CLINICAL STUDY

Comparative Study of Obstetrics Outcome Between Scarred and Unscarred Uterus in Placenta Previa Cases

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ABSTRACT

Objective(s): To compare the incidence of placenta previa, associated factors, complications, placental position, mode of delivery and fetal and maternal outcome in scarred (Group A) and unscarred uterus (Group B) in 20 months of hospital-based study. **Material and methods:** In a prospective study, 140 cases of pregnancies beyond 28 weeks of gestation complicated by placenta previa were identified. These cases were divided into two groups, scarred uterus (Group A, n = 34) and unscarred uterus (Group B, n = 106). Total number of deliveries were 16,784 out of which 2,354 patients had cesarean section and 140 patients had placenta previa. **Results:** The incidence of placenta previa in scarred cases is significantly higher (1.2%) than overall incidence (0.6%). Majority of scarred cases had anterior placenta (85.2%) and majority of unscarred cases had posterior placenta (63.2%) (p = 0.00, HS). The number of unbooked cases in both Groups A and B was high (p = 0.404, NS). A significant association of placenta previa following curretage in Group B was observed (p = 0.002, S). There was only one maternal mortality in Group B and none in Group A. Results showed a favorable fetal outcome in both groups. (Group A-70.6%, Group B-64.2%, p = 0.08, NS). **Conclusion(s):** An increase in the incidence of prior cesarean section and advanced maternal age probably contribute to a rise in the number of pregnancies complicated with placenta previa and its association with adverse maternal and perinatal outcome.

Keywords: Placenta previa, incidence, maternal outcome, fetal outcome

Placenta previa is an obstetric complication in which the placenta is inserted partially or wholly in lower uterine segment.[1] It can sometimes occur in later part of the first trimester, but usually occurs during the second or third. It is a leading cause of antepartum hemorrhage (vaginal bleeding). It affects approximately 0.4-0.5% of all labors.[2] Exact etiology of placenta previa is unknown. It is hypothesized to be related to abnormal vascularization of the endometrium caused by scarring or atrophy from previous trauma, surgery or infection. These factors may reduce differential growth of lower segment, resulting in less upward shift in placental position as pregnancy advances.[3]

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The traditional classification of placenta previa describes the degree to which the placenta encroaches upon the cervix in labor and is divided into low-lying, marginal, partial or complete placenta previa.[4] In recent years, due to the increased value of transvaginal ultrasound in diagnosis of placenta previa, the traditional classification is rendered obsolete.[4] Diagnosis is made on history, clinical examination and few investigations that include ultrasound (transabdominal, transvaginal) and megnetic resonance imaging (MRI).[5]

Although the etiology the placenta previa remains speculative, several risk factors associated with this condition have been established. These include advanced maternal age, multiparity, multiple gestation, previous abortion, previous cesarean section and placenta previa in previous pregnancy.[6] Myometrial damage due to cesarean section and dilation curettage are main predisposing factors.[7] Also, risk factors are previous cesarean section, history of abortion and complete previa.[8]

Most obstetricians have concerns about massive hemorrhage not only when complete previa exists but also when placenta is located on the anterior position of the uterus, beneath the cesarean incision site.[9,10]

Patients with placenta previa are at increased risk of spontaneous abortion, fetal malpresentation, cesarean section, increased loss of blood, peripartum hysterectomy and prolonged hospitalization.

The infants of these patients are also at increased risk of premature deliveries, increased perinatal mortality than in general population. The frequency of this condition may be on the rise, so we need to identify and target preventive interventions among women at increased risk of placenta previa.

MATERIAL AND METHODS

This study was conducted in the Dept. of Obstetrics and Gynecology, MGM Medical and MY Hospital, Indore, from May 2011 to December 2012.

