Original Article

Compare the Histology and Fetal Outcome in Patients with Normal Placenta and Abruptio Placenta

Fetal Outcome with Normal Placenta and Abruptio Placenta

Atif Hussain[1], Sadia Dilawer[2], Saba Shafiq[3] and Fatima[4]

ABSTRACT

Objective: To examine the histological examination of abruptio placenta in normal/term delivery and compare with normal placentae also compare the fetal outcomes.

Study Design: Comparative/Observational study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynaecology, Women and Children Hospital Abbottabad from April 2019 to December, 2019.

Materials and Methods: Sixty-four women with term pregnancy were included in this study. Patients categorized into two groups, group A contains 32 women with abruption placentae and group B 32 women with normal placentae. Patients detailed demographics including age and body mass index were recorded after written consent. Histological examination was done and compares the findings between both groups. Fetal outcomes such as birth weight and Apgar score were examined and compare.

Results: Mean BMI of patients in group A was 24.22±2.86 kg/m^2 and group B it was 24.78±2.64 24.22±2.86 kg/m^2. No significant difference was observed regarding age between both groups p-value >0.05. A significant difference was found regarding fibrinoid necrosis between group A and B (10.8±1.74 Vs 5.57±1.94) with p-value <0.05. Mean syncytial knots in group A was 47.85±9.74 and in group B it was 28.89±4.85, a significant difference was observed between group A and B (p=value <0.0001). Fetal weight was significantly less in group A when compared to group B with p-value 0.001.

Conclusion: Women with abruption placentae had significantly worst histological findings and poor fetal outcomes as compared to women with normal placentae.

Key Words: Abruptio placenta, Normal placentae, Fibrinoid necrosis, Syncytial knots, Calcification, Birth weight, Apgar score

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INTRODUCTION

Placental abruption, the untimely separation of the placenta from the uterine divider, before birth and following 20 weeks of growth, is one of the most noteworthy determinants of maternal bleakness just as perinatal dreariness and mortality.[1,2]

It is assessed to happen in 0.6 to 1% of pregnancies in the United States[3], yet the detailed frequency is lower (0.4–0.5%) in Nordic countries[4] and higher (3.5–3.8%) among some south Asian nations.[5] It ordinarily presents with maternal side effects of vaginal dying, stomach agony and withdrawals, and additionally irregular fetal pulse tracings.[5,6] The confusion is additionally portrayed by ceaseless placental brokenness and division from the uterine divider, which, with movement, can prompt a comparing decline in the placental surface territory accessible for oxygen trade and supplement flexibly for the embryo.[7] This procedure can prompt a raised danger of low birth weight, rashness, and perinatal mortality. Serious instances of suddenness can quickly advance to huge maternal blood misfortune, fetal hypoxia, and fetal demise and require new cesarean conveyance.[3]

There might be intervillous thrombi with pale overlaid sores with intense parenchymal hemorrhages which are normally dull red and covered with heaps of red platelets. Because of hemorrhages and blood clumps the fundamental placental parenchymal tissues become packed and centrally necrotic. Intense irritation prompts villi dead tissue. The RBCs breakdown and hemosiderin aggregates in 4-5 days with expanded perivillous fibrin testimony.[8] In constant unexpectedness, hemosiderinladen macrophages are

1. Department of Anatomy, Women Medical & Dental College Abbottabad.
2. Department of Gynae & Obstet, Abbottabad International Medical Institute Abbottabad
3. MO, Health Department Khyber Pakkhtunkhwa
4. Department of Gynae & Obstet, Mardan Medical Complex Mardan

Correspondence: Dr. Atif Hussain Assistant Professor of Anatomy, Women Medical & Dental College Abbottabad.
Contact No: 03345333788
Email: dr_atif786@yahoo.com

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noticeable in films and chorionic plate. Thrombi can be red in intense yet in constant cases these are pale tan to white with all around delineated parenchymal injuries. At times there is development of the intervillous space by layers of fibrin and red platelets.[9] Distal villous hypoplasia and expanded syncytial hitches (total of syncytiotrophoblastic cores on the outskirts of tertiary placental villi, shaping a gigantic multinucleated bulge from the villous surface) can likewise be visualized.[8] Such bunches are seldom noticeable before term pregnancy.[10] Dead tissue of placenta shows limited region of ischemic corruption of villi.[11] The present study was conducted to examine the histological morphology of abrutpion placentae and compare with normal placentae in term pregnancy, also compare the fetal outcomes.

MATERIALS AND METHODS

This comparative study was conducted at Department of Obstetrics & Gynaecology, Women and Children Hospital Abbottabad during from 1st April 2019 to 31st December, 2019. A total of 64 women with term pregnancy were included. Patient's ages were ranging from 18 to 35 years. Patients categorized into two groups, group A contains 32 women with abruptio placenta and group B 32 women with normal placentae. Patient's detailed demographics including age and body mass index were recorded after written consent. Patients with renal failure and severe co-morbidities, and patients with no consent were excluded. After delivery, the specimen samples of placentae were taken in a jar. They were then washed in a running tap water, tagged with numbers and preserved in 10% formal in solution for 48 hours. Histological examination such as fibrinoid necrosis, calcification and syncytial knots of placentae were recorded and compare the findings between both groups. Fetal outcomes such as neonatal birth weight and Apgar score at 5 and at 7 minutes were examined and compare between both groups. All the data was analyzed by SPSS 24. Chi-square test was applied to compare the histological examination and fetal outcomes between both groups with p-value <0.05 was taken as significant.

