



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2018; 4(3): 234-236
www.allresearchjournal.com
Received: 02-01-2018
Accepted: 03-02-2018

Dr. Annapurna Bose
Professor (TS) and Head,
Department of Anatomy,
M.G.M. Medical College,
Indore, Madhya Pradesh,
India

Dr. Massarat Jehan
Assistant Professor,
Department of Anatomy,
M.G.M. Medical College,
Indore, Madhya Pradesh,
India

A study of correlation between morphology of placenta and congenital anomalies

Dr. Annapurna Bose and Dr. Massarat Jehan

Abstract

Anatomical structure of placenta greatly influences in function. Examination of placental anatomy has been useful in-utero as well as after parturition. A total number of 100 placentae with umbilical cords and their fetuses were studied. The maximum number of anomalies were between 31-40 cm of cord. Maximum mid-thickness of 1.0-2.0 cm followed by 2.1-2.5 cm in 2nd trimester with 4 anomalous fetuses. In third trimester the mid-thickness of cord was more with maximum cases lying between 2.1-3.5 cm 12 anomalies. Eccentric type (75%), Central (23%) and Battledore (2%) has 10, 6 and no anomalies respectively. Irregular placental shape has relatively more anomalies. Placental length has an even distribution of anomalies according to number of cases but they distributed mostly on shorter arm. Mid-thickness for umbilical cord seems to have more anomalies in 3rd trimester group. True cord knots were associated with increased incidence of anomalies per cases. Weight of placenta does not affect distribution of anomalies in our study. Irregular placental shape was associated with higher incidence of anomalies as thin placenta in third trimester of pregnancy.

Keywords: Fetal anomaly, placental morphology, umbilical cord

Introduction

Historically Human placenta is a discoid, deciduate, chorioallantoic, hemochorial, and villous organ. It is the most interesting organ; its function often holds the key to fetal growth. It is an organ which transfers vital nutrients from mother to embryo and the waste products from embryo to mother ^[1].

Examination of placental anatomy has been useful in-utero as well as after parturition. Morphometric features of placenta can be correlated to fetal wellbeing ^[2]. The growth of fetus depends on adequate functionality of placenta. It shares same stress and strain to which the fetus is exposed. Thus any disease which affects the mother has a great impact on placenta. Anatomical structure of placenta greatly influences in function. Thus study of placental morphology is considered essential.³ Placenta is the "Mirror of maternal and foetal status" ^[4].

This study is planned to study the correlation between morphology of placenta and congenital anomalies of fetus.

Material and Methods

This study was conducted with the aim of studying placenta and cord of 100 abortus or still born for morphological analysis of placenta and cord in the department of anatomy, M.G.M. Medical College, Indore of central India. The material was consisted of hundred fresh fetuses, placentae and cords, collected at random from the department of obstetrics and gynecology, M.Y. Hospital, Indore. The cord length, mid-thickness of cord, type of insertion of cord into placenta, cord vasculature for single artery, false and true knots, shape of placenta, weight of placenta and thickness of placenta was recorded. Anomalies in abortus and still born were looked for and segregated according to morphometric features of placenta and cord, gestational trimester and tabulated for analysis of pattern of different recorded morphometric parameters.

Results and Discussion

A total number of 100 placentae with umbilical cords and their fetuses were studied. Number of patient in 2nd trimester was 41 while in 3rd trimester it was 59 patients.

Correspondence

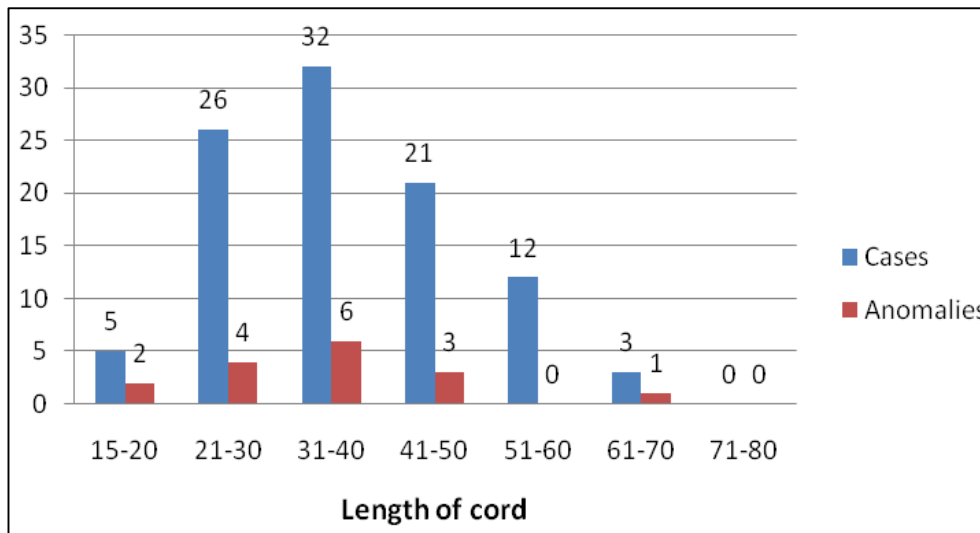
Dr. Massarat Jehan
Assistant Professor,
Department of Anatomy,
M.G.M. Medical College,
Indore, Madhya Pradesh,
India

The maximum number of cases with anomalies (Table 1 and Graph 1) was between 31-40 cm of cord length with 32% cases and 6 anomalies followed by 26% cases in 21-30 cm

with 4, 21% in 41-50 cm with 3, 12% in 51-60 cm with no anomaly and 5% or less in both extreme arms with a total of three anomalies.

Table 1: Distribution of cord length and fetal anomalies

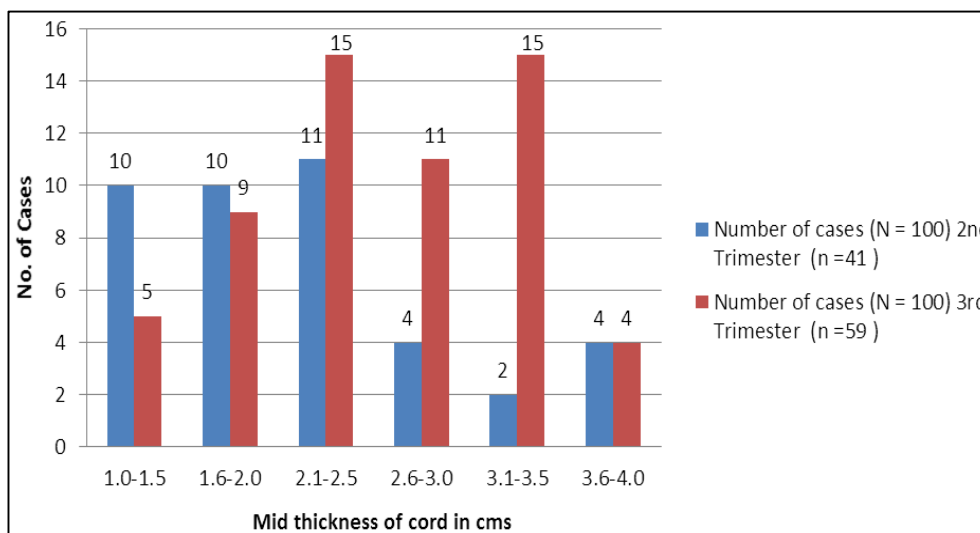
S. No.	Length of cord in cms	Number of Anomalies per cases	
		Cases (N = 100)	Anomalies (n=16)
1	15-20	5	2
2	21-30	26	4
3	31-40	32	6
4	41-50	21	3
5	51-60	12	Nil
6	61-70	3	1
7	71-80	Nil	Nil



Graph 1: Distribution of cord length and fetal anomalies

Maximum mid-thickness of cord (Graph 2) seen in 20 cases between 1.0-2.0 cm followed by 11 cases between 2.1-2.5 cm rest 10 cases were more than 2.6 cm in 2nd trimester with incidence of total 4 anomalous fetuses. In third

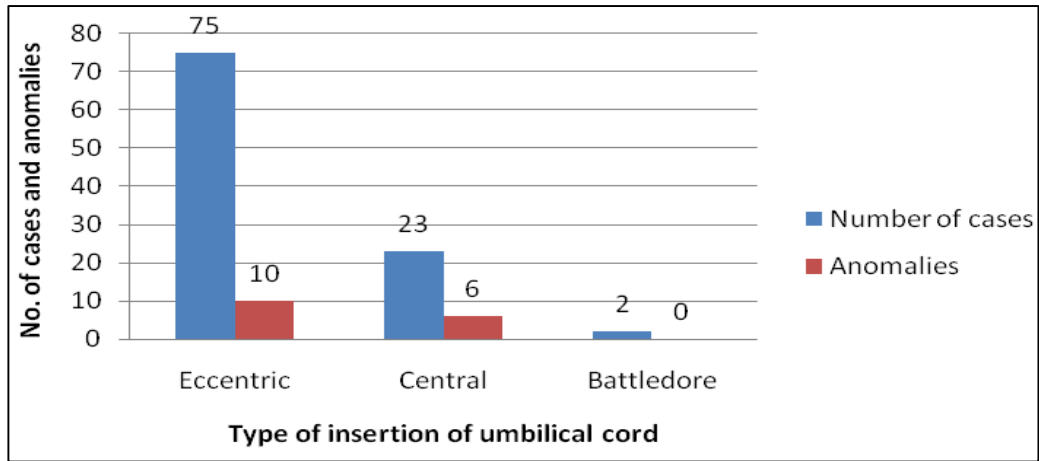
trimester the mid-thickness of cord was more with maximum cases lying between 2.1-3.5 cm with 41 patients out of 59 with increased number of fetal anomalies which was 12 in third trimester.



