

Study of placentation in previous caesarean section

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Abstract

Background: Placenta previa is a leading cause of APH and it affects approximately 0.5% of all labours. With the recent rise in the caesarean delivery rate, it is of great value to study the placental location among prior caesarean delivery patients. This study was carried out to compare the frequency of placenta previa, in women with previous caesareans versus those with normal vaginal deliveries. **Methodology:** 500 subjects with a history of previous caesarean section were selected for study purpose. 500 patients with no history of previous caesarean section were selected for control purpose. Clinical examination and USG was done at term and subjects were followed till delivery. Frequency of placenta previa in both the groups was analysed. Study was conducted in SMGS hospital, GMC Jammu. **Results:** In the study group, the frequency of anterior wall placenta was found to be 50.20% as compared to 40% in the control group. And the difference was found to be highly significant. Similarly, we had 52.40% of patients with posterior wall placenta in the control group as compared to 40.40% in the study group and the association was found to be highly significant. 28 cases of placenta previa were found in the study group and the incidence was found to be 5.60% as compared to incidence of only 1% (5 cases) in the control group. Adherent placenta was also associated with previous LSCS (9 cases) whereas in the control group, no adherent placenta was found. **Conclusion:** The presence of CS scar in the uterus was associated with increase in the anterior wall placenta and a reduced number that implant in the posterior wall of the uterus. Also, the percentage of placenta previa and morbidly adherent placenta rises with increasing number of caesarean sections.

Key Word: Placenta previa, Adherent Placenta, Caesarean Section.

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INTRODUCTION

Cesarean section is a lifesaving procedure for the mother and the fetus that is firmly ensconced in obstetric practice. Today, it is one of the most commonly performed surgical procedures. In the last one decade, the increasing number of cesarean sections (up to 30%) and the decreasing one of vaginal births after cesarean section

(less than 10%) emphasize the problem of multiple cesarean deliveries and their impact on maternal morbidity (Marshall NE *et al.*, 2011; Hemilton BE *et al.*, 2012). Globally, an estimated 22.9 million cesarean procedures are performed each year, primarily to save the life of either the mother or the fetus (Molina G *et al.*, 2015). With the increase in primary cesarean section, there is increase in repeat cesarean section. In India, CS rate ranges from 8.48 to 41.9% (Chhabra S and Arora G, 2006). A considerable obstetrical hazard of multiple repeat cesarean sections threatening the life of both mother and fetus is placenta previa, especially when placentation is abnormally adherent. A single caesarean section increases the risk by 0.65%, two by 1.5%, three by 2.2% and four or more by 10%. A previous caesarean section in association with placenta previa increases the risk of uterine hysterectomy almost fourfold (Ananth CV *et al.*, 2003). Placenta accreta occurs when there is abnormal adherence of the placenta to the uterine wall,

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involving a defect in the decidua basalis (Mazouni C *et al.*, 2007; Stimmemann JJ *et al.*, 2011). The placenta invades the myometrium of the uterus (accreta), with more extensive invasion through the uterine serosa, ureters, bladder, and bowel in placenta percreta/increta (Mazouni C *et al.*, 2007; Dwyer BK *et al.*, 2008). The present study was conducted to assess the relationship between previous caesarean scar and the subsequent development of placenta previa, its subtypes, its morbid adherence

MATERIAL AND METHODS

The present study was conducted in the Department of Obstetrics and Gynaecology, Government Medical College Jammu, and included 1000 subjects between Nov. 2016 to Oct. 2017. Ethical approval for the study was obtained from the Institutional ethical committee. Subjects excluded from the study were those who had previous history of classical CS, myomectomy, MTP, multifetal pregnancy, placenta previa in previous pregnancy, patients with any associated medical disorder and all primigravida patients. Written and informed consent was obtained from the patients prior to the study. 500 patients with history of previous LSCS were selected for the study purpose. 500 patients with no previous history of LSCS were selected for control purpose. Cases were matched for age and parity. Clinical examination

and Ultrasonography was done at term to detect abnormal placentation and they were followed till delivery.

