A CONCEPTUAL AND CLINICAL STUDY OF APARA (PLACENTA)

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Received on: 26/05/2015 Revised on: 15/06/2015 Accepted on: 25/06/2015

ABSTRACT

Comparative study of Sharir (anatomical and physiological) terms from Samhita text with modern scientific terms has become needful today. Apara described in Samhita text is important structure for Garbha (fetus). Samhita description says it is formed by obstructed Artava (menstrual blood). It lies in relation to the maternal heart and provides nutrition to the developing Garbha through Garbhvanabhinadi (umbilical cord). It sheds off after Prasuti (labour). This indicates Apara to be the Placenta from modern anatomical term. Its formation described from obstructed Artava may be because of resemblance of its maternal surface with blood clots and absence of Artava in Garbhavastha (pregnancy). Samhita description lacks its actual location and anatomical features. It is also called as Jarayu indicating different meanings in Kasyapa Samhita, Sushruta Samhita and Caraka Samhita. These facts indicate the need for its literary research. For anatomical study 30 pregnant females were selected randomly and their gestational ultrasonography was taken in third trimester to see the location of Apara (placenta) and abnormality. It is found that Apara is normally adhered to upper uterine segment. Apara received after labor from these selected 30 pregnant females were observed for anatomical features. The parameters noted for weight, diameter, thickness at center, number of cotyledons, attachment of umbilical cord at center or periphery, and abnormality of Apara. Observations given in charts and graphs. Lacuna in Samhita text regarding anatomical features of Apara needs the study of term Placenta.

KEYWORDS: Apara, Placenta, Conceptual, Clinical Study.

INTRODUCTION

Expert Chikitsaka (Physician) needs detail study of body and body parts.[1] Shastra adhyana (Textual Theoretical study) and practical both are essential for expanding the knowledge.[2] In Ayurvedic Samhita (text book) and their commentaries Sharir description of some body parts and organs is given in poetic manner, it is variable in different Samhita and also deficit its complete anatomical description which may create confusion. It has created the necessity for study of Sharir terms in correlation with modern science.

Garbhavastha (fetal span) is important and inseparable part in every individual’s life. Garbha (fetus) is dependent on the Mother for nutrition and development during fetal life. Nutrition is provided to the developing fetus by Apara (placenta) through Garbhvanabhinadi (umbilical cord). Apara is important organ for Garbha (fetus).

Sushrutacharya describes its formation from obstructed Artava (Menstrual blood).[3] Whereas modern science does not advocate formation of any important organ from obstructed menstrual blood. Charak samhita describes the location of Apara in relation to Matru hriday (Heart of the mother) and provides nutrition to fetus.[4] Samhita references of Apara deficit its proper location and anatomical description. Astanga Sangraha has described the synonym ‘Jarayu’ for Apara.[5] Description of Jarayu in
Kasyap Samhita indicate it to be the peritoneum.[6] Sushrut Samhita indicate it to be Kala (membrane).[7]

Charak samhita indicate it to be the fetal membrane.[8] All these descriptions in Samhita creates confusion and controversy in study of term Apara. This topic has taken for conceptual study of Apara as literary research as well as for anatomical and clinical study of Apara ultrasonography examination of 30 pregnant females in third trimester was taken for its normal location and any abnormality. Apara received after labor from these 30 females were examined for Anatomical features.

**OBJECTIVES**
1) To study the references of Apara from Ayurvedic Samhita and correlate it with modern anatomical term.
2) To locate the appropriate position of Apara.
3) Practical observation of Apara for its anatomical features.

**MATERIALS AND METHODS**
Clinical and practical study of Apara is taken by two ways.
1) Pregnant female examination
2) Observation of Apara after labor

**Selection of Pregnant female**
1) Pregnant females from Ayurved College Hospital OPD and IPD were selected randomly.
2) 30 pregnant females were selected for study.

**Pregnant female Examination**
1) All selected pregnant females were taken for gestational Ultrasonography examination in third trimester to see position/location of Apara and deformity of Apara

2) Observations were presented in tables and charts

**Examination of Apara after labour**
Apara obtained from selected 30 pregnant females were examined for anatomical features and abnormality

**Materials used for Apara examination**

**RESULT AND DISCUSSION**
This study is taken for two purposes
1. Conceptual study of Apara by literary research.
3. Literature Review for conceptual study.

Study of Apara references from Samhita denotes that it is formed after Garbhadhan, provides nutrition to Garbha (fetus) and it shed off after Prasuti (labor). Thus the Apara term can be correlated with Placenta.[9] Location of Apara and its anatomical structural description is not clearly mentioned in Samhita text. The maternal surface of Apara (placenta) resembles the blood clots, this may be the reason why it is described to be formed form obstructed Artava (menstrual blood).
The obstruction of Artawavaha srotasa can be compared with ovum fertilization and formation of corpus luteum which is essential for placenta formation.[10]

As fetal membrane is continuous with placenta, and after labor it came out along with placenta, the Jarayu term is taken for placenta with fetal membrane in Samhita text.

Graph 1: Location of Apara (placenta) attachment

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2) Result of Examination of Apara after labor / practical study of Apara

Apara received after labor of selected 30 females were taken for observation in a tray. It was rounded disc shaped with attachment of Garbhanabhinadi at centre of its smooth fetal surface. (figure 1) It is mottled white in color. Fetal membrane removed to expose its maternal surface. (figure 2) It resembles the blood clots, it is irregular and have cotyledons. Apara were measured for following parameters and the results noted. (figure 3)

Weight of Apara (placenta) range: 350 - 650 gms, Mean weight of Apara: 520 gm

Graph 2: Showing weight of Apara

Diameter of Apara (Placenta)
Diameter of Apara (placenta) range: 150-200 mm
Mean diameter of Apara (Placenta): 172.33 mm i.e. 172 mm
Graph showing diameter of Apara (placenta)

Graph 3: Thickness of Apara at centre

Apara (Placental) thickness at center: Range 15-30 mm
Mean Apara (placental) thickness at center: Range 20 mm
CONCLUSION

In current literary and clinic anatomical study it was found that,

1. The term Apara in samhita text is Placenta.
2. Jarayu term synonym for Apara indicate three meanings-peritoneum, membrane and fetal membrane. This term indicating fetal membrane is taken for both placenta and fetal membrane as both these are expelled together.
3. Description of Apara formation from obstructed menstrual blood in Samhita text may be because of its resemblance to blood clots and absence of menstruation during pregnancy.
4. Location of Apara is not clearly mentioned in Ayurvedic Samhita text. It is normally attached to upper uterine segment.
5. Anatomical description of Apara is not mentioned in Samhita text, it needs to be studied from modern text as Placenta. Mean weight of placenta 520 gm, mean placental diameter 172 mm, mean placental thickness at center 20 mm. It has 15-20 cotyledons on its maternal surface. Garbhanabhinadi is normally adhared to centre of Apara.
6. In this study 99.33% Apara found normal while 6.67 % Apara found with placental calcification in small quantity.

Available online at: http://ijapr.in
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Cite this article as:

Source of support: Nil, Conflict of interest: None Declared

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Study Photographs

Figure 1: Apara (placenta) fetal Surface

Figure 2: Jarayu (Fetal membrane) removed to expose maternal surface of Apara

Figure 3: Maternal surface of Apara (Placenta) with some placental calcifications