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A Review on Foetal Sex Determination: An Ayurvedic Perspective in the Light of Modern Understanding

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Abstract: ***Foetal sex determination has fascinated humanity for centuries. Ayurveda, as one of the world's oldest systems of medicine, discusses theories around the factors influencing the sex of the child. It provides simple methods to ensure the birth of a healthy child, beginning with partner selection and addressing factors related to fetal development, including fertilization and sex determination. However, these classical concepts are philosophical and symbolic, and must be interpreted carefully in today's ethical, scientific, and legal context. This article explores the Ayurvedic view on sex determination, referencing classical texts, comparing them with modern embryology, and aligning with modern ethical practices.***
Keywords: sex determination, Garbha, Lingabheda.

I. INTRODUCTION

Foetal sex determination is a subject that intersects ancient wisdom, modern science, and sensitive ethical considerations. While modern medicine establishes that sex is determined at the time of fertilization through genetic mechanisms (XX or XY chromosomes), Ayurveda considers two basic factors in human development : *Shukra* and *Shonita*, which represent sperm and ovum respectively in modern medical science and are responsible for fertilization. *Acharya Charaka* clearly stated that the dominance of *shonita* (ovum) during conception results in the birth of a female child, while the dominance of *shukra* (sperm) leads to the birth of a male child. *Acharya sushruta* also believes the same. The pregnant woman in whom, milk appears first in her right breast, the right side of abdomen is bigger, throbbings appear first in her right leg, and which have names of masculine gender only, and whose face and colour are pleasant – should be understood as one giving birth to a son. She, who has features opposite of these as the one giving birth to a daughter. She whose flanks are depressed, her abdomen indrawn in its front and absence of features told earlier should be understood as the one giving birth to a eunuch. She whose abdomen has depression (deep furrows) in its centre and appears like *Droni* (valley or a water trough) should be understood as one giving birth to twins.

II. DISCUSSION

A. Ayurvedic Foundations of Conception1

According to *Ayurveda*, conception depends on the presence of *Garbha Sambhava Samagri*, which includes:

- *Ritu* (Timing of ovulation)
- *Kshetra* (Health of the uterus)
- *Ambu* (Adequate nutrition)
- *Beeja* (Quality of sperm and ovum)

Charaka Samhita mentions that the prevalence of male or female 'beeja' influences the sex of the child. A predominance of *Shukra* (sperm) results in a male child, whereas *Shonita* or *Artava* (ovum) dominance leads to a female child.

1) Classical Theories on Sex Determination

Various Samhitas provide distinct views:

- *Charaka Samhita:* If the male *beeja* is dominant, a male child is formed and if the female *beeja* is dominant, a female child results.2
- *Sushruta Samhita:* Suggests that intercourse on even days of the cycle leads to a male child and intercourse on odd days to a female child.3

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- *Ashtanga Hridaya:* Emphasizes the strength and vitality of the male and female during conception.4
- *Bhela Samhita:* Mentions the direction of discharge of *shukra*, i.e. right side results in a male child and left side results in a female child.5
- *Kashyapa and Harita Samhitas:* Include concepts of lunar influence, time, and diet as influencing factors for sex determination of the foetus.6

These views, while symbolic, are not scientifically validated and should not be interpreted literally today.

2) Comparative Insights from Other Cultures

Other traditional systems like:

- Ancient Greek Medicine: Believes that the hotter semen produces boys and cooler semen produces girls.
- Chinese Traditional Medicine: Thought that yin and yang energies, time of conception, and food influences could determine sex of the foetus.

These theories resemble Ayurvedic thoughts, indicating a global historical curiosity around this topic.

3) Modern Review7

The sex determination system is a biological system that regulates the development of sexual characteristics in an organism. The X chromosome is involved in the determination of sex and is also known as the allosome (sex chromosome). Another chromosome, called the 'Y' chromosome, is also involved in the sex determination process. In mammals, including humans, a normal female hastwo X chromosomes, while a normal male has one X and one Y chromosome. Female gametes only carry the X chromosome, making females belong to the homozygotic sex. Male gametes can carry either the X or Y chromosome, classifying males as the heterozygotic sex.

1) Correlation of First Concept

* Shettles studied sperm cells to observe their differences. He theorized based on his observations is that Y-carrying sperm are lighter, smaller and have round heads.

* He also studied sperm in some rare cases where man had fathered either mostly male or mostly female children. In the cases where the man had mostly male kids, Shettles discovered that the man had far more Y- carrying sperm than X- carrying sperm.

2) Correlation of Second Concept

The X and Y chromosomes in males act as homologous chromosomes during meiosis and pass into different gametes. Thus, males produce two types of gametes and are described as heterogametic i.e. (22+X) and (22+ Y) while the female which produces only one type of gamete is homogametic. Otto Schooner's theory: It is examined in research when the right ovary ovulated ova will fertilize produces a male child as well as when left ovary ovulated ova will fertilize produces a female child. So left ovary ovulated ova is more potent than the right one.

3) Correlation of Third Concept

* This method also correlated with Shettles method that male sperm tend to swim more quickly in alkaline environment like in the cervix and uterus and female sperm tend to survive longer in acidic conditions of the vaginal canal.

So, when sperm falling in *Upasthgeha* having *Gauri Nadi* (i.e. fornix part of the vagina very near to the cervix), helps in formation of Male child.

Thus when sperm falling in *Kandarpageha* (mid vaginal canal) having *Chandramansi Nadi,* helps in formation of Female child.

The discharge of *'Virya'* (semen) gets wasted, if happens to fall in the mouth of the *Sameerana* (introitus part of the vagina).

4) Correlation of Fourth Concept

Acharya Sushruta advises expectant parents to have intercourse on even days after the end of the menstrual flow or closer to ovulation to conceive a male baby and on odd days to conceive a female baby. According to *Acharya Dalhana*, on even days, there is less predominance of X chromosome *(Rajah*) and on odd days, *Rajah* is predominant. Therefore, engaging in sex during even days of menstruation may result in a male baby, while engaging in sex on odd days may result in a female baby. It would be interesting to conduct research on why and how the X chromosome predominance varies during these days.

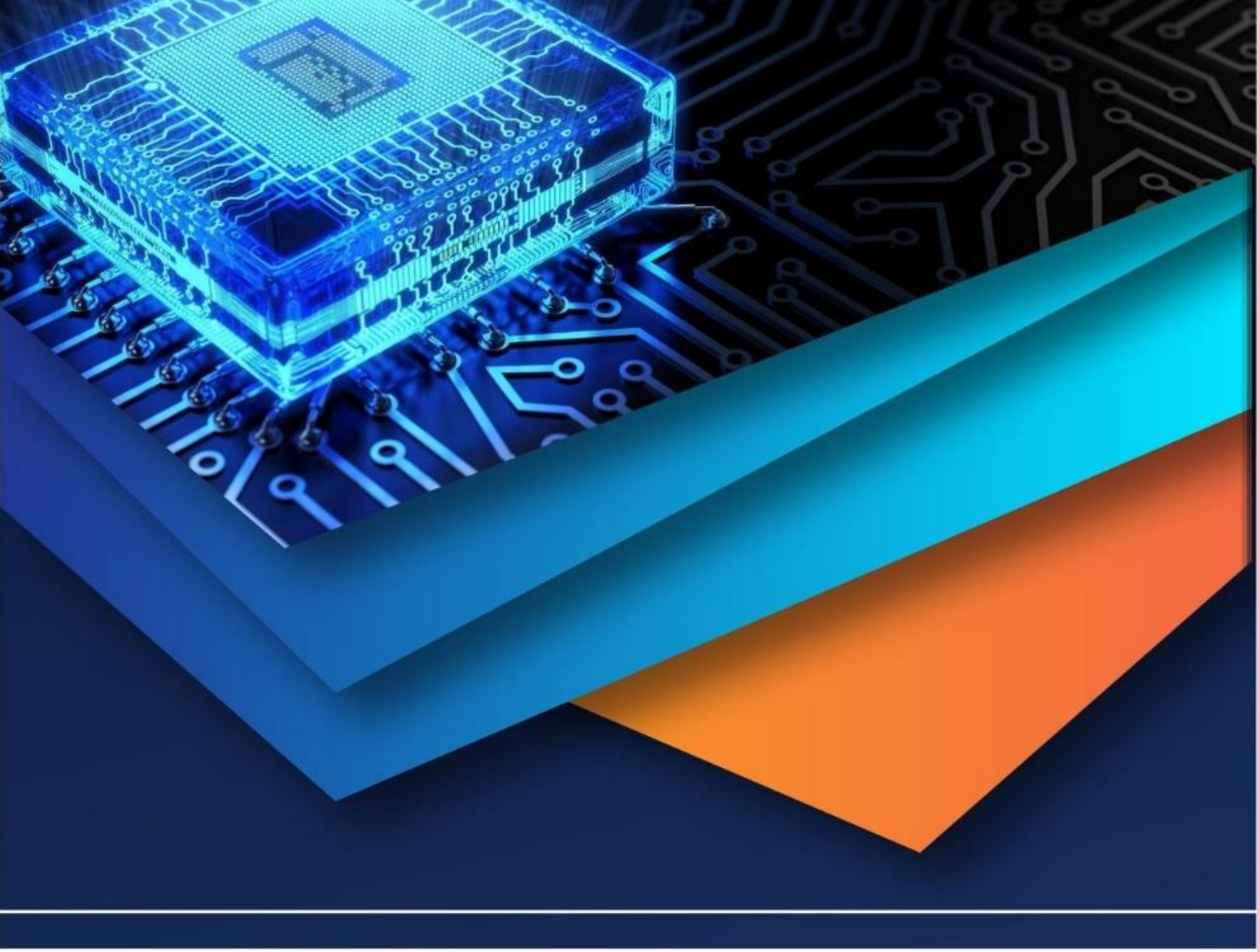
III. CONCLUSION

Ayurvedic classics provide insights into reproductive health with symbolic references to sex determination of the foetus. This demonstrates the depth of embryological knowledge possessed by our ancient scholars. While modern medical technologies offer more detailed descriptions, we can infer that our *Acharyas* must have conducted extensive research to establish these concepts. However, these must not be used in a way that might violate modern legal and ethical standards. Emphasis must shift towards the ethical prenatal care, foetal health, and mental-spiritual development *(Garbha Sanskar)*. The similarity between the two approaches indicates that our ancestors had a solid grasp of sex determination. In *Ayurveda, Shukra* is considered as sperm with a Y chromosome, while *Shonita* is implied to have an X chromosome. This understanding extends to the concepts of X chromosomes in eggs as well.

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