Exclusion Criteria

1. Previous history of classical caesarean section.
2. History of previous surgery on uterus (Myomectomy).
3. History of abortions or MTP.
4. Multifetal pregnancy.
5. History of placenta previa in previous pregnancy.
6. Patients with other medical disorders.

Obstetric USG was done for placental localisation; for the purpose of study placental locations were recorded as: anterior, posterior, fundal, low lying anterior and low lying posterior. Placenta previa was

CLASSIFIED AS:

Type 1: Low lying placenta: The placenta encroaches on the lower uterine segment, but does not reach as far as the internal os.

Type 2: Marginal placenta previa: The placenta reaches the margin of the internal os, but does not cover it.

Type 3: Partial placenta previa: The placenta partially covers the internal os.

Type 4: Total (central) placenta previa: The placenta covers the internal os completely.

Women with previous caesarean scar found to have placenta previa, were subjected to additional imaging (USG Doppler) to rule out placenta accreta and these findings were confirmed intra operatively.

RESULTS

Total 1000 subjects were recruited for the study. Most of them ranged between 26- 30 yrs. The median age of the study population was 27 years.

Table 1: Distribution of patients in cases and controls according to placental location.

Placental location	Cases (n=500) No. (%)	Controls (n=500) No. (%)	Statistical inference (Chi-square test)
Anterior wall	251 (50.20)	200(40.00)	$\chi^2=10.09$; $p=0.001$; HS
Posterior wall	202(40.40)	262 (52.40)	$\chi^2=13.99$; $p=0.0002$; HS
Fundal	19(3.80)	33(6.60)	$\chi^2=3.42$; $p=0.06$; NS
Low lying anterior	16(3.20)	2(0.40)	$\chi^2=9.56$; $p=0.002$; HS
Low lying posterior	12(2.40)	3(0.60)	$\chi^2=4.33$; $p=0.03$; S
Total	500	500	

HS – Highly significant; NS – Not significant; S – Significant

In Cases, 50.20% patients presented with anterior wall placental position, 40.40% with posterior wall, 3.80% with fundal, 3.20% with low lying anterior and 2.40% with low lying posterior. In Controls, 40% patients presented with anterior wall placental position, 52.40% with posterior wall, 6.60% with fundal, 0.40% with low lying anterior and 0.60% with low lying posterior. Statistically, the difference in number of patients with anterior wall, posterior wall and low lying anterior placental location in Cases and Controls was highly significant ($p=0.001$, $p=0.0002$ and $p=0.002$ respectively). In low lying posterior position, number of patients in Cases was significantly more as compared to those in Controls ($p=0.03$), while number of patients was comparable in fundal position ($p=0.06$).

Table 2: Incidence of placenta previa in cases and controls.

Previous LSCS	No. of patients	No. of placenta previa	Incidence (%)
Yes (Cases)	500	28	5.60
No (Controls)	500	5	1.00

Incidence of placenta previa in cases was 5.60%, while in controls it was 1%.

Table 3: Types of placenta previa in cases and controls.

Type of placenta previa	Cases(%)	Controls
Type 1	4(14.28%)	1
Type 2	10(35.71%)	1
Type 3	6(21%)	1
Type 4	8(28.57%)	2
Total	28	5

Our study showed that the most common placenta previa in the study group was type 2 with 10 patients (35.71%), 8 patients had type 4 placenta previa(28.57%), 6(21%) had type 3 placenta previa and 4(14.28%) had type 1 placenta previa. In the control group, there were total 5 patients with placenta previa one each of type 1, 2 and 3 and 2 patients with type 4 placenta previa.

Table 4: Incidence of placenta previa with respect to the number of previous LSCS.

