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Review of *Ayurveda* and Modern Perspectives on Congenital Anomalies or Anatomical Abnormalities

Prakarti Panwar[1], Mukesh Kumar[2], Rakesh Kumar Sharma[3]
[1, 2]*MD Scholar, P.G. Department of Rachana Sharir, PGIA, DSRRAU, Jodhpur, Rajasthan*
[3]*Associate Professor, P.G. Department of Rachana Sharir, PGIA, DSRRAU, Jodhpur, Rajasthan*

Abstract: ***Ayurveda is the fundamental science of medicine that covers all aspects of human life. It describes many diseases and classifies them into different categories based on their symptoms and origin. In this regard, Adibala Pravritta and Janmabala Pravritta are categorized under Garbhajanya vikriti, mainly arising from maternal or paternal problems and defects in progeny. The faulty diet and lifestyle of the mother are also considered responsible for congenital birth defects. Defects in Beeja & Beejabhaga play an important role in the pathogenesis of such diseases. Similar to Ayurveda, modern science also mentions structural anomalies and developmental issues like heart defects, spina bifida and club foot as common anatomical abnormalities. Ayurveda scholars mention various factors – Matrija, Pitrija, Aatmaja, Rasaja, Satmyaja and Sattvaja – as Shad Garbhkarabhavas that play a vital role in healthy progeny. Factors such as awful conduct, abnormalities in Shad Garbhkarabhavas and genetic predisposition trigger the pathogenesis of Garbhajanya vikriti.***
Keywords: Garbhajanya Vikriti, Matrija, Pitrija, Congenital Anomalies, Beeja, Beejabhaga.

I. INTRODUCTION

Ayurveda, an ancient system of Indian medicine, addresses many issues related to health, disease, disease treatment and disease prevention. In this regard, *Ayurveda* explains several principles and guidelines for healthy offspring and the birth of a healthy child. The six factors described as *Shad Garbhkarabhavas* play an important role in ensuring the health of the offspring and normal childbirth. Avoidance or defects in the factors *Matrija, Pitrija, Aatmaja, Rasaja, Satmyaja* and *Sattvaja* may lead to birth defects or anatomical abnormalities. *Beeja-Dosha* and *Matrija Vikriti* are considered responsible for *Garbhaj Vikritiya*, which may include abnormalities in the growth and development of the fetus such as abnormal shape & size, snake & scorpion-like shapes or crooked legs. Improper physical, mental and social behavior during pregnancy as well as environmental and genetic factors, may lead to an unhealthy or defective childbirth. *Ayurveda* describes many anatomical perspectives of the body under the stream of *"Sharir Rachana,"* including diseases related to anatomical abnormalities or birth defects. Anatomical abnormalities can be caused by vitiation in *Beeja & Beejabhaga.*

The common manifestations of anatomical defects are as follows

1) Absence of organs
2) Structural defects in organs
3) Excess or extra development of tissue
4) Anatomical variations
5) Improper development of body parts, etc.

The other factors which can leads birth defects includes *Kula* or *Gotra* of parents, health status of mother, age of mother and father, status of reproductive organs, dietary factors and hereditary factors etc.

A. Garbhajanya Vikriti (Congenital anomaly)

Acharya Sushruta described *Nastikata* and *Ashubha karma* of parents as causes of *Garbhajanyavikriti* along with *Purvajanmakrita Karma*. Pathologically, vitiation of *Vata* and *Dosha Prakopa* during pregnancy mainly causes birth defects. These can lead to defects in the fetus and the shape of the fetus becomes like *Sarpa, Vrishchika* and *Kusmanda* etc. The *Garbhajanya Vikriti* are responsible for the birth of *Kubja, Kuni, Pangu, Muka,* and *Minmin* children. Anatomical abnormalities mainly occur due to defects in sperm and ovum, inappropriate conditions of the uterus, mother's age, *Dosha* predominance, time and quality of conception, period of conception, mother's food regimen, and parents' mental status, etc. Congenital abnormalities mainly occur in young women belonging to the teenage group or in middle-aged women conceiving after 35 years.

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Matrija, Pitrija and *Aatmaja Bhavas* cannot be changed as they come from the parents and *Poorvajanma Samskaras* (*as a result of the code of conduct*), respectively, but the other three *Bhavas factors, namely, Satmyaja, Rasaja* and *Sattvaja Bhavas*, practiced properly can modify the intrauterine environment and psychosomatic health of the mother, producing a healthy impact on the fetus. It is a known fact now that environmental factors can influence the genome.

Acharya Charaka has described five factors responsible for *Vikriti* as follows -

1) *Beeja Dosha:* The chromosomal abnormalities of the modern science can be correlated with *Beejadosha* which is responsible for diseases like *Vandhya, Vaarta* and *Putipraja* etc. Teratologic abnormalities are determined by the condition of the *"Beej"* (reproductive material), not the physical status of the pair. In other words, if any section of the *"Beej"* is defective, the body part that develops from that portion of the *"Beej"* will be abnormal. Any biological abnormality must be accompanied by a *"Beej"* abnormality. For example, if a person with *Kustha* (skin disorder) has a fault in the part of the *"Beej"* responsible for skin creation, the child may develop *Kustha.* However, if that portion is normal, the child will be healthy. Similarly, a child whose father is blind may experience the same condition. The *"Beej"* can be affected by a variety of dietary regimens for pregnant women. If the entire *"Beej"* is harmed, the woman will not be able to conceive. However, if only a tiny section is afflicted, the child will be born with the abnormalities of the corresponding mother body part. *Bhela* has also supported *Charaka's* viewpoint. *Chakrapani* clarified words such as *"Beej"* and *"Beej-Bhagavayava"* (seed-part). *"Beej-Bhagavayavas"* are portions of the seed that are involved in the development of various organs (chromosomes). He goes on to say that human sperm and ovum are nothing more than a collection of *"Beej-Bhagavayavas"* (chromosomes) that correspond to each organ and result in the birth of an individual comprised of organs unique to that species.
2) *Atmakarmaja Dosha: Papakarma* may affect fetus and it may acquire shape of *Sarpa* and *Vrishchika*, etc. *Ayurveda* has long recognized that certain preexisting non-religious and banned activities can be the root causes of some ailments. *Sushruta* demonstrated the link between congenital deformities and the previous actions of the parents and child. The fetus may develop characteristics resembling a snake, scorpion or field pumpkin due to these previous actions. These deformities are believed to be the result of past life sins or evil deeds. Therefore, the abnormalities in the child should be attributed to the ill acts of the parents, the child's own past deeds or an intensified condition of the vitiated humors. *Poorvjanamkrita Karma* is believed to be responsible for the fetal malformations caused by the *Jeeva's* past life actions.
3) *Aashaya Dosha: Garbhashaya Dosha* in the form of *Yonivyapada*; which can be correlated with the modern diseases in which malformation of uterus occurs as unicornuate and septate uterus etc. A congenital deformity in the fetus can be caused by any problem in the uterus. Issues in the genital organs, including amniotic fluid (specifically its abundance), can alter the environment of the growing fetus, leading to fetal malformations. Structural or functional deformities in the uterine body, ovary or fallopian tube can cause fetal abnormalities.
4) *Kaala Dosha:* Conception on 1st, 2nd or 3rd day of *Rajasravakala* may become responsible for *Asampurn Angas* and *Mritagarbha* etc. Ancient *Ayurvedic* scholars have interpreted the word *"Kaala"* in various ways. It could refer to seasonal changes such as cold, heat and rain. *Kaala* also denotes the age of the parents. When discussing this topic, it is important to consider the references of *Kashyapa Samhita*. In this book, *Kaala* has been used to refer to *Puhspa-Kaala* (menstrual phase), *Beeja Kaala* (ovulation time) and *Garbhavastha Kaala* (gestational period). According to ancient thinkers, women were expected to adhere to specific standards during these three times. Failure to follow these regulations correctly could have a negative impact on the developing fetus.
5) *Matruja Ahara-Vihara Dosha: Garbhopaghatakar Aahara-Vihara* like *Atiamla, Atimamsa-Matsyasevana, Atinidra* and *Atimadhyapana* etc. may leads *Garbha Vikriti* like *Badhira, Gadgada, Heenanga, Khalitya, Shwitra* and *Kushta* etc. Keep in mind that a fetus is entirely reliant on the mother for its nourishment and well-being during pregnancy. Therefore, a woman who wants to ensure her child's healthy development should avoid consuming dangerous foods and engaging in risky activities. This knowledge has been recognized since ancient times. Pregnant women are advised to refrain from eating beef as it is believed that it could result in birth defects. In the *Brhadaranyakopanisad*, there is a description of a dietary regimen recommended for both partners to enhance the quality of their offspring.

B. Skin Abnormalities

Hyperpigmentation, *Vridhi* and discoloration are common skin abnormalities. These issues can affect the outermost layer of the skin due to genetic defects, leading to changes in complexion and texture. Genetic factors can also cause other abnormalities such as *Vyanga, Tilkalka, Ajagalika, Mashak* and *Kustha*. When genetic factors affect different layers of the skin, various skin ailments such as *Visarpa, Kilas* and *Shivtra* may arise.

C. Reproductive Abnormalities

Dwyerita is a sexual abnormality in which a person possesses both ovarian and testicular tissue. *Pavanendriya* is another abnormality that can be correlated with infertility. Other sexual abnormalities include *Samskarvahi*, *Narashanda*, *Irsyabhirati* and *Vakri* etc. Reproductive abnormalities can also arise due to defects in the uterus, sperm, and ovum etc.

D. Metabolic Abnormalities

Sushruta described *Sahaja Prameha* as hereditary condition which may occurs wither from the maternal or paternal factors and inherited from previous to next generation. The vitiation of *Shukra* and *Shonita* of parents mainly considered responsible for such types of condition.

E. Modern Perspectives

"The defects in the ovum, sperm, uterus, time factor, changes in genes, mutations, and abnormalities in genetic materials may lead to congenital anomalies. Mutations in gene sequences can also cause genetic abnormalities. A mutation in one gene or sequence may lead to monogenic disorders, while mutations in multiple genes may lead to multifactorial disorders. Modern science has described various genetic disorders, including chromosomal disorders, mitochondrial disorders and multifactorial disorders. Examples of common anatomical abnormalities include sickle cell disease, polycystic kidney disease, cystic fibrosis, and chronic myeloid leukemia. Many structural abnormalities have been described in which the improper formation of organs or absence of organs may occur. Examples of such diseases include ventricular septal defect, spina bifida and cleft lip, among others. Clinically, these diseases involve manifestations such as improper closure of the spinal cord, abnormal bladder position, gaps in the lips, abnormalities in the heart, nodular shape of the liver, enlarged liver, absence of the portal vein valve, abnormal thinning of vessel walls, vessel enlargement, and abnormal vascular dilatation. The two major categories of anatomical abnormalities in modern science are structural abnormalities and developmental abnormalities. Structural anomalies include heart defects, cleft lip or palate, spina bifida, and clubfoot, among others. Developmental issues include Down syndrome, hearing impairments, visual impairments, cerebral palsy, and muscular dystrophy, among others."

-Down syndrome person born with an extra chromosome; which affects development of brain and body.

-Visual impairments involve irregular eye shape or improper coordination amongst the brain and eyes so visual defects arises. In hearing impairments the ear does not work properly.

-Cerebral palsy is a condition in which motor disability occurs; it affects movement, balance and posture. The condition mainly occurs due to the damage in brain during the development phase. Muscular dystrophy affects muscles, the muscles become weaker with the time during the development phase.

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II. AIMS AND OBJECTIVES

1) To study and see the relation of *Shada Garbhakar Bhavas* with congenital and hereditary disorders.

2) To suggest a protocol for checking such birth defects.

III. DISCUSSION

Science is the result of human curiosity. People have examined and analyzed natural processes that occur in the body through microscopic examinations. It's important to note that the *Samhita* was composed based on direct knowledge and enlightenment using the instruments and facilities available at the time.

The embryo develops by the fusing of male and female gametes, which is a universal reality. This fact was mentioned in the ancient *Ayurvedic Samhitas*. *Garbha* is generated by the union of *Shukra-Shonita* and *Jeev*, which grows with the help of nutrients provided by the mother's *Aahar Ras* during the prenatal period. *Garbha Samagri* (*Ritu, Kshetra, Ambu* and *Beej*), *Shadbhavas*, *Garbhiniparicharya* and other supplements are required for *Garbha* development in addition to *Shukra* and *Shonita*. According to *Acharya*, these vitamins should be taken simultaneously, as any missing component can lead to complications or prevent *Garbha* formation.

The qualities of *"Shudha Shukra"* and *"Shudha Artava"* have been described in length by *Acharya*. If *Shukra* and *Artava* possess the attributes described by *Acharyas* and unite at a specific *"Ritu* and *Kshetra,"* the offspring will be healthy and possess all necessary characteristics. If *Bija, BijaBhag, BijaBhagavayava, Ritu* and *Kshetra* are distorted, the fetus will be deformed in size, shape and behavior. All of the *"Garbhaj Vikritiya"* stated in *Ayurvedic* books has comprehensive evidence.

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Recent genetics studies bear a striking resemblance to ancient *Ayurveda* studies. All *Ayurvedic* literature, including the *"Vrahtrayi"* and *"Lagkhutrayi,"* demonstrate that *"Beej"* is the fundamental element of creation. The part of *"Beej"* that will be vitiated in the microform like gene and accountable for specific organ malformation in the fetus is indicated directly by *Acharya*. Our *Acharya* depicted modern-day monsters as *"Vikritakritya,"* like as serpents and scorpions. Our scriptures referred to twins as *"Yamala."* All that has been said in modern times seem to have already been said in our literature as their wide vision. Some embryonic malformations produced by *"Beej Dosha,"* as described by our *Acharya* are very comparable to modern fetal deformities caused by genetic factors. *Ayurvedic* literature describe a deformity called *"Bandhya,"* which shares many traits with the English term sterility. *Bandhya* cannot produce offspring due to a genetic cause (*Beej Dosha*), just as sterility cannot produce offspring due to oligospermy, azoospermy, or defective ovulation. All of these factors fall within the limits of what *Acharya* stated, that *"Beej Dosha"* means any deformity related to *"Beej"* (may be *Pumbeej* or *Stribeej*) can cause *Bandhyat.*

Ayurvedic literature also use the name *"Putiprijan"* to describe an *Acharya* whose kid dies before delivery. This type of malformation indicates that *"Beej"* (Sperm or Ova) is only partially capable of producing kids. The terms *"Trinputik"* and *"Varta"* refer to a sex abnormality in which the offspring lacks all sex traits. This disorder demonstrates a genetic defect that causes secondary sexual traits to appear. In medical science, twins are caused by the division of a zygote into two parts and the subsequent development of a fetus by both parts of the zygote, resulting in identical twins. In *Ayurvedic* science, the *Vata Dosha* splits the *"Beej Anu"* (zygote) into two, resulting in *Yamala Garbha*. Many prenatal malformations resembling odd shape-serpent, scorpion and gourd-like fetus are discussed in *Ayurvedic* writings. The foetal malformations recorded in *Ayurvedic* writings include several types of *Napumska* that are unable to perform sexual activity properly, as well as various types of monsters such as *"Nagaudara," "Upvishtaka," Lina Garbha* and others. The importance of *Garbhaj Vikriti* in modern life is the focus of this study work. All *Acharyas* believe that *Aadibal Pravrita Vikritiya* (Hereditary) and *Janmabal Pravrita Vikritiya* (Hereditary) are synonymous with genotype and phenotypic abnormalities.

