SHORT COMMUNICATION

# Amount of Calcification and Fibrosis in Placentas: A Comparitive Study from Hypertensive, Diabetic and Normal Pregnancies

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## INTRODUCTION

Examination of placenta can generate facts that might be necessary in the first line or later management of mother and infants. So we selected full term placentas and examined two important variables those are calcification and fibrosis in its structure, which can cause placental insufficiency. As seen in previous studies the placental morphology and histological appearance are in constant change[1].

## METHODS

Crosses sectional study was carried out at IBMS/DUHS Full term 150 placentas (37-40 weeks gestation) were included. Diabetic and hypertensive group placentas were closely monitored to make sure that they are not complicated by any other clinical condition Placentas from extreme maternal age that is <17 or >42 were excluded and only those were included which was preserved within 40 minutes of delivery[2] Gross examination was carried out. Subsequently, Placenta was noticed for any calcification The samples were obtained from tissue of both normal and abnormal appearance, placenta On sectioning the placenta, there was extensive infarction of varying ages, both old and recent[3]. The slides were examined under light microscope for calcification and fibrosis of placental tissue.

They were divided into three groups; normal, Diabetic and hypertensive, which were labeled as A normal, B diabetic and C hypertensive. The data was entered and analyzed on SPSS version 16.0

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## RESULTS

Abnormalities in cut surface were 10% in group "A", 58% in group "B" and 52% in group "C". That appeared to be moderately significant.

**Calcification in Stroma:**

Calcification in Stroma was found significant in both diabetic and hypertensive in comparison to the control group.

In control group two plus (moderate) and three plus (significant) was found 1% only.

In diabetic group two plus (moderate) calcification was found 22%and three plus (significant) in 12% of cases.

In hypertensive group two plus (moderate) calcification was found up to 12% and three plus (significant) calcification was seen in 16%.

**Fibrosis in Placental Tissue**

Average fibrosis in placental tissue was found statistically significant in both the diabetic 3.14 and hypertensive 2.08 times higher as compared to the control group ($P < 0.005$ Also, it was found approximately 3 times higher in diabetic then hypertensive group.

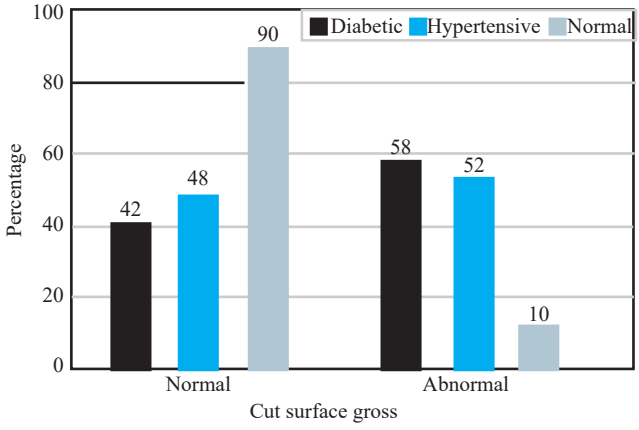


Fig VI: Distribution of study groups according to cut surface gross, fibrosis and inflammation of membranes

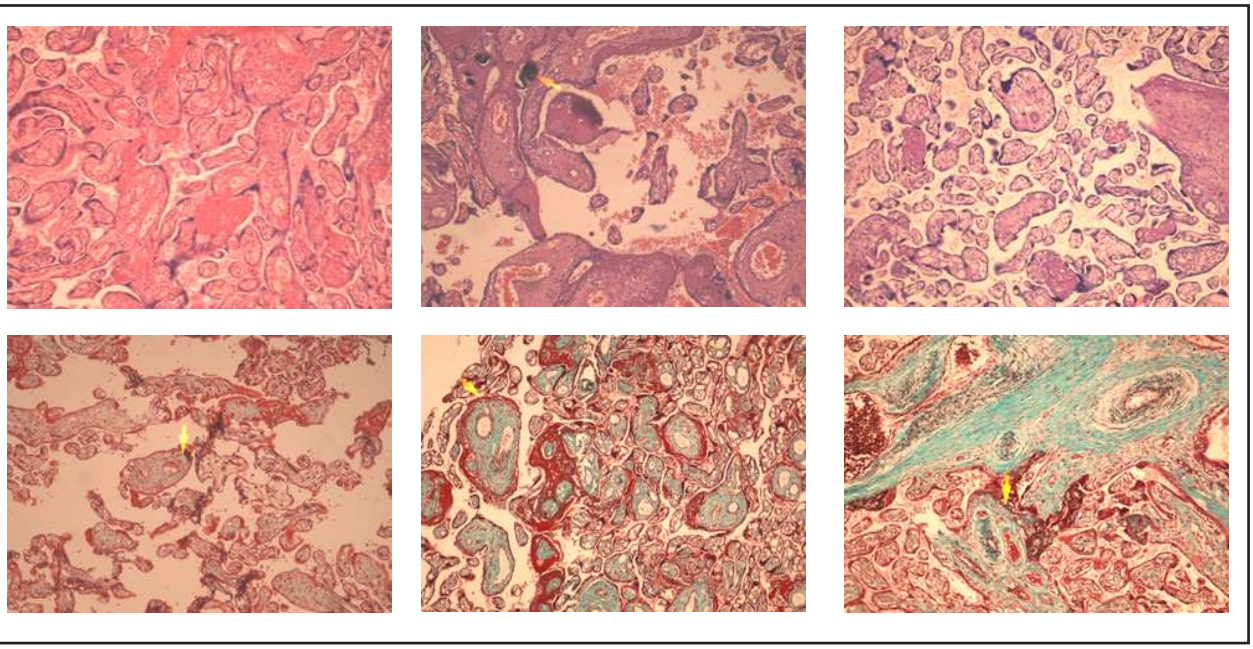

Fig No I. (upper part) showing no calcification in normal(left), calcification in diabetic placental tissue (middle)& hypertensive placental tissue(right) at 10x magnification /lpf with H&E stain (lower part) Photomicrograph showing fibrosis in normal placental tissue (left), fibrosis in diabetic placental tissue (middle)& fibrosis in hypertensive placental tissue(rightt) masons trichome staining at 10x magnification/lpf

## DISCUSSION

The anatomical and pathological examination and assessment are becoming more precise and objective and considered as an indirect and noninvasive method for the study of human gestation[4], we selected placenta to assess the adversity faced during and after delivery in diabetic and hypertensive mothers. In this study we proved the hypothesis that significant changes are there in placental morphology when comparison was drawn between the normal diabetic and hypertensive groups.

Our study have shown that in normal placenta there are no significant abnormalities on the cut surface of the tissue, but the diabetic and hypertensive placentas showed almost 58% and 52% abnormal changes

We found a significant relation between calcification and disease groups. In Controls the calcification was mostly absent or slight. The amount of placental calcification was graded on a scale of 0 to 3 by two independent observers whose grading was identical.

Fibrosis was also noted in the placental tissue and was significantly associated with the diseases. It is most frequently seen in the diabetic compared to the hypertensive and is least in the normal patients.

## CONCLUSION:

It is confirmed from the results of our study that structurally altered placentas in diabetes mellitus and hypertension have microscopically increased amount of calcification of stroma, fibrosis of placental tissue. Placental study in depth in pregnancies complicated by these can lead to significant reduction in unwanted pregnancy outcome[5] and will specifically help both obstetricians and pediatricians to carry out proper line of management in such conditions.

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