



## STUDY OF PLACENTAL COTYLEDONS IN NORMAL AND INTRAUTERINE GROWTH RETARDATION(IUGR) PLACENTA

**Pooja Dhabhai\***

Department of Anatomy, R.N.T. Medical College, Udaipur, Rajasthan, India.

\*Corresponding author

**Dr Harish Kumar Gurjer**

Senior Medical Officer, Department of Medical and Health, Rajasthan, India.

### ABSTRACT

**Background and Purpose:** The purpose of the study is to compare the Placental cotyledons in normal placentas and IUGR placentas.

**Material and Methods-**Research study, Department of Anatomy, R.N.T.Medical College, Udaipur. 100 control and 100 IUGR Placentas. 100 Placentas from normal control Pregnancies and 100 Placentas from mother who delivered Intra Uterine Growth Retarded (IUGR) babies. we refer only uncomplicated Pregnancies without any previous diseases. Placenta was collected as soon as possible after delivery and was examined for gross changes then it was fixed in 10% formalin for sections- later on for staining. Chi Square test was used for statistical analysis. **Conclusion:** Less number of Cotyledons associated with low fetal weight.

**KEYWORDS :** Cotyledons , Placenta, Intrauterine Growth Retardation.

### INTRODUCTION

Placenta allowing nutrient uptake ,waste elimination and gas exchange via the mother's blood supply<sup>1</sup>. The human placenta is hemomonochorial, meaning that only one chorionic cell layer exists between maternal and fetal bloods<sup>2</sup>. The placenta is a temporary structure unique to pregnancy functions to sustain and protect the fetus until birth<sup>3</sup>

Human placenta is haemochorial,that is,maternal blood is in direct contact with the chorionic epithelium. During its relatively short life span it serves a wide range of functions. Unlike pre-eclampsia, there are numerous recognized environmental, maternal and placental causing factors that may result in an IUGR fetus. However, in atleast 40% of all cases of babies born lowbirth weight, no underlying pathology can be identified; in the case of prematurity, which has significant overlap with IUGR, this percentage increases to 60-70%<sup>4</sup>.

There can be no doubt that as an organ it is unique. No other organ in body contains both maternal and foetal tissues. Hence the study of placenta presents a Uniquely efficient opportunity to obtain information about two individuals the mother and foetus.

Normal fetal growth is a critical component of a healthy pregnancy and influences the long-term health of the offspring. However, defining normal and abnormal fetal growth has been a long-standing challenge in clinical practice and research.

As very little work done on morphology of placenta specially in our country.Adequate studies have not been undertaken to find out standard values regarding the weight of placenta and foetus in normal and abnormal pregnancies.Even in cases of IUGR.

Since very few previous attempts have been made to characterize quantitatively the morphologic structure of these placentas.I proposed in the present investigation,first ,to define more precisely,with quantitative analyses,the morphologic changes in the functional structure of the placenta which could be attributed to IUGR,and second,to evaluate the possible impact of these structural changes on placental function,fetal growth and development,and the perinatal morbidity associated with this disease.A relationship exists between morphological changes in the placentas of IUGR and intrauterine fetal deaths.<sup>5</sup>

### MATERIAL AND METHODS

The study of placentae in normal and Intrauterine Growth Retardation cases was carried out at R.N.T Medical College & Hospital, Udaipur.

The placentae were collected from two hundred women admitted and delivered in MahilaChikitsalaya attached to R.N.T. Medical College, Udaipur, with approval with institutional ethical committee .Cases taken were those admitted to the labour rooms of the hospital(either directly or through the antenatal wards).The cases were selectively studied from 1-7-13 to 1-4-14.All the cases were within the age group

of 18-40 years, of average height and weight and includes both primigravida and multigravida. All the cases were free from any other systemic disease.

#### Group 1-Normal Pregnancy

100 patients included in this group,had a haemoglobin above 9 gms%and a normal urine analysis,not associated with any disease.

#### Group 2-IUGR Cases

100 cases of Idiopathic IUGR were included.

### METHODS

After the delivery placentae were collected for morbid and histopathological studies.The size,shape,surface area,weight of placenta was noted along with the inspection of marginal veins for any thrombus.The number of cotyledons,condition of membranes, were noted. The gross examinationof placentae were done as soon as possible after the delivery.

**Inclusion criteria:** 100 Placentas from normal control Pregnancies and 100 Placentas from mother who delivered Intra Uterine Growth Retarded (IUGR) babies, all the cases were studied in details.

**Exclusion Criteria:** we refer only uncomplicated Pregnancies without any previous diseases.

### RESULT

#### Normal Placenta:

##### Cotyledons per Placenta-

No. of Cotyledons present on the maternal surface ranged between minimum 12 to a maximum 20 Cotyledons.

**Table No.1.1**

Cotyledons per Placenta	No. of Placenta	% of Placenta
12-14	31	31
15-17	49	49
18-20	20	20

#### IUGR Placenta:

##### Cotyledons per Placenta-

**Table No.1.2**

Cotyledons per Placenta	No. of Placenta	% of Placenta
11-14	57	57
15-17	36	36
18-20	7	7

**TABLE NO. 1.3**

#### Statistical Analysis of Significance

Variable	Normal pregnancies group (n = 100)	IUGR pregnancies group (n = 100)	p value
No. of Cotyledons	15.58	2.23	13.86
			2.30
			<0.001

**DISCUSSION****Table 1.4 Statistical comparison of no. of cotyledons in control and research group**

Author and Year	Place	Number of cases	Mean No of Cotyledons		Result*
			Control	Research	
Kotgirwar(2011) <sup>6</sup>	Bhopal	55	15	14	P<0.01
Pradeep S Londhe (2012) <sup>7</sup>	Andhra Pradesh	374	16.5	14.3	P<0.01
Ganga R Singal (2013) <sup>8</sup>	Bhavnagar	100	16	14	P<0.01
Present Study(2014)	Udaipur	200	15.58	13.86	P<0.001

**Highly significant p<0.001, Significant p<0.01, Insignificant p>0.05**

In the present study, difference in mean no of cotyledons in control and research group is significant. The 'p' value (<0.001) is highly significant. The study of Pradeep S Londhe et al<sup>7</sup> and Kotgirwar et al<sup>6</sup> showed significant values( p<0.01) of differences in number of cotyledons. Ganga R Singal et al<sup>8</sup> also showed lower value of mean no of cotyledons in research group as compared to control group (p<0.01).

**CONCLUSION**

The mean placental and foetal weight ,no of cotyledons was decreased in IUGR cases.

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