Graph 2: Mid-thickness of the cord in 2nd and 3rd trimester of pregnancy

Commonest insertion type of umbilical cord into placenta (Graph 3) was Eccentric type (75%), followed by Central (23%) and Battledore only in 2% cases with 10, 6 and no fetal anomalies respectively. This battledore insertion is important because these cases may lead to an increased risk

of fetal hemorrhage due to the unprotected vessels as well as vascular compression and thrombosis. Battledore cord insertion is also associated with advanced maternal age, diabetes mellitus, smoking, a single umbilical artery, and fetal malformations [5].



Graph 3: Type of insertion of the umbilical cord and its relation with fetal anomalies

One case of Umbilical cord with single artery was there which was associated with maternal anaemia and anencephaly in foetus. Most common type of shape of placenta was Round (39%), Oval (37%) and rest 24% was of irregular shape with 4, 6 and 6 anomalies respectively as shown in Table no.2. Irregular shape of placenta seems to have higher incidence of fetal anomalies.

Table 2: Distribution of fetal anomalies according to shape of placentae

S. No.	Shape of Placenta	Number of cases	
		No. of patients (N=100)	Number of Anomalies
1	Oval	37	4
2	Round	39	6
3	Irregular	24	6
4	Any other	Nil	Nil

False knots were present in 62% cases with 11 anomalies while only 4 cases had true knots with one anomaly in fetus. Thirty four percent umbilical cords were without any knots. As far as weight of placenta concern 40% of the third trimester cases were in 300-500 gms weight range with 3 anomalies in fetus. Only 5% of the placentae were above that range. Rest 55% placentae were distributed below 300 gms to 40-100 gms in second trimester. Anomalies seem to be evenly distributed throughout the weight range. Maximal placental thickness was between 0.4 – 0.9 cm in 32 cases out of 41 cases of second trimester while it increased to 0.7-1.2 cm in 46 cases, out of 59 cases of third trimester. There were 4 anomalies in fetus in 0.7 to 1.5 cm placental thickness range. Thin placenta less than 2 cm associated with unfavorable outcome and more than 4 cm are usually associated with maternal diabetes mellitus [5]. Most of the other studies that deals with placental morphology and fetal anomalies mostly done for Pregnancy induced hypertenstion and in eclampsia patients, none of the studies was found which have discussed morphometric parameters in direct correlation for fetal anomalies [6-8].

Conclusion

Placental length has an even distribution of anomalies according to number of cases but they distributed mostly on shorter arm. Mid-thickness for umbilical cord seems to have more anomalies in 3rd trimester group. True cord knots were associated with increased incidence of anomalies per cases. Weight of placenta does not affect distribution of anomalies

in our study. Irregular placental shape was associated with higher incidence of anomalies as thin placenta in third trimester of pregnancy.

References

1. Biswas S, Chattopadhyay JC., Ghosh SK. Volume of placenta and chronic villi as indicator of intra uterine growth restriction of fetuses. Journal of Anatomical Society of India. 2007; 56: 25-29.
2. Kouvalainen K, Pynnönen AI, Makarainen M, Peltonen Weights T., of placental membranes and umbilical cord. Duodecim. 1971; 87:1210-1214.
3. Modi HN, Umaraniya YN, Prajapati HK, Rathod JB, Chauhan HM, Chaudhary SM, Morphology of placenta in pregnancy induced hypertension. Medical sciences. 2013; 2(9): 273-274.
4. Amoroso EC. Placentation In, Marshall's Physiology of reproduction. Longmans Green, London. 1952; 3(2):127-309.
5. Yetter JF 3rd. Examination of the Placenta. Am Fam Physician. 1998; 57:1045-54.
6. Kambale T, Iqbal B, Ramraje S, Swaimul K, Salve S. Placental morphology and fetal implications in pregnancies complicated by pregnancy-induced hypertension Medical journal of Dr. D.Y. Patil vidyapeeth. 2016; 9(3):341-347.
7. Shevade S, Arole V, Bharambe V, Paranjape V. Placental Morphology and Fetal Outcome in Preeclampsia and Normotensive Pregnancies. IOSR Journal of Dental and Medical Sciences. 2015; 14(4):11-15.
8. Pasricha N, Placental morphology and its co-relation with foetal outcome in pregnancy-induced hypertension. Int J Basic and Applied Med Sci. 2012; 2(3):120-125.