

CONCEPTUAL STUDY OF APARA W.S.R PLACENTA AND IT'S ABNORMALITIES

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ABSTRACT

Garbha (embryo/fetus) is formed from the fusion of *Shuddha Shukra* and *Shuddha Artava* along with the *Atma* (soul), *Prakriti* (*Ashta prakriti*), and *Vikara* (*Shodash Vikara*). For the proper growth and nourishment of the *Garbha*, *Apara* (placenta) is essential. *Apara* is a structure that develops contemporary to *Garbha* and serves as the link between the mother and the fetus. According to *Acharya Sushruta*, *Arthavavaha srotas* gets obstructed due to conception. As a result, obstructed *Arthava* moves in upward direction and forms *Apara*. Abnormal formation of placenta may lead to *Apara sang*. Along with the abnormalities our classics have explained medical interventions for *Apara sang*. Placenta is described as a disc-shaped organ that plays an important role in early pregnancy. Placenta facilitate the exchange of nutrients, gases, and waste between maternal and fetal blood. The functions of placenta are secreting hormones like Progesterone which maintains uterine lining and supports pregnancy, (HPL) which supports

lactation after parturition. Abnormalities in the structure of placenta leads to abortions, intrauterine Growth Restriction (IUGR), preterm birth, placenta previa, Placenta accreta spectrum disorders. *Apara*/placenta ensures the proper development and sustenance of the *Garbha*, it is essential to understand and address placental abnormalities. This article aims to delineate placenta and its pathologies from both *Ayurvedic* and modern medical viewpoints.

KEYWORDS: *Apara, Garbha, Shukra, Arthav, Atma, Prakruti, Vikara.*

INTRODUCTION

For an expert physician, an in-depth understanding of the human body is essential. This is why the study of *Shareer Sthana* is essential. All *Brhatrayi*, have included *Shareer Sthana*, elaborating on the various stages of human development from *Garbha Dhana* (conception) to *Garbha Nishkramana* (childbirth). According to *Acharya Susruta*, after the conception obstruction of *Artavavaha Storas* (channels carrying menstrual blood) forms the *Apara*^[1] and some portion of the *Artava* develops the *Stanya*, making them corpulent and protruded, which prepares the female body for lactation after parturition. The word meaning of the *Apara* is "that which is not separated." This aligns with the concept of the placenta. Placenta is fetomaternal organ—a structure that connects the mother and the fetus, yet remains a distinct temporary organ during pregnancy. Shape of the placenta is disc shape, length is 16cm to 18cm and it is 25cm thick and weighs about 500gm.^[2] After the implantation uterine endometrium is called as decidua. The portion of decidua where placenta is to be formed called decidua basalis. The portion of the decidua that separates embryo from uterine lumen is called as decidua capsularis. The portion of the decidua lining rest of the uterine cavity is called decidua perietalis. Placenta is responsible for secretion of some hormones as human chorionic gonadotropin (HCG) which is essential for early pregnancy, progesterone which helps in maintenance of pregnancy, estrogen which helps in development of fetus, human placental lactogen which helps to prepare mothers body for lactation.^[3]

Placenta has two structural components which are fetal, maternal origin. Maternal component is contributed by decidua basalis and fetal component is contributed by chorionic plate. Placenta has two surfaces fetal and maternal, two cotyledons maternal and fetal^[4] *Apara/placenta* ensures the proper development and sustenance of the fetus, it is essential to understand and address placental abnormalities.^[5]

AIMS AND OBJECTIVES

1. To study concept of *APARA*.
2. To study about anatomy of *APARA* according to ayurvedic classics and modern science.
3. Study of anomalies according to *Ayurveda* and modern science.

MATERIAL AND METHODS

Literary and conceptual study is undertaken by reviewing all the *Ayurvedic* text, modern literature and journals, presented paper, previous thesis work and correlated, analysed with the knowledge of contemporary science on the subject.

REVIEW OF LITERATURE

Ayurveda is a treasure trove of ancient wisdom, and understanding *Garbha Shareer* (Embryology) requires knowledge in *Shareer* (Anatomy and Physiology), specially in the *Shareer Sthana* of classical Ayurvedic texts like *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga samgraha*. The *Shareer Sthana* is the foundational section in Ayurvedic treatises where topics like *Purusha Vichaya* (study of the human body), *Sharira Rachana* (body structure) and *Garbhotpatti* (origin of the fetus) are discussed.