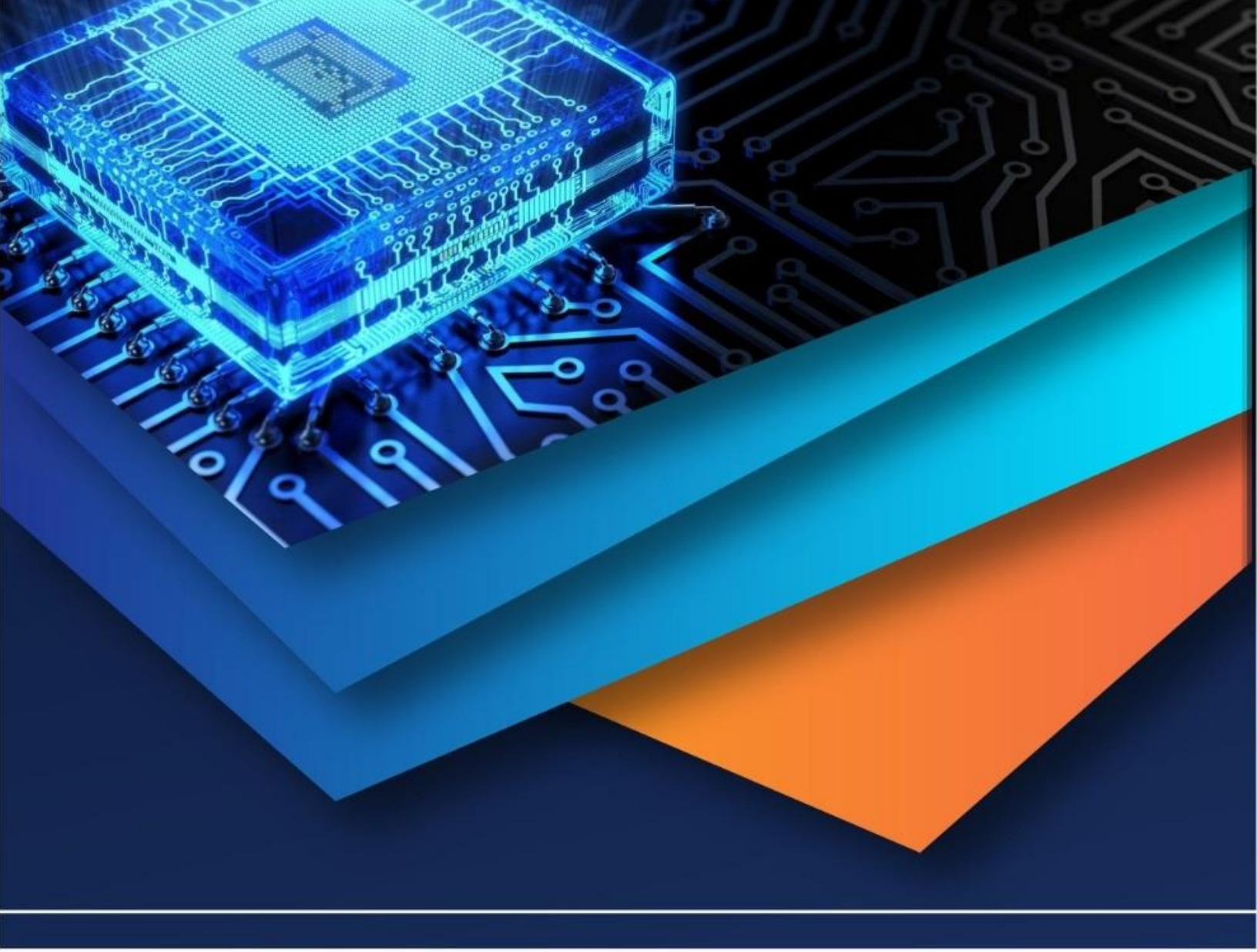
IV. CONCLUSION

Ayurveda provides a lot of information about the structure of the body and anatomical abnormalities related to the human body, which mainly arise due to genetic and congenital factors. *Garbhajanya Vikriti* are abnormalities that arise from maternal or paternal defects associated with offspring. Defects in *Beeja* & *Beejabhaga* trigger the development of these types of diseases. According to *Ayurveda*, factors such as *Matrija*, *Pitrija*, *Rasaja*, *Satmyaja*, *Sattvaja* and *Aatmaja* play a significant role in the healthy development of offspring and any abnormalities or imbalances in these factors may cause *Garbhajanya Vikriti*. Common clinical manifestations of congenital anomalies or anatomical abnormalities include absence of organs, structural defects in organs, excess tissue development, anatomical variations of organs and improper tissue development. Similarly, modern science also mentions structural anomalies and developmental issues such as heart defects, spina bifida and clubfoot.

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