No. of previous LSCS	No. of patients	No. of placenta previa	Incidence (%)
Nil	500	5	1
One	379	15	3.9
Two	109	9	8.2
Three	9	3	33.33
Four	3	1	33.33

Our study showed that patients with one LSCS in the past has increased risk of placenta previa as compared to patients without CS and patients with 2 CS had further increased risk (8.2%) when patients compared with only one CS(3.9%) in the past indicating that the chances of placenta previa increases with successive increase in the number of previous CS.

Table 5: Adherent placenta among the study and control group.

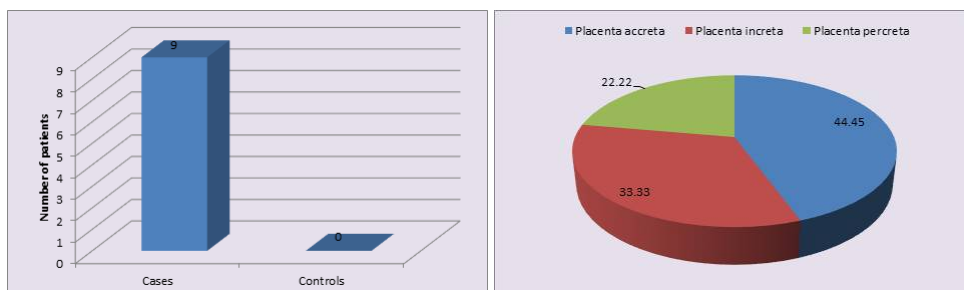
Group(n=500)	Study group	Control group
Adherent placenta	9	-
Percentage	1.8%	-

In our study, increased incidence of adherent placenta was found in the study group as compared to control group. 9(1.8%) cases of adherent placenta was found in the study group as compared to control group where none of the adherent placenta were seen.

Table 6: Type of adherent placenta among the study group

Type of adherent placenta	No of cases(n= 500)
Placenta accrete	4
Placenta increta	3
Placenta percreta	2

In our study 4 cases of placenta accreta were found, 3 cases with placenta increta and 2 cases with placenta percreta were found.



Graph 6: Bar diagram showing adherent placenta in cases and controls **Graph 7:** Pie diagram showing types of adherent placenta in cases

DISCUSSION

Antepartum haemorrhage is one of the most challenging obstetric complications encountered in a pregnant women and is one of the leading causes of vaginal bleeding in 2nd and 3rd trimester. In our study, while observing the location of placenta, anterior wall, posterior wall, fundal, low lying anterior and low lying posterior placental locations were taken in consideration. It was found that in 251(50.20%) patients placenta was located in the anterior wall in the study group whereas 200(40%) patients presented with anterior wall placenta in the control group. 202(40.40%) patients in the study group and 262(52.40%) patients in the control group had posterior wall placenta. So, it was overall observed that there were more anterior wall placenta in the study group (50.20%) and more posterior wall placenta in the control group(52.40%).. While comparing our study with other studies, it was found that the results were in accordance to a study by Kamara *et al.* (2013), who found anterior wall placenta in 88.9% and posterior wall placenta in 8.6% in patients with previous LSCS. Similarly, a study conducted by Mathuriya *et al.* (2013) found that the majority of scarred cases had anterior wall placenta(85.2%) and majority of unscarred cases had posterior wall placenta(63.2%) (p value=0.00). So to conclude, in our study the incidence of placenta previa in the study group (group A) was 5.60% in comparison to the control group (group B) where the incidence was only 1% which was quite comparable with the study by Lydon *et al.*(1997) who found incidence of placenta previa at second birth with prior caesarean first birth to be 2.5% while it was 1.22% in Nielson *et al.*(1989) study. Swetha B *et al.*(2016) found 6% incidence of placenta previa in patients with previous LSCS as compared to 1.75% in patients with previous vaginal deliveries. Itedal AMA *et al.*(2015) found an incidence of 18% in patients with previous one or more LSCS as compared to 10.25% in patients with previous vaginal deliveries. In other study conducted by Nankali A *et al.*(2014), 3.63% of placenta previa was found in patients with previous LSCS. In a Study by Uzma S *et al.*(2015) the distribution of placental localisation showed that the frequency of placenta previa in the study sample was noted to be 27.5% in patient who had caesarean section deliveries in previous pregnancies. The studies didn't include any control group in their study. Singh S *et al.*(2016) found incidence of 3% among patients with previous LSCS. While evaluating the incidence of placenta previa in previous LSCS, it was also observed that with increasing number of LSCS, the incidence of placenta previa increased. We found that 33.33% incidence of placenta previa in previous 3 and 4 LSCS patients whereas 8.2% of placenta previa was found in previous 2 LSCS patients. There were only 3.9%