According to *Acharya Sushruta*, when conception occurs (i.e., *Grahit Garbha*), the *Arthavavaha Srotas* become obstructed due to the presence of the fetus. As a result, the normal downward flow of *Artava* (menstrual blood) is hindered. This leads to a reversal or redirection of the flow of *Artava*. A part of this *Artava*, after being obstructed, gets transformed into *Apara* (placenta), which nourishes the fetus. Another portion of this redirected *Artava* moves upward and contributes to the formation of *Payodhara* (breasts/lactation system), preparing the body for breastfeeding. Hence, during pregnancy, menstruation ceases, as *Artava* is no longer expelled but utilized for fetal nourishment and maternal changes.

Acharya Sushruta has described a condition called *Apara Apatana*, which refers to the failure of the *Apara* to be expelled properly after delivery, this condition is considered as a complication, and is associated with symptoms such as *Adhmana* (distension of the abdomen), *Anaha* (constipation or obstruction in the abdomen) and pain. As a remedy the woman's throat should be rubbed using a finger covered with hair to induce vomiting or stimulate downward movement of *Vata*. The paste of *Langali* root administered with wine (*Madya*) to stimulate downward movement and to expel the retained *Apara*. A paste (*Kalka*) of *Langali* root (*Gloriosa superba*) or *Kushta* (*Saussurea lappa*) is applied to the palms of the woman.

Acharya Charaka has elaborated that the *Garbha* entirely depends on the mother for its nourishment during the intrauterine period.^[6] The nutrients are transmitted through a channel

that originates from the mother's body, particularly from her heart (*Hridaya*), which is the seat of *Rasa Dhatu*. The *Apara* acts as a medium for this nourishment. One end of the *Garbhanadi* (umbilical cord) is attached to the umbilicus of the fetus, and the other end is connected to the *Apara*. The placenta is attached to the uterine wall, and through it, nutrients reach the fetus. Since *Rasa* is closely connected to *Hridaya*, it is stated that the placenta is ultimately connected to the mother's heart, ensuring a continuous supply of nutrition, life-force (*Prana*), and sustenance to the growing fetus.

Acharya Charaka, in his treatise *Charaka Samhita*, describes a condition known as *Aprapanna Apara*, which refers to the retention of the placenta (*Apara*) even after the delivery of the fetus.^[7] This is considered a postpartum complication and is primarily due to the obstruction of *Vata Dosha*, which governs downward movement and expulsion. As a remedy vagina should be fumigated using leaves of *Kakamachi* (*Solanum nigrum*), Slough (cast-off skin) of a serpent. The woman should be advised to consume a paste (*Kalka*) made of *Kushta* (*Saussurea lappa*) & *Talisa*.

According to *Vagbhata* the *Rajovaha Srotas* (channels carrying menstrual blood) become obstructed by the presence of the fetus. As a result, there is no flow of menstrual blood during pregnancy. Then *Artava* is redirected within the body which is in turn used for formation of *Apara*.^[8] He has also described the method of *Apara Patana Vidhi* which refers to the procedure for the expulsion of the *Apara* after childbirth.^[9] According to another view, obstructed *Artava* contributes to the formation of *Jarayu* (uterine sac or membrane).

The term "*Amara*" is used as a synonym for *Apara* by *Dalhana*.^[10] According to *Chakrapani*, the commentator of *Charaka Samhita*, the *Apara* is defined as the structure to which the *Nabhi Nadi* (umbilical cord) is connected and held responsible for nourishment of fetus.^[11]

According to *Vruddha Jivaka*, a woman in labor cannot be termed "*Prasoota*" merely upon the expulsion of the fetus. If the *Apara* has not yet been expelled, the woman will be still considered *Aprasoota*.

Bhavamishra, in his classical text *Bhavaprakasha*, explains that both *Garbha Patana* (expulsion of the fetus) and *Apara Patana* (expulsion of the placenta) occur as a result of the combined action of uterine contractions and maternal straining efforts during labor.^[12]

In the *Bhela Samhita*, several remedies for *Apara Sanga* (retention of the placenta) have been described by *Acharya Bhela*. One of the classical remedies suggested in *Bhela Samhita* involves administering a *Kalka* (paste) prepared from red rice (*Raktha Shali*) mixed with *Gomutra* (cow's urine) to the woman.^[13]

Placental chorionic villi, formed by the trophoblast in association with extraembryonic mesoderm, develop throughout the chorion initially. However, the villi in contact with the decidua capsularis gradually degenerate, leading to the formation of a smooth area known as the chorion laeve.

In contrast, the villi in contact with the decidua basalis proliferate and become highly branched, contributing to the formation of the chorionic frondosum, which later develops into the fetal part of the placenta (placental disc).

Placental functions are as follows, it allows transport of oxygen, water, nutrients from maternal to fetal blood. A full term fetus takes up 25 ml of oxygen per minute. Placenta eliminates carbon di oxide, urea and other waste products into maternal blood. Maternal antibodies like immunoglobulin G reaches fetus through placenta. Placenta prevents passage of bacteria acting as barrier. While exchange of many substances placenta keeps blood stream of mother and fetus separate preventing antigen reaction.

DISCUSSION ON ABNORMALITIES OF PLACENTA

According to *Acharya Sushruta*, obstruction in the *Artavavaha Srotas* forms *Apara*. In Ayurveda, *Artava* (menstrual blood) is not observed in a pregnant woman, which aligns with physiological amenorrhoea in modern science, that menstruation ceases during pregnancy due to hormonal changes.

Acharya Sushruta explains that leftover part of *Artava* contributes to the formation of *Payodhara* (lactation). This can be compared to the modern explanation where in the placenta secretes human placental lactogen (HPL), which plays a important role in preparing the breasts for lactation.

Both *Acharya Sushruta* and *Acharya Charaka* have elaborated on *Apara Sanga* (retention or obstruction of the placenta) and suggested its remedies. In modern obstetrics, retained placenta is a complication during the third stage of labor, requiring medical intervention.

Thus, all the above criteria collectively support the correlation of *Apara* in *Ayurveda* with the placenta described in modern medical science.

According to *Acharya Sushruta*, the *Apara* is formed due to the upward movement of *Artava*, which gets obstructed in the *Artavavaha Srotas* due to the presence of the conceived material. This blockage causes the formation of the *Apara*. Placenta is described as a disc-shaped organ that plays an important role in early pregnancy. Placenta facilitates the exchange of nutrients, gases, and waste between maternal and fetal blood.

Two types of abnormalities based on implantation. First condition is placenta previa where placenta will be low lying either completely or partially covering cervix. Depending on invasion into uterine wall three conditions are seen: accreta, increta, and percreta.

Depending on structure can be known as circumvallate placenta where border of placenta becomes thickened. Bilobate is condition where placenta divides into two lobes. Battledore placenta is other condition where umbilical cord inserted at margin.

Depending on function placental abnormalities are placental abruption where placenta separates from uterine wall prematurely. Placental insufficiency where placenta does not function properly.

Placental infarct is rare condition where some areas of dead tissue are found in placenta. The condition is usually experienced by women with high blood pressure. An extremely thin placenta may be present called as Placenta membranacea. Both of the conditions lead to intra uterine growth retardation.

The impact of such abnormal placenta on mother are hemorrhage during delivery in case of placenta previa or in case of abnormal invasion of placenta. Another impact is C-section. Some times abnormal placenta may lead to potential hysterectomy.

On the other hand abnormal placenta has impact on foetus like intra uterine growth retardation, preterm birth, foetal distress or still birth.

Abnormalities can be treated by

- Frequent ultrasounds done to know the placenta condition.
- Inducing labor.

- Elective preterm birth.
- Advising abstinence.
- Elective LSCS.
- Bed rest in condition like placenta previa.

CONCLUSION

The placenta is temporary organ essential for a pregnancy, facilitating exchange of oxygen, nutrients and waste between fetus and mother. Any abnormality in placenta may lead to complication for both mother and fetus.

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