A total number of 140 patients beyond 28 weeks gestation, complicated by placenta previa alone or with previous myomectomy, cesarean section and uterine repair were identified. All types of placenta previa were included. The subjects were divided into two groups: Group A in which placenta previa occurred in scarred uterus and Group B in which placenta previa occurred in unscarred uterus. Transabdominal sonography was done for obstetrical reasons as well as for exact location of placenta.

The following potential risk factors such as maternal age, parity, previous abortion, prior cesarean section and multiple pregnancies were examined in both the groups and were compared.

The association of placenta previa with fetal malpresentation, abruptio placenta, postpartum hemorrhage and maternal-fetal outcome were also evaluated in both the groups and compared.

Chi-square test and chi-square test with Yate's correction was used to compare different quantitative data variable.

RESULTS

Maternal characteristics of the two groups are given in Table 1. Majority of the patients in the study were between the age range of 26-30 years in Group A (67.6%) and 20-25 years in Group B (65%) (p = 0.00, HS). Primipara with placenta previa were 0 in Group A and 31 (29.2%) in Group B (p = 0.002, S). A definite association of placenta previa following curretage was observed (Group A-20.58%, Group B-3.8%, p = 0.002, S).

Table 2 shows that majority of cases had Grade I or low-lying placenta, which is 47.2% in unscarred and 67.8% in scarred cases (p = 0.17, NS). Majority of patients with scarred uterus had anterior placenta, that is 85.3% and majority of patients with unscarred cases had posterior placenta, that is 63.2% (p = 0.00, HS).

Table 3 compares the related complications between the two groups. There was only one maternal mortality in Group B and none in Group A (p = 0.001, S). Results showed a favorable fetal outcome in both groups (Group A-70.6%, Group B-64.2%, p = 0.08, NS) (Table 4). Both Groups A and B had a high number of unbooked patients (A-94.11%, B-97.2%, p = 0.404, NS) (Table 5).

Table 1. Maternal Characteristics

	Scarred uterus (Group A)		Unscarred uterus (Group B)		P value
	No.	%	No.	%	
Age in years					
20-25	8	23.6	69	65.0	0.00 (HS)
26-30	23	67.6	24	22.6	
>30	3	8.8	13	12.4	
Parity					
0	0	0	33	31	0.002 (S)
1	15	44	33	31	
2	16	47	23	21.6	
3	2	5.8	7	6.6	
≥4	1	3	8	7.6	
History of curettage	7	20.58	4	3.8	0.002 (S)
Gestational age (weeks)					
<37	20	58	50	47	0.23 (NS)
>37	14	42	56	53	

Table 2. Relative Frequency

	Scarred uterus (Group A)		Unscarred uterus (Group B)		P value
	No.	%	No.	%	
Grading					
I	23	67.8	50	47.2	0.17 (NS)
II	6	17.6	35	33.0	
III	2	5.8	12	11.4	
IV	3	8.8	9	8.4	
Type					
Anterior	29	85.3	39	36.8	0.00 (HS)
Posterior	6	17.7	67	63.2	

Table 3. Related Complication

Complications	Scarred uterus (Group A)		Unscarred uterus (Group B)		P value
	No.	%	No.	%	
Fetal malpresentation	4	11	9	8.4	0.001
Postpartum hemorrhage	16	47.05	76	71.6	(S)
Cesarean section with uterine artery ligation	7	20.5	6	5.6	
Cesarean section with internal iliac artery ligation	0	0	1	0.94	
Cesarean hysterectomy	3	8.8	0	0	
Placenta accreta	1	2.9	0	0	
Placenta percreta	1	2.9	0	0	
Maternal mortality	0	0	1	0.94	
Blood transfusion	29	85	76	71.6	

Table 4. Fetal Outcome

	Scarred uterus (Group A)		Unscarred uterus (Group B)		P value
	No.	%	No.	%	
Alive	24	70.6	68	64.2	0.08
Stillbirth	3	9	26	24.4	(NS)
Neonatal death	7	20.4	12	11.4	

Table 5. Booking Status

Status	Scarred uterus (Group A)		Unscarred uterus (Group B)		P value
	No.	%	No.	%	
Booked	2	5.88	3	2.8	0.404
Emergency	32	94.11	103	97.2	(NS)

DISCUSSION

The incidence of placenta previa in present study is 0.62%, which is comparable to study of Hemmadi et al[11] and Reddy et al,[12] which is 0.4% and 0.5%, respectively. Incidence of placenta previa is significantly higher in patients with previous cesarean section (1.2%) than overall incidence of 0.6% (Table 6).

Table 6. Relative Incidence

Overall incidence of placenta previa	Incidence in scarred cases	Incidence in unscarred cases
0.6%	1.2%	0.47%

Placenta previa is more common among increasing age group, which is 68% in 26-30 years in scarred cases and in unscarred cases 65% in the age group 20-25 years, as comparable to Reddy et al[12] who reported 73% incidence in 20-29 years age group and also comparable to Rasmussen[13] who showed increase incidence with increasing maternal age (20-29 years).

Our study shows increasing parity increases with risk of placenta previa, Para 3 in scarred uterus, which is 45% and in unscarred cases increased incidence is found in Para 2 cases, which is 30%. The results are consistent with Reddy et al[12] in which 69% were multiparous. In our study, we found 7.8% association of placenta previa with previous history of curettage, comparable to study of Taylor et al[14] who found that women with one or more spontaneous abortion or induced abortion are 30% more likely to have placenta previa in subsequent pregnancy.

Incidence of placenta accreta is greater in patients with prior cesarean section than in unscarred uterus. In our study, 5.8% out of the scarred uterus constitute placenta accreta and percreta, which is consistent with the study of Clark et al[15] who concluded that probability of placenta accreta is greater in patients with prior cesarean section.

In evaluation of the related complications, we found that women with placenta previa were more likely to have postpartum hemorrhage, cesarean hysterectomy as diminished muscle content in lower uterine segment causes less effective contraction to control bleeding. The associated malpresentation with placenta previa increases the number of cesarean section, deliveries even in cases where placenta previa is marginal.

Anterior previa is more common in patients with prior cesarean section compared to no prior cesarean section and it is more dangerous than posterior previa in view of increasing maternal morbidity such as excessive blood loss, massive transfusion, placenta accreta and hysterectomy.[16] In our study, also 85.3% cases have anterior previa in scarred uterus and only 36.8% cases in unscarred uterus (p = 0.00 HS).

Prematurity due to placenta previa accounts for 60% of perinatal morbidity.[17] In our study, 50% of cases delivered premature babies.

CONCLUSION

This study concludes that efforts should be made to reduce the rates of operative deliveries because there is greater likelihood of placenta previa in scarred uterus in subsequent pregnancies.

Sonographic detection of anterior placenta is very important to predict maternal outcome in placenta previa and in such cases obstetricians should be aware of maternal massive hemorrhage. The family planning services should be further improved to attain a decline in the number of women of high parity. The morbidity associated with placenta previa can be reduced by detecting the condition in the antenatal period by ultrasound, before it becomes symptomatic. This calls for educating our patients and making them aware of the importance of antenatal care and its availability.

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Obesity has Negative Impact on Outcomes in Minimally Invasive Hysterectomy

Obesity was found to have a negative impact on clinical and financial outcomes for patients who were undergoing minimally invasive hysterectomy in a retrospective cohort study.

Obese patients undergoing the surgery for benign indications were noted to have a longer operating room (OR) time compared to non-obese patients (204 vs. 181 minutes). They also had comparatively higher estimated blood loss (375 vs. 302 mL), noted researchers. Patients with class III obesity, which is defined by a body mass index [BMI] of >40, had the longest OR times (220 minutes) and the greatest amount of blood loss (475 mL), reported Margot Le Neveu of Johns Hopkins Medicine, Baltimore, while presenting the findings virtually at the American Association of Gynecologic Laparoscopists annual meeting… (*Medpage Today*)