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Original Research Article

A comparative study of obstetrics outcome of placenta previa in scarred versus unscarred uterus at tertiary Hospital, Kathmandu, Nepal

Rakshya Upreti^{1*}, Amit Rauniyar², Sumit Rauniyar³, Shaheen N. Ansari¹, Madan Khadka⁴

¹Department of Obstetrics and Gynecology, Paropakar Maternity and Womens Hospital, Kathmandu, Nepal

²Department of Radiodiagnosis and Imaging, National Academy of Medical Sciences, Bir Hospital, Kathmandu, Nepal

³Department of General Medicine, King Edward Medical University, Lahore, Pakistan

⁴Department of Obstetrics and Gynecology, BPKIHS, Dharan, Nepal

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***Correspondence:**

Dr. Rakshya Upreti,

E-mail: rakshyaupreti52@gmail.com

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ABSTRACT

Background: Placenta previa is an obstetric life-threatening condition with several maternal and fetal complications. The objective of this study is to compare the maternal and fetal outcome of placenta previa in scarred and unscarred uterus.

Methods: A retrospective case control study was carried out on 85 cases of placenta previa in the department of obstetrics and gynecology, Paropakar Maternity and Womens Hospital (PMWH) Kathmandu from April 2019 to May 2020 of which 46 had scarred uterus and 39 cases had unscarred uterus.

Results: Sixty-one of patients were less than 30 years of age, 62% presented with gestational age 28 to 37 weeks and 67% had parity between 1 to 5. Frequency of placenta previa in scarred uterus was 54% and that in unscarred uterus was 46%. Eighty percent cases with scarred uterus had anterior placenta compared to 33% of cases of unscarred uterus with p value of 0.009. 42% had grade 4 placenta previa on ultrasonography. 45 percent of patient with scarred uterus had PPH compared to 23% in unscarred group with p value of 0.03. Malpresentation was found in 7 cases in scarred group and in one case in unscarred. Cesarean hysterectomy was performed in 6 cases in scarred category compared to 2 in unscarred. Low birth weight was present in 28 cases in scarred category compared to 15 cases in unscarred category with p value 0.03.

Conclusions: This study concluded that fetal and maternal outcome is adverse for cases of placenta previa with scarred uterus compared to unscarred uterus.

Keywords: Placenta previa, Postpartum hemorrhage, Scarred uterus

INTRODUCTION

Placenta previa is an obstetric condition in which placenta is implanted partially or wholly in lower uterine segment.¹ It occurs in 0.3-0.5% of all pregnancies.² It is an obstetrician's nightmare and a cause for one third of cases of antepartum hemorrhage and around 35% cases of placental bleeding.³

Almost 30% maternal deaths in the Asian population are due to major obstetrical hemorrhage and placenta previa

accounts for a major cause of it.^{4,5} Incidence of antepartum hemorrhage due to placenta previa is rising due to the rise in the incidence of caesarean sections.^{6,7} The exact cause of placenta previa is unknown but factors such as abnormal vascularization of endometrium following atrophy, trauma, surgery or infection may reduce the differential growth of lower uterine segment resulting in placenta previa.⁸ Advanced maternal age, multiple gestation, abortions, previous lower segment caesarean section (LSCS), smoking, uterine curettage, previous history of placenta previa are the risk factors for

placenta previa.^{9,10} Risk of placenta previa with previous LSCS has been found to range between 3 to 10%.¹⁰

Placenta previa is an obstetric complication that is potentially life-threatening to both the mother and the baby.¹¹ Maternal complication includes antepartum hemorrhage, maternal anaemia, shock, operative interventions like caesarean section and hysterectomy and fetal complications are intrauterine growth restriction, malpresentation, preterm delivery, intrauterine death and stillbirth.^{12,13} Diagnosis of placenta previa can be made by history, examination and investigations as ultrasonography (transabdominal and transvaginal) and magnetic resonance imaging or incidentally during an operation. History may reveal painless bleeding in late second and early third trimester and examination of abdomen reveals soft non tender uterus.¹⁴ On Leopold's Maneuvers fetal malpresentation may be present in 35 percent cases. Accurate detection of placenta previa helps in proper management and prevention of mortality and morbidity.^{15,16}

The objective of the study is to compare the maternal and fetal outcome of placenta previa in scarred and unscarred uterus and to determine the frequency of placenta previa in scarred and unscarred uterus.

METHODS

This retrospective case control study was conducted at Paropakar Maternity and Women's Hospital (PMWH), Kathmandu, Nepal. Cases of placenta previa from April 2019 to May 2020 were studied.

Inclusion criteria

- Placenta previa with period of gestation (POG) more than 28 weeks.

Exclusion criteria

- Pregnancy before 28 weeks
- APH other than Placenta previa
- Multiple pregnancy
- Pregnant women with Hypertension
- Pregnant women with Gestational diabetes or other Comorbid conditions.

A non-probability consecutive sampling technique was adopted for enrolling the patients. All types of placenta previa were included. A total 85 cases meeting the inclusion criteria were enrolled. Booked and unbooked patients both were enrolled. Diagnosis of placenta previa was made by transabdominal and transvaginal ultrasound. Total cases were grouped in two categories.

Group A: 46 cases of placenta previa with history of one or more previous caesarean section or uterine surgery like myomectomy, uterine rupture or uterine curettage.

Group B: 39 cases of placenta previa with no previous history of caesarean section or any uterine surgery like curettage or myomectomy.

Statistical analysis

All patients who delivered at PMWH over study period with placenta previa were enrolled and categorized into above mentioned two groups. Both the groups of patients were compared with regard to maternal age, parity of mother, fetal outcome and maternal morbidity and mortality. Data was collected using the proforma. Identity of patient and the patient's records were kept confidential. Statistical methods chi-square test and student t-test were used. A p value less than 0.05 was considered significant. Data entry was done using Microsoft excel and analysis was done by using SPSS 16. Datas are shown in tables and charts below.

RESULTS

The incidence of placenta previa at Paropakar Maternity and Women Hospital was 0.3% over the study period. There were 85 cases of placenta previa out of which 46 cases (54%) had scarred uterus and 39 cases (46%) had unscarred uterus Table 1.

Table 1: Frequency of placenta previa in two groups.

	Group A (scarred)	Group B (Unscarred)
Frequency	46	39
Percentage	54%	46%

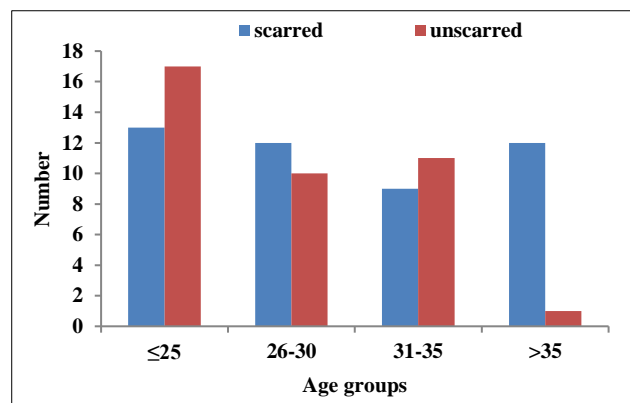


Figure 1: Depicting age groups of patients in scarred and unscarred category.

In this study there were more cases under age group 25 in unscarred category 17 cases (20%) compared to 13 cases (15%) in scarred category, whereas over the age of 35 more cases were in scarred category 12 (14%) compared to 1 case (1.1%) in unscarred category and this was statistically significant with p value of 0.02 Figure 1.

There were 18 cases (21%) with parity 0 in unscarred group compared to 9 cases (10%) in scarred group which

was also statistically significant with p value of 0.02. Maximum cases of placenta previa were with parity 1 to 5 with total cases of 57 (67%). Gestational age of less than 37 weeks was found in 53 cases (62%) of placenta previa Table 2.

Table 2: Maternal characteristics in scarred and unscarred uterus.

Maternal characteristics	Group A	Group B	p value
Age group			
≤25	13	17	0.02
26-30	12	10	
31-35	9	11	
>35	12	1	
Parity			
Para 0	9	18	0.02
Para 1-5	36	21	
Para >5	1	0	
Gestational age			
28-37	29	24	0.8
>37	17	15	

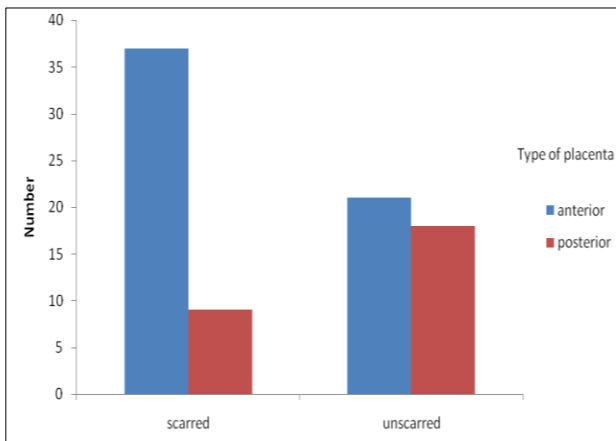


Figure 2: Depicting type of placenta in scarred and unscarred uterus.

Table 3: Type and grading of placenta in scarred and unscarred uterus.

Type of placenta	Group A	Group B	p value
Type of placenta previa			
Anterior	37	21	0.009
Posterior	9	18	
Placenta grade			
I	4	4	0.4
II	15	14	
III	9	3	
IV	18	18	

A total 37 out of 46 cases (80% with scarred uterus) had anterior placenta which was statistically significant with p value of 0.009 Figure 2.

Most of the patient had grade 4 placenta previa on ultrasonography (42%) Table 3.

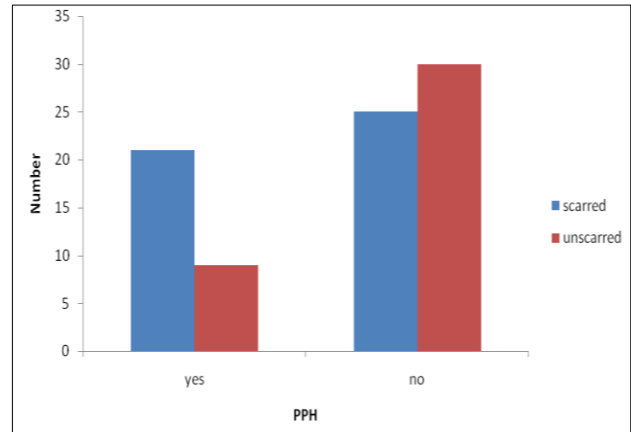


Figure 3: Depicting PPH cases in scarred and unscarred uterus.

Table 4: Related maternal complications in scarred and unscarred uterus.

Complications	Group A	Group B	p value
PPH	21	9	0.03
PPH amount			
<1000 ml	0	2	0.08
≥1000 ml	21	7	
Morbidly adherent	6	2	0.2
Caesarean hysterectomy	6	2	0.2
Malpresentation	7	1	0.018

Table 5: Related fetal outcome.

Fetal outcome	Group A	Group B	p value
Perinatal mortality	8	7	0.9
Preterm birth	31	24	0.5
Low birth weight	28	15	0.03

Forty five percent of patient with scarred uterus had PPH compared to 23% of patients with unscarred uterus with p value of 0.03 which was statistically significant Figure 3.

Average blood loss with cases of PPH in scarred group was 1845 ml compared to 1322 ml in unscarred group. There were 6 cases in scarred category with morbidly adherent placenta compared to 2 cases in unscarred. Malpresentation was found in 7 cases in scarred group compared to 1 case in unscarred with p value of 0.018 which was statistically significant. Caesarean hysterectomy was performed in 6 cases in scarred category compared to 2 in unscarred Table 4.

Preterm birth was found in 31 cases in scarred category compare to 24 in unscarred Table 5.

Low birth weight was present in 28 cases in scarred category compared to 15 cases in unscarred with p value 0.03 which was statistically significant Figure 4.

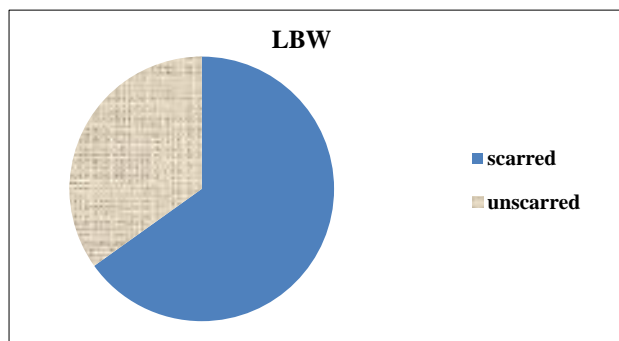


Figure 4: Depicting LBW in scarred and unscarred uterus.

DISCUSSION

The present study was undertaken to determine the frequency of placenta previa in scarred and unscarred uterus and to compare the fetomaternal outcome. The frequency of placenta previa in scarred uterus in this study was 54% and 46% in unscarred uterus whereas in the study by Majeed T et al the frequency of placenta previa in previously scarred uterus was 67.54% and non-scarred uterus was 32.45%.¹⁷

In this study 61% of cases presented before the age of 30 years compared to 77% of cases by Faiz et al and 95% of cases by Rangaswamy et al.^{2,4} Maximum patients were in the age range of 26 to 30. Placenta previa was present mostly in multiparous with parity 1 to 5 that included 67% of cases similar to study by Iqbal K et al which included 48% of cases.¹⁸

Two percent cases were delivered by vaginal route compared to other 98% cases by caesarean section. This finding was consistent to study by Rangaswamy et al.⁴

In the study by Nair D et al postpartum hemorrhage was present in 69% in scarred uterus compared to 48% cases in unscarred whereas in this study it occurred in 45% of patient with scarred uterus and 23% with unscarred uterus which was statistically significant.¹⁹

Anterior placenta previa was present in 80% of cases with scarred uterus compared to 62% cases of scarred uterus by Khansa Iqbal et al and 66% of cases by RD Katke.^{15,20} Complete placenta previa was present in 42% of total cases compared to 20% by Rangaswamy et al and 22.7% by Vaishali et al.^{4,21}

In this study 8 cases had morbidly adherent placenta, 6 cases in scarred and 2 cases in unscarred, these findings were parallel to study by Mansi et al where 6 cases had invasive placenta and 3% of cases in scarred uterus had placenta accreta while 2.9% in unscarred uterus had

placenta accreta.²² This value in this study was not statistically significant probably due to smaller sample size.

There was no maternal mortality during the period. However, 9% case i.e., 6 patients with scarred uterus and 2 cases with unscarred uterus have torrential PPH leading to peripartum hysterectomy, ICU stay and prolonged morbidity. This result was also consistent to the study by Syeda et al where hysterectomy was performed in 12% cases.⁷

Malpresentation was found in 7 cases in scarred group compared to 1 case in unscarred with p value of 0.018 which was statistically significant. This association may be explained by anterior placentation obstructing the engagement of head in scarred uterus. Perinatal mortality did not differ between two groups. However, LBW was present in 60% of cases with scarred uterus compared to 38% cases with unscarred uterus. It could be explained by placental bleeding leading to hypoxia and intrauterine growth retardation.¹⁴

CONCLUSION

Scarred uterus caused by uterine intervention such as LSCS and MVA are associated with adverse fetomaternal outcome. Reduction in the rate of these procedures along with regular ANC visits, early diagnosis by USG and early planning of deliveries will reduce the complications associated with placenta previa.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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