Shastri Ambikadutta, Sushruta Samhita Ayurveda Tattva Sandipika, 1st edition Varanasi: Chaukhambha Sanskrit Sansthan; 2104. Vol. I, Su. Sharir 3/ 15-28 page 31-33
11. Kaviraj Atridev Gupta, Astang hradaya, Vidyotini hindi Commentary, edition 2018 Chaukhamba prakashan 2018, astang hradaya sharir, 3/37-68 Page-235-239
12. Shri Satyapal Bhisagacharya, Vidyotini Commentary on Kashyap samhita of pt. Hemraj Sharma, sharir sthan, garbhavkranti sharir, vi. Sa. 2074, page- 102-104.
13. Mahatama nath dutta, Harit samhita English edition, h.c. das presscalcutta, 1906, Shashta Sthana Sharir Sthan -Prishta 19-22.
14. Mishra Dr Satendra Bhav prakash purv khanda, chaukambha surbharti prakashan varanashi, garbha prakaran, chapter-3/289-307 page- 187-199.
15. Health and pregnancy health centre, stages of pregnancy, WebMD, c2005-2017 (cited on 2017 Jan 4), available from http://www.m.webmd.com/baby/default.htm
16. Inderbir Singh, Human embryology, Tenth edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, 2015, page no 50-52.
17. Pregnancy-conception to 40 weeks, baby centre, c1997-2017(cited on 2017 Jan 10), available from http://www.babycentre.co.uk./pregnancy-calender
18. Cunningham; Leveno; Bloom, Williams Obstetrics Twenty fourth edition, McGrawHill education, New Delhi, 2014, chaper 7, page no.129-32.
19. D C Dutta, edited by Hiralal Konar, Textbook of obstetrics, Sevwnth edition, New Central Book Agency (P) Ltd, Kolkata, 2013, page no.50.
20. Charak, Charak samhita 'Vidyotini vyakhya' by Shastri; Chaturvedi, volume 1, Reprint edition, Chaukhamba Bharati Academy, Varanasi, 2005, page no.869-76.
21. Irritability during pregnancy, Health, Kathryn Hatter, livestrong.com, c 2017 (cited on 2017 February 11), available from www.livestrong.com
22. Shastri Kashi Nath, Gorkkha Nath Vidyotini Commentary on Charka Samhita, Varanashi, Chaukhamba Bharti Academy, 2009. Cha.Sharir 2/29 Page-846.
23. Shastri Ambikadutta, Sushruta Samhita Ayurveda Tattva Sandipika, 1st edition Varanasi: Chaukhambha Sanskrit Sansthan; 2104. Vol. I, Su. Sutra 24/ 5 page 130.
24. Tripathi R.D, AstangaSamgraha, Chowkhamba Sanskrit Pratisthan, Delhi, Sutra Sthana 22/3, page 409 25.
25. Ghanekar B.G, Susrut Samhita, MeharchandLashmandas publication, New Delhi, sarirasthana 2/50, page-55.
26. Ghanekar B.G, Susrut Samhita, MeharchandLashmandas publication, New Delhi, sarirasthana 2/53, page-55.
27. Shastri Kashi Nath, Gorkkha Nath Vidyotini Commentary on Charka Samhita, Varanashi, Chaukhamba Bharti Academy, 2009. Cha.chikitsa 30/34-35 Page-845.
28. Shastri Kashi Nath, Gorkkha Nath Vidyotini Commentary on Charka Samhita, Varanashi, Chaukhamba Bharti Academy, 2009. Cha.Sharir 4/30 Page-877.
29. Shri. Brahmashankara Mishra and Shri Rupalalji Vaishya, Bhavamishra. Bhavprakasha, Varanasi edited with Vidyotini, Chaukhambha Sanskrit Series, 2006, Purvakhanda 3/294: 87.
30. Prof. Priyavarat Sharma, Charak Samhita, Varanasi: Chaukhambha Orientalia; 2014 Vol-1, Page no. 468, Ch.Sharir 8/21.
31. Shastri K, Chaturvedi G, Charak Samhita, Vidyotini tika, 1st edition, Varanasi: Chaukhambha Bharti Academy; 2008, vol-1, page no.- 855.
32. Ch.sha.3/6 Dr Bhaskar Govind Ghanekar commentary by Sushruta Samhita sharir sthana, Sanskrit text with "Ayuervedarahasyadipika" Hindi, Meharch and Lachhmandas publications, Reprint-2012, chapter no.10, Page no- 248.