# A COMