

Morphometric Study of Placenta and Report Of Abnormalities

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Abstract: The human placenta is the “Mirror of maternal and foetal status:” The human placenta is a Labyrinthine, Heamochorial, chorio-allantoic and deciduate organ. A term placenta was described by Morton (1957) in multigravid female. The present study has been undertaken to study whether maternal and foetal causes for variation in morphometric study of placenta have any relevance with reported abnormalities the tremendous benefit will be achieved by solving above problems and paucity of much work in this part of North coastal Andhra Pradesh gave an impetus to take up the study of morphometric data of placenta

Keywords: Battledore Placenta, Circumference, Diameter, length & Weight of the Placenta and Umbilical cord, Cotyledons, Monochorionic-biamniotic Placenta.

I. Introduction

Placenta is the “Mirror of maternal and foetal status”. A term placenta was described by Morton (1957) in a multigravid female. The human placenta is a “Labyrinthine”, “Heamochorial”, “Chorio- allantoic”, and “Deciduate organ”. The human placenta is a tumor-like tissue in which highly proliferative, migratory, and invasive extra-villous trophoblast cells, migrate and invade the uterus and its vasculature, to provide a vital link between the mother and the developing fetus. Placenta is attached to the posterior wall of the uterus near the fundus, with its center in or near the median plane. An increasing placental size occurs in pregnancy as an adaptive response to both high altitude and mild under nutrition during mid pregnancy; hence the present study has been undertaken.

Placental morphology is characterized by five major features.

1.1) The definitive type of placental interface (called placental barrier by others, e.g., epitheliochorial, endotheliochorial, and hemochorial); 1.2) fetomaternal interdigitation (e.g., folded, lamellar, villous, trabecular, and labyrinthine); and 1.3) placental shape (e.g., diffuse, cotyledonary, zonary, and discoidal). The other features have been studied to a much lesser degree: 1.4) fetomaternal blood flow interrelations (e.g., concurrent, countercurrent, crosscurrent, and multivillous) and 1.5) neonatal/placental weight ratio.

II. Materials & Methods

Total number of 70 placentae collected from the department of gynaecology and obstetrics, MIMS, Nellimerla, the department of gynaecology and obstetrics, RIMS, Srikakulam and area hospitals, Vijayanagaram, and Srikakulam, were used for the present study.

Thread, vernier calipers & Scale were used for the present study

The weight, circumference, diameter and length of the umbilical cord were measured for the present study.

III. Observations

Measurements	min.	max
Weight of the placenta	50gms	650gms
Circumference of the placenta	23cms	60cms
Diameter of the placenta	9cms	23cms
Length of the umbilical cord	1.5cms	35cms

IV. Figures & Tables

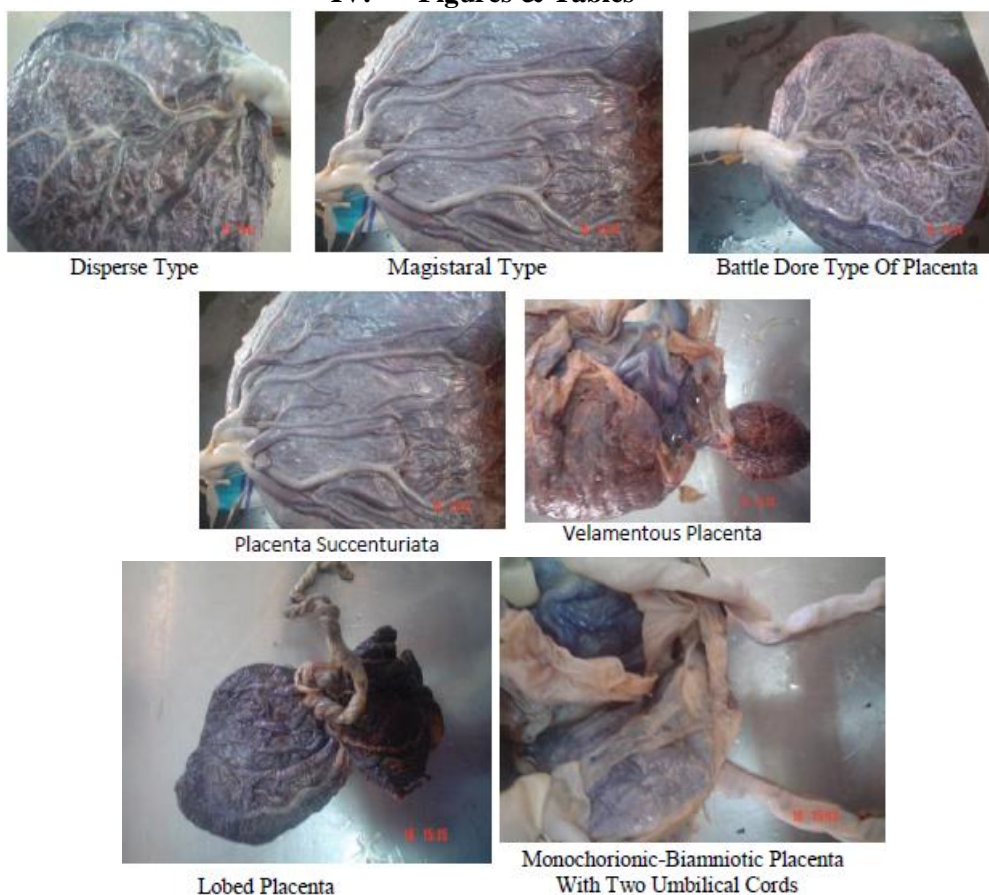


Table (4.1)

Sl. no	Type	No's
1	DISPERSE TYPE	45
2	MAGISTARAL TYPE	25
3	BATTLE DORE TYPE OF PLACENTA	36
4	PLACENTA SUCCENTURIATA	01
5	VELAMENTOUS PLACENTA	01
6	LOBED PLACENTA	03
7	MONOCHORIONIC-BIAMNIOTIC PLACENTA WITH TWO UMBLICAL CORDS	01

Table (4.2)

Sl.No.	NUMBER OF COTYLEDONS	No's
1	MORE THAN 18 COTYLEDONS	42
2	LESS THAN 18 COTYLEDONS	28
	TOTAL	70

The Placentae taken for study are normal having 2 Arteries and 1 Vein.

Table (4.3) Placentae Categorized Into 2 Groups

Sl.No	Type of Placenta	NORMAL	BATTLEDORETYPE
1	DISPERSE TYPE	21	19
2	MAGISTARAL TYPE	9	15
3	SUCCENTURIATA WITH DISPERSE TYPE	-	1
4	BILOBED WITH DISPERSE TYPE	1	2
5	VELAMENTOUS WITH DISPERSE TYPE	1	-
6	MONOCHORIONIC AND BI-AMNIOTIC WITH 2 UMBLICALCORDS AND MAGISTRAL TYPE	-	1
	TOTAL	32	38
	GRAND TOTAL		70

V. Discussion

(5.1) In the present study 5 placentae show low weight (2-50gms: 2-75 gms: 1-150 gms) the low placental weight may be due to:

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|----------------------------|---|
| • Foetal Factors | Maternal Factors |
| • Pre Maturity | Low Pregnancy Weight Gain |
| • Foetal Malformations | Low Maternal Pregravid Body Weight |
| • Neonatal High Hemoglobin | High Maternal Hemoglobin During Pregnancy |
| • Lower Than Expected Body | Maternal Diabetes Size In Later Childhood For Foetus. |

5.2) Some of the placenta also showed more weight (1-625 gms: 2-635 gms: 3-650 gms) and this may be due to

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|---------------------------------|--------------------------|
| FOETAL FACTORS | MATERNAL FACTORS |
| • POLY HYDRAMNIOS | DIABETES |
| • RESPIRATORY DISTRESS SYNDROME | ANEMIA |
| • ERYTHROBLASTOSIS FOETALIS | MAL NUTRITION |
| • FOETO MATERNAL HAEMORRHAGE | RETRO PLACENTAL HEMATOMA |

Velamentous type of placenta is seen in one case in, which it is directly inserted into extra placental membranes. vessels split before entering placenta this type of placenta commonly seen in twins. in this type of placenta usually there is blood loss and foetal distress.

Out of 70 placetae 3 were lobed placetae. This type of placenta consists of 2 lobes of unequal size separated by foetal membranes or connected by narrow isthmus of placental tissue. if any portions of the placenta is retained in uterus then it leads to the materal post-partum haemorrhage.

Out of 70 placetae 36 were battle dore type of placetae in which the umblical cord is attached to the margin of the placenta. if associated with low implantation of the placetae, there is chance of cord compression in vaginal delivery leading to foetal anoxia or even death, other wise it has got little significance.

In monochorionic-biamniotic type of placenta there may be arterio-venous anastomoses in any both foetuses due to sharing of vascular portion and merging of vascular districts.

61 umbilical cords show short cord in which the length is less than 32 cms . Most probably the causative factor is maternal uterine malformation, oligohydramnios, foetal body wall anamolies.

VI. Conclusion

An increasing placental size occurs in pregnancy as an adaptive responsive to both high altitude and mild under nutrition during mid pregnancy.

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