



## A MORPHOLOGICAL STUDY OF PLACENTA AND UMBILICAL CORD IN TERM PREGNANCY WITH ITS CLINICAL IMPLICATIONS IN JAMMU REGION.

### Anatomy

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### ABSTRACT

**INTRODUCTION-** In the idiopathic intrauterine growth restriction where there are no clear maternal or fetal causes, the placenta may hold the key to its etiology. The study was carried out to assess various morphological features of placenta and umbilical cord and to find out its correlation with birth weight of the baby.

**MATERIAL AND METHODS-** Study was carried out on 100 freshly delivered placenta and umbilical cord from indoor patients of gynaecology and obstetrics department. All the measurements were taken using standard measuring devices and technique.

**RESULTS-** The study showed a strong correlation between morphological features of placenta, umbilical cord and fetal weight.

### KEYWORDS

Placenta, umbilical cord, Fetal weight.

#### INTRODUCTION:

Placenta is a Latin word which means flat plate or cake. Placenta is classified as chorio-allantoic, hemochorial, villous, decidual and discoidal. The gross anatomy of human placenta is virtually a description of its vascular anatomy, since it is a structure almost wholly composed of fetal blood vessels. The main function of fetal blood vessels is presentation of fetal blood to circulating maternal blood. Vessels are arranged in such a fashion that the volume of flow of fetal blood through placenta will be maximal. Umbilical cord is the lifeline of the fetus 'The baby's life hangs by a cord'. The fetus is at full mercy of this organ, the condition of which organ determines the welfare and existence of the fetus. The study of structure of human umbilical cord has a close bearing on several obstetrical phenomenon especially hemodynamics of placental circulation.

Placental function often holds the key to fetal growth. Its weight is approximately 1/6<sup>th</sup> of the fetal weight. Placenta is the principal cause of maternal and perinatal mortality if it is abnormal and if there is a placental insufficiency, it can even lead to fetal growth retardation. After delivery, careful inspection of placenta can provide much insight into the prenatal health of the baby and the mother. This study was undertaken to look for morphology of placenta and umbilical cord to establish the relationship of fetal birth weight with placental and umbilical measurements.

#### MATERIAL AND METHODS:

In this study, 100 freshly delivered placenta and umbilical cords were collected. The placenta and umbilical cord were examined and following parameters were noted:

- 1) Shape of the placenta- oval/ circular/ any other.
- 2) Diameter of the placenta- distance between two farthest points was measured in centimeters.
- 3) Thickness of the placenta- it was measured by using a needle at the level of cord insertion and then compared it with the measuring scale.
- 4) Weight of the placenta- it was weighed in grams.
- 5) Insertion of umbilical cord to placenta- central/ peripheral.
- 6) Surfaces of placenta- Fetal surface was examined for presence of any discolouration and nature of blood vessels and maternal surface was examined for the number of cotyledons.
- 7) Length of umbilical cord- it was recorded with the help of measuring tape. The length was taken from the site of attachment to placenta to its cut end plus 10cm is added to the obtained length.
- 8) Spiral twisting of the vessels- number of twists were counted and their direction whether clockwise or anti-clockwise was noted.
- 9) Baby's weight at birth was noted in grams.
- 10) Foeto-placental ratio was also determined.

#### RESULTS:

Aim was to study morphological features of placenta and umbilical cord.

**Shape-** Out of 100 placentae studied, 87 were round in shape and 11 were oval, 1 placenta was bilobed and 1 placenta was quadrangular in shape. Bilobed placenta was found in twin pregnancy. Quadrangular placenta was obtained from a normotensive patient. This placenta weighed 350gm and had 18 lobes.

**Weight-** weight of placenta varied from 250gm to 525gm, average 450gms. It was observed that average weight of placenta was more in twins. In cases of severe anemia, placental weight was found less.

**Diameter-** diameter of placenta recorded ranged from 13-21cm, average being 18cm. More diameter was noted from twin pregnancy.

**Thickness-** thickness was noted at the level of cord insertion and it ranged from 1.3-2.8cm.

**Insertion of umbilical cord to placenta-** 82 cases showed central and 18 cases showed peripheral insertion of umbilical cord.

**Fetal Surface of placenta-** no abnormality was detected on the fetal surface. Normal appearance of vessels was seen.

**Number of cotyledons-** on maternal surface of placenta number of cotyledons ranged from 18-24, average was 21.

**Fetal weight-** fetal weight range was 2000 – 4500gm. Average fetal weight was 3000gm.

**Length of umbilical cord-** it was measured in centimeters. Length of cord range from 45-58cm, average 46cm.

**Spiral twists-** in each cord spiral twists were counted. Out of 100 cords 15 had no spiral twists. Average number of spiral twists ranged from 5-17.

Foeto-placental ratio in the present study was 6.6

#### DISCUSSION

A total of 100 placenta and umbilical cords were studied and their morphological parameters were recorded and correlated with the observations made by other researchers on the topic.

Panuganti PK, Boddeti RK found the placental weight ranged from 321-543gm. In the present study weight of placenta ranged from 250-525gm. Diameter of placenta ranged from 13-21cm, which is in accordance with the study done by Gupta C et.al 2015.

Thickness of placenta at the level of cord insertion in present study was 1.3-2.8cm which is almost similar to the study done by Panuganti PK and Boddeti RK in which the thickness range is 1.8-2.8cm.

Number of cotyledons in a study done by Abelrahman MA ranged from 16-22, which is in accordance with the present study. The length of umbilical cord in the present study ranges from 45-58cm, while in a study done by Unmesh BN, Ashok SM average length was 51-60cm.

Fetal weight in the present study ranged from 2000-4500gm. Fetal weight was found more in multigravida. There is a positive correlation between fetal weight and placental weight.

#### CONCLUSION

In the present study various morphological characters placenta and umbilical cord were studied. Morphological study of placenta and umbilical cord has an important role to predict health of the newborn.

There is a definite correlation between different morphological features of placenta, umbilical cord and fetal weight. Measurement of placental, umbilical cord parameters by non-invasive techniques like ultrasonography is helpful in assessing the development of baby. So, careful examination of placenta and umbilical cord can give information that is useful in the immediate and later management of mother and the baby.

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