placenta previa in previous 1 LSCS and 1% in patients with unscarred uterus. This finding was similar to study conducted by Shaukat A *et al.*(2008) who found that the risk of placenta previa increases with increasing number of LSCS that is 3.5% with previous 1 LSCS, 22.5% with previous 2 LSCS, 28% with previous 3, and 50% with previous 4 LSCS. Out of 28 patients in the study group, 10(35.71%) patients had type 2 placenta previa which turned out to be the highest percentage. This was followed by type 4 placenta previa in 8(28.57%) patients and 4(14.28%) patients with type 1 placenta previa. Hence in our study we observed that most of the patients had type 2 and type 4 placenta previa and the least number was type 1 placenta previa. Whereas in the control group, 2 patients were found to have type 4 placenta previa and one patient each was having type 1, type 2 and type 3 placenta previa. Comparing our results with other studies, we found that in a study by Nankali A *et al.*(2014) the most common abnormal placental location in patients with previous LSCS was type 4(48%), type 1(32.7%), type 2(13.3%) and type 3(6%). In another study by Swetha B *et al.*(2016) most common abnormal placental location in study group was found to be type 1(54.66%), type 2 and type 4 each with equal frequency of 20.83% and type 3(4%). At the time of LSCS, we observed only 9 patients among the 28 patients with placenta previa had adherent placenta making 36% incidence of adherent placenta in patients with previous LSCS and placenta previa. When compared with other studies we found one study by Ayesha *et al.*(2009) where they found 48.5% abnormal adherence of placenta. One study by Nankali A *et al.* (2014) reported adherent placenta in 31.6% of patients with previous LSCS. Among these 9 patients who had adherent placenta, 4 had placenta accreta, 3 had placenta increta and 2 had placenta percreta. No adherent placenta was found in the control group. Out of these 9 patients with adherent placenta in the study group, 5 were operated in an elective operation theatre and 4 were operated as emergency cases.

CONCLUSION

CS rates are increasing worldwide and an increase in the longer term complications of LSCS should be anticipated. The presumed long and short term safety of CS is probably one of the factors underlying the growth rate of CS. There is a need for better understanding of the relative risks associated with vaginal and CS birth to support decision making by both mothers and clinicians. Care must be exercised to avoid complications in subsequent pregnancies. Our study showed that the prevalence of placenta previa increases with the increasing number of the previous LSCS and is associated

with adverse maternal outcome. This study provides a reason to decrease the elective CS rates and to encourage vaginal birth after CS. Increasing incidence of emergency LSCS may be decreased by encouraging all antenatal women to attend ANC clinics so that there with high risk factors can be identified earlier for better monitoring of labour and elective LSCS, if needed. Also, women should be counselled about the maternal risks and benefits of the planned vaginal birth after CS and elective repeat LSCS when deciding the mode of birth. Women must be explained about the related risks of multiple repeat CS and tubal ligation needs to be encouraged. Women undergoing repeat CS with placenta previa should be counselled about the associated risks of excess blood loss, need for blood transfusion and possibility of caesarean hysterectomy in case of life threatening haemorrhage.

