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UNDERSTANDING THE CONCEPT OF *ANASTHI GARBHA*

Dr. Soumya S.*[1] and Swapna Kumary[2]

[1]Second Year P.G. Scholar Pursuing M.D. in Rachana Shareera Department, Alvas Ayurveda Medical College, Vidyagiri, Moodbidri, Karnataka, India.

[2]Professor and HOD, Department of P.G. Studies In Rachana Shareera, Alvas Ayurveda Medical College, Moodbidri, Karnataka, India.

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***Corresponding Author**
Dr. Soumya S.
Second Year P.G. Scholar Pursuing M.D. in Rachana Shareera Department, Alvas Ayurveda Medical College, Vidyagiri, Moodbidri, Karnataka, India.

ABSTRACT

Despite the improvement in diagnostic techniques and therapeutic interventions, medical research has not been able to control the incidence of congenital abnormalities. *Ayurveda* centuries ago has explained, certain essential factors required for getting a good progeny, like *Garbha Sambhava Samagri*, *Matrujadi Shad Bhava*. Absence or defects in any of these factors might result in an abnormal foetus. One such unique concept of *Ayurvedic* embryology, is the formation of *Anasthi Garbha.* The term *Anasthi Garbha* describes a foetus, which is formed as a result of sexual act between two females. As *Asthi* is formed from *Pitruja Bhava*, and since there is no involvement of *Pitruja Bhava* in this condition, the formed foetus does not have *Asthi*. In modern science this may be correlated to skeletal dysplasia. Skeletal dysplasia is a genetic condition, that cause abnormal development of bones of foetus. The present article focuses mainly on the interpretation of *Anasthi Garbha* on the basis of scientific understanding.

KEYWORDS: *Anasthi Garbha*, Skeletal dysplasia, *Garbha Sambhava Samagri*, *Matrujadi Shad Bhava.*

INTRODUCTION

Getting a healthy progeny is a major concern not only for the aspiring parents but also for the medical professionals. Congenital abnormalities becoming more common, which is quite concerning for the medical community. A quarter of all global neonatal deaths occur in India. Congenital anomalies constitute the fifth largest cause of neonatal mortality in the country.[1]

For meeting the objectives of a healthy progeny, *Ayurvedic* classics explained many factors like *Garbha Sambhava Samagri,*[2] *Matrujadi Shad Bhava,*[3] *Garbha vriddhikara Bhava.*[4] Abnormalities in any of these factors result in abnormal foetus.

Anasthi Garbha[5] refers to a condition, where the born foetus does not have the bones. This condition arises as a result of sexual act between two females. The *Shukra* which is released during sexual act is responsible for the formation of *Anasthi Garbha.*

Concept of Shukra in Stree

For the formation of *Garbha, Acharyas* have mentioned one of the *Garbha Sambhava Samagri* as *Beeja,* which refers to the both male and female gametes. *Acharya Arunadatta* has clearly emphasised the fact that for the conception to happen both male and female gametes are necessary.[6]

Garbha Sambhava Samagri

The essential factors for the conception are *Ritu, Kshetra, Ambu* and *Beeja. Ritu* refers to the *Ritukala* or period of ovulation, *Kshetra* refers to the *Garbhashaya, Ambu* refers to the *Rasadhatu* which nourishes the foetus and the *Beeja,* which is *Shukra* in males and *Arthava* in females.

The idea raises the question of how two females may have a foetus when there is no involvement of *Pitruja* factor, as in the description of *Anasthi Garbha.* This doubt has been cleared by *Acharya Dalhana's* commentary on the concept of *Anasthi Garbha*. For the pregnancy to form between two females, one of the biological parent should be *Shanda.*

Shanda

Acharya Sushruta, has classified *Napumsaka* into 5 types; *Asekya, Sougandhika, Ershyaka, Kumbheeka, and Shandaka.*[7] *Acharya Charaka* has mentioned that, *Purvajanmakrita Papa* are the cause for birth of *Napumsaka*[8] and it is of 8 types. They are *Dwireta, Pavanendriya, Samsaravahi, Narashanda, Nareeshanda, Vakri, Irshyabhirathi, Vatika Shandaka.*[2] The *Shandaka* is again divided into *Narashanda* and *Nareeshanda.*

Shanda is a term meant for hermaphrodite. In this context it can be taken as *Nareeshanda,* which is nothing but female phenotype, behaving like a male (male pseudo hermaphroditism).

As understood by *Dalhanacharya's* commentary, this is the case where, one of the female should be genotypically and phenotypically normal (46 XX) and who can conceive, and other is *Nareeshanda,* phenotypical female i.e., female external genitalia with male gonads (male pseudo hermaphroditism).

Male pseudo hermaphroditism[9]

Male pseudo hermaphroditism is a sex differentiation disorder in which the gonads are testes and the external genitalia are incompletely masculinized. The condition is caused due to failure of sequential process in embryonic development of testis.

Some of the conditions like 17-beta hydroxysteroid dehydrogenase 3 deficiencies and 5 alpha reductase 2 deficiency might produce sperms.

17-beta hydroxysteroid dehydrogenase 3 deficiency[10]

17-β-Hydroxysteroid dehydrogenase III deficiency is a cause of 46XY disorder of sex development (46XY, DSD) that presents in males with variable effects on genitalia which can be complete or predominantly female with a blind vaginal pouch. Testes are often found in the inguinal canal or in a bifid scrotum. Wolffian duct derivatives including the epididymis, vas deferens, seminal vesicles, and ejaculatory ducts are present. Virilisation of affected males still occurs at puberty.

