

SIGNIFICANCE OF PLACENTAL HISTOPATHOLOGICAL FINDINGS IN PRETERM/TERM BIRTH

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Abstract

Background: This study is cross-sectional, observational and comparative study, at Index Medical College, Hospital & Research Centre, Indore, Madhya Pradesh from July 2017 to July 2019 with sample size 100 placentae.

Method: The placenta received was evaluated blinded of maternal pregnancy outcome. The pattern of morphology was evaluated both qualitatively (type of lesion) and quantitatively (number of lesions).

Result: In Present study 79% of the deliveries were term deliveries and 21% were preterm deliveries. On placental macroscopy, placenta weight was significantly low among the neonates of preterm deliveries (370.00±60.49) as compared to term deliveries (440.89±55.22). Preterm placenta had higher number of abnormal placental lesion compared to term pregnancies.

Conclusion: The uteroplacental insufficiency defined as placental infarct, fibrosis of chorionic villi, thickening of blood vessels, and poor vascularity of chorionic villi. Placental histopathological lesions are strongly associated with maternal under perfusion and uteroplacental insufficiency. These are the reasons for preterm birth. Thus, knowledge of the etiological factor can be use to reduce maternal and neonatal morbidity and mortality.

Keywords: Placenta, Term & Preterm.

Introduction

The placenta has been described as a “diary of intrauterine life” with the potential to reflect many aspects of fetal development. A pertinent question which has been always raised is whether the placental lesions hold any key to adverse fetal outcome observed in small for gestational age (SGA) fetuses¹. The presence of uteroplacental insufficiency and abnormal blood supply, especially in preterm fetal growth restriction (FGR) placentas have been indicated by many authors.²

Preterm babies are defined as babies born alive before 37 weeks of pregnancy are completed. Prematurity is an important cause of serious morbidity and mortality after delivery. During pregnancy, the placenta has essential roles in fetal nutrition, gas exchange and removal of residual products of catabolism. The placenta has a strategic position at the fetal-maternal interface reflecting the problems of both the mother and the fetus.³

Material & Method.

The placental pattern of morphology was evaluated both qualitatively (type of lesion) and quantitatively (number of lesions).

Gross examination of placenta:

The gross was performed in the fresh state.

(a) Weight

(b) Shape

(c) Dimension of disk

(d) Membranes:-completeness, color, transparency and insertion of membrane

(e) Fetal surface (chorionic plate)

(f) Maternal surface- cotyledon

(g) Umbilical cord- vessels, twist, true knots, thrombosis and congestion.

Inclusion Criteria:

- A singleton pregnancy having SGA (actual birth weight <10th percentile for that gestational age)

Exclusion Criteria:

- Twin pregnancy, Pregnancy with anomalous fetus, patients unsure of dates or irregular menses, known maternal diseases such as diabetes or gestational diabetes, RhIsimmunization disorders, thyroid dysfunction, chronic hypertension, smoking history, known collagen vascular disease, liver, and renal disease will be excluded from the study.

Results

In Present study 79% of the deliveries were term deliveries and 21% were preterm deliveries. Mean maternal age in present study was 23.57±3.677 years, mean gestation age

was 36.68 ± 2.382 weeks and mean birth weight was 2.60 ± 0.43 kgs. Majority of the neonates had birthweight > 2.5 kg (60%) and 40% had birth weight < 2.5 kgs.

On placental macroscopy, placenta weight was significantly low among the neonates of preterm deliveries (370.00 ± 60.49) as compared to term deliveries (440.89 ± 55.22). The comparison was highly significant with p value of < 0.001 . However No. of cotyledons in Preterm deliveries (14.33 ± 1.77) and term delivery (15.19 ± 2.79). However, the comparison was insignificant which means that No. of cotyledons were similar between terms and preterm deliveries ($p = 0.186$). On Membrane Examination, out of 21 preterm deliveries, majority had membrane transparency (95.2%) whereas 1 neonates had no membrane transparency (4.8%).

On cord examination mean cord length of neonates of preterm deliveries and term deliveries was 19.52 ± 5.3 and 21.65 ± 4.76 cms respectively.

On microscopic examination, Peri villous fibrin (66.7%), Villous oedema (66.7%), Chorioamnionitis (14.3%), Infraction (14.3%), Retro placental Hematoma

(9.5%) and Calcification (4.8%) were more common in preterm babies as compared to term babies.

Discussion

Multicomponent composition of the placenta, along with its ability to perform a wide variety of functions and availability of a large amount of material, has always attracted close attention of clinicians and researchers.

In the present study majority of the mothers were between 20-35 years (80%) followed by 18% mothers were age < 20 years and majority of the mothers in present study

were primigravida 57% followed by 43% mothers who were multigravida.⁴ In a similar study Teixeira et al observed maternal age of SGA deliveries less than 16 years in 1.7%, 16 to 34 years in 83.8% and more than 34 years in 14.4% mothers. These results are comparable to present study.⁵

Ashraf et al identified the independent risk factors for preterm-SGA which were maternal age < 25 years, short maternal stature, firstborns (primigravida).⁶

Conclusion:

The uteroplacental insufficiency defined as placental infarct, fibrosis of chorionic villi, thickening of blood vessels, and poor vascularity of chorionic villi. Placental histopathological lesion are strongly associated with maternal under perfusion and uteroplacental insufficiency. These are the reasons for preterm birth. Thus, knowledge of the etiological factor can be use to reduce maternal and neonatal morbidity and mortality.

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