REFERENCES

1. Marshall NE, Fu R, Guise J. Impact of multiple cesarean deliveries on maternal morbidity: a systematic review. *J Obstet Gynecol* 2011; 205 (3): 262.e1-8.
2. Hamilton BE, Martin JA, Ventura SJ. Births: Preliminary data for 2011. *Natl Vital Stat Rep* 2012; 61 (5): 1-18.
3. Molina G, Weiser TG, Lipsitz SR, Esquivel MM, Uribe-Leitz T, Azad T, *et al.* Relationship between cesarean delivery rate and maternal and neonatal mortality. *JAMA* 2015; 314 (21): 2263-70.
4. Chhabra S, Arora G. Delivery in women with previous cesarean section. *J Obstet Gynecol India* 2006; 56 (4): 304-07.
5. Faiz AS, Ananth CV. Etiology and risk factors for placenta previa: an overview and meta-analysis of observational studies. *J Matern Fetal Neonatal Med* 2003; 13 (3): 175-90.
6. Mazouni C, Gorincour G, Juhan V, Bretelle F. Placenta accreta: A review of current advances in prenatal diagnosis. *Placenta* 2007; 28 (7): 599-603.
7. Stirnemann JJ, Mousty E, Chalouhi G, Salomon LJ, Bernard JP, Ville Y. Screening for placenta accreta at 11-14 weeks of gestation. *J Obstet Gynecol* 2011; 205 (6): 547.e1-6.
8. Dwyer BK, Belogolovkin V, Tran L, *et al.* Prenatal diagnosis of placenta accreta: Sonography or magnetic resonance imaging? *J Ultra Med* 2008; 27 (9): 1275-81.
9. Kamara M, Henderson JJ, Doherty DA, Dickinson JE, Pennell C. The risk of placenta accreta following a primary elective caesarean delivery: A case-control study. *BJOG* 2013; 120: 879-86.
10. Mathuriya G, Lokhande P. Comparative study of obstetrics outcome between scarred and unscarred uterus in placenta previa cases. *Indian J Clin Pract* 2013; 24 (6): 568-71.
11. Lydon-Rochelle M, Holt VL, Easterling TR, Martin DP. First-birth cesarean and placental abruption or previa at second birth. *Obstet Gynecol* 2001; 97: 765-69.
12. Neilsen TF, Hagberg H, Liungblad U. Placenta previa and antepartum hemorrhage after previous cesarean section. *Obstet Gynecol* 1989; 27: 88-90.
13. Swetha B. Study of association of placenta previa with previous cesarean section pregnancy. *IOSR-JDMS* 2016; 15 (5): 60-63.
14. Itedal AMA, Qurashi MA, Moawia A, Sayed A. Association of cesarean section and multiparity with placenta previa in Sudan. *IOSR-JDMS* 2015; 14 (1): 29-32.
15. Nankali A, Keshavari F, Shajari A, Daeichin S. Frequency of placenta previa and maternal morbidity associated with previous cesarean delivery. *Open J Obstet Gynecol* 2014; 4: 903-08.
16. Uzma S, Hobeika EM, Abu- Musa AA, Gabriel GE, Nassar AH. Placenta previa-accreta: risk factors and complications. *Am J Obstet Gynecol* 2005; 193(3pt2):1045.
17. Singh S, Dhama V, Chaudhary R, Karya U, Nanda K. Maternal and fetal outcome in pregnant women with previous one lower segment cesarean section. *IJRCOG* 2016; 5 (11): ISSN 2320-1789.
18. Shaukat A, Eskandar M. Multiple repeat cesarean sections: complications and outcomes. *Canada JOGC* 2008; 28(3):193-7.
19. Ayesha S, Fareed Z, Samina A, Nighat AA, *et al.* Frequency of Placenta previa with previous C-Section. *Pak J Med & Health Sci* 2009; 3(3):233-7.

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