5 alpha reductase 2 deficiency[11]

5α-Reductase 2 deficiency (5αR2D) is an autosomal recessive condition caused by a mutation in SRD5A2 gene. Individuals with 5-ARD can have normal male external genitalia, ambiguous genitalia, or normal female genitalia. They are born with male gonads, including testicles and Wolffian structures, but have female primary sex characteristics. The testosterone which is an important factor, required for the building up of muscles and bones of developing foetus, might result in abnormal growth of foetal skeletal system.

Concept of *Anasthi Garbha*

Acharya Dalhana states that, "*Anasthi*" refers to *Alpa* and *Komalasthi*, not a complete lack of bones but rather a foetus with fewer or softer bones. This condition can be considered as certain types of skeletal dysplasia where the bones are poorly ossified and fragile.

Skeletal dysplasia[12]

Skeletal dysplasia's are a complex group of bone and cartilage disorders that may affect the foetal skeleton as it develops in the uterus. Signs and symptom include, kyphosis, spinal stenosis, leg bowing or knock knees, short stature, brittle or soft teeth etc. Some of the condition may vary from mild nonlethal to severe lethal forms.

The most common nonlethal forms are

Osteogenesis imperfect[13]

Also known as brittle bone disease is a group of inherited genetic disorders that mainly affect the bones. Caused by defects related to a protein called type 1 collagen. About 80%–90% of cases are caused by autosomal dominant mutations in the type 1 collagen genes, COL1A1 and COL1A2.

Achondrroplasia[14]

Achondroplasia is an autosomal dominant genetic disorder. The primary feature of this condition is dwarfism. It is caused by a mutation in the fibroblast growth factor receptor 3 (FGFR3).

DISCUSSION

Without procreation, a species cannot continue living, which is one of the characteristic of life. Both male and female are having equal importance in this process. Two people of same biological sex cannot create an offspring. Parthenogenesis is a natural process of asexual reproduction, in which development of embryo occurs in a gamete without fertilization.[15] This process does not occur in human.

The definition of *Garbha* clearly tells that both *Shukra* and *Shonita* are necessary for its formation. The formation of *Anasthi Garbha* requires clarity, as there is involvement of identical gender. As *Shanda* is responsible for the formation of *Anasthi Garbha*, in particularly the *Nareeshanda*, which can be compared to male pseudo hermaphroditism due to the similarities in characteristics. *Charakacharya* tells that *Shanda* can produce *Manda* and *Alpa Shukra*. Due to this, the produced foetus is having qualities like *Nikrushta*(inferior) and *Vikrutha*(deformed). A person with Male pseudo hermaphroditism, when reaches puberty, there is a tendency of clitoris to enlarge and urethra may be attached to the phallus. These structures are capable of erection as well as ejaculations.

Male pseudo hermaphroditism with 5αR2D, during puberty can produce viable sperms. But there is no proper conversion of testosterone into physiologically active dihydrotestosterone, which can be compared to *Manda* and *Alpa Shukra* produced by a *Shanda.* Defect in testosterone function can be taken as impairment in *Pitruja Bhava*, which is one among the *Shadbhava.* In the developing embryo the *Sthira* parts are developed from the *Pitruja Bhava.* In *Anasthi Garbha,* especially the formation of *Asthi* does not take place due to the defect in *Pitruja Bhava,* finally leading into *Alpa* and *Komala Asthi*.

Acharya Charaka in *Atulya Gotreeya Adhyaya* has mentioned, wherever there is deformity in *Beeja, Beejabhaga Avayava.*[16] of the parents the resultant foetus is going to have the multiple abnormalities. These condition can be compared to inherited or genetic disorders. In skeletal dysplasia, as there is defect in collagen producing gene, which can be compared to the *Beejabhaga Avayava,* the resultant *Garbha* is going to have *Alpa* and *Komala Asthi,* which is nothing but brittle, soft bones. In skeletal dysplasia particularly the nonlethal forms, *Alpa Asthi*, resembles the features of disproportionate dwarfism, shortening of proximal limbs, small mid face with flattened nasal bridge. *Komala* refers to brittle or soft, which tend to get fracture easily, which exactly match with the version of *Dalhana*.

Ayurveda has always highlighted the need for essential elements like *Garbha Sambhava Samagri* to produce a healthy offspring. An aberrant formation of the foetus results from the absence of or abnormalities in any one of these factors. This not only enables us to comprehend the significance of these elements, but also to concentrate on lowering the risk of having unhealthy offspring, early antenatal screening to find such abnormalities, and appropriate genetic counselling to assist patients and their families in navigating life events and the risk of genetic disorders.

Ayurveda always emphasised the fact that, prevention is better than cure. *Acharyas* have mentioned treatment modalities like *Shodhana, Rasayana* etc. to maintain the health and even *Beeja Dosha* can be corrected through the *Shodhanadi* procedues. Recent studies have shown that the correction of *Beeja Dosha* can be done through *Shodhanadi* procedures like, *Virechana.*[17] Through the treatment modalities of *Ayurveda* the predisposing genetic conditions can be prevented and quality of life can be improved.

CONCLUSION

Sexual relationship between a normal female and a phenotypic female results in the formation of *Anasthi Garbha*. If a male pseudo hermaphrodite with 5 alpha reductase enzyme deficiency during puberty, produces a sperm which is carrying a mutant gene, is responsible for the connective tissue disorders. One such condition is the skeletal dysplasia which can be compared to *Anasthi Garbha.*

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