RESULTS

Mean BMI of patients in group A was 24.22±2.86 kg/m^2 and group B it was 24.78±2.64 24.22±2.86 kg/m^2. Mean age of group A patients was 25.62±3.22 years and in group B it was 25.02±3.01 years. No significant difference was observed regarding BMI and age between both groups with p-value >0.05 (Table 1). A significant difference was found regarding fibrinoid necrosis between group A and B (10.8±1.74 Vs 5.57±1.94) with p-value <0.05. Mean syncytial knots in group A was 47.85±9.74 and in group B it was 28.89±4.85, a significant difference was observed between group A and B (p=value <0.0001). Mean area of calcification in group A was 5.98±2.85 while in group B it was 1.52±1.86 with significant difference (p=<0.001) (Table 2). According to the fetal outcomes, a significant low birth weight was observed in group A 2.01±0.62 kg as compared to group B 3.82±0.4 kg with p-value 0.002. In group A 17 (53.12%) neonates had Apgar score >7 and 15 (46.88%) had apgar score <7and in group B 30 (93.75%) had Apgar score >7 and 2 (6.25%) had apgar score <7 at 5 minutes, a significant difference was observed between both groups (p=<0.001) (Table 3).

Table No.1: Comparison of age and BMI of all the patients

Variables	Group A	Group B	P-value
BMI(kg/m^2)	24.22±2.86	24.78±2.64	>0.05
Age (years)	25.62±3.22	25.02±3.01	>0.05

Table No.2: Histological findings between both groups

Variables	Group A	Group B	P-value
Fibrinoid Necrosis	10.8±1.74	5.57±1.94	<0.001
Syncytial Knots	47.85±9.74	28.89±4.85	<0.001
Calcification	5.98±2.85	1.52±1.86	<0.001

Table No.3: Fetal outcomes between both groups

Variables	Group A	Group B	P-value
Birth weight (Kg)	2.01±0.62	3.82±0.4	0.002
Apgar score at 5 min			
<7	15(46.88%)	2 (6.25%)	<0.001
>7	17(53.12%)	30(93.75%)	<0.001

DISCUSSION

Abruption placentae is one of the common disorder in women and associated with high rate of morbidity and mortality. In developed countries the prevalence of abruption placentae in term pregnancy was 3 to 5% while in developing countries like Pakistan and India it reaches 7% to 10%.[12,13] We conducted present study with aimed to examine the histological morphology of abruption placentae in term pregnancy and compare the findings with normal placentae pregnant women. In this regard 64 patients were enrolled and categorized into two groups, group A (abruption) and group B (normal placentae). We found that mean BMI of patients in group A was 24.22±2.86 kg/m^2 and group B it was 24.78±2.64 24.22±2.86 kg/m^2. Mean age of group A patients was 25.62±3.22 years and in group B it was 25.02±3.01 years. No significant difference was observed regarding BMI and age between both groups with p-value >0.05. These results were comparable to many of previous studies in which majority of patients with abruption placentae had ages 26 to 30 years.[14,15]

In present study we found significant difference regarding fibrinoid necrosis between group A and B

(10.8±1.74 Vs 5.57±1.94) with p-value <0.05. Mean syncytial knots in group A was 47.85±9.74 and in group B it was 28.89±4.85, a significant difference was observed between group A and B (p=value <0.0001). Mean area of calcification in group A was 5.98±2.85 while in group B it was 1.52±1.86 with significant difference (p=<0.001). A study conducted by Gunyelli et al[16] regarding histological study of placental lesion and they reported that 65% patients had fibrinoid necrosis in IUGR fetuses and 53% with placentas from unexplained intrauterine deaths. Another study showed similarity to our findings in which mean area of fibrinoid necrosis was 11.4±2.2 compared to 6.1±1.2 in the controls. In the abruptio patients the mean syncytial knot was 49.6±10.2 compared to 30.7±5.6 in the controls.[17]

In our study according to the fetal outcomes, a significant low birth weight was observed in group A 2.01±0.62 kg as compared to group B 3.82±0.4 kg with p-value 0.002. In group A 17 (53.12%) neonates had Apgar score >7 and 15 (46.88%) had apgar score <7and in group B 30 (93.75%) had Apgar score >7 and 2 (6.25%) had apgar score <7 at 5 minutes, a significant difference was observed between both groups (p=<0.001). These results showed similarity to many of previous studies in which women with apruption placentae had significantly low newborn birth weight as compared to normal placentae women in term deliveries.[18,19] Studies also demonstrated that patients with abruption placentae had significantly poor fetal outcomes when compare with normal placentae patients.[20-22]

CONCLUSION

Women with abruptio placenta had significantly worst histological findings and poor fetal outcomes as compared to women with normal placentae.

Author's Contribution:

Concept & Design of Study:	Atif Hussain
Drafting:	Sadia Dilawer, Saba Shafiq
Data Analysis:	Fatima
Revisiting Critically:	Atif Hussain, Sadia Dilawer
Final Approval of version:	Atif Hussain

Conflict of Interest: The study has no conflict of interest to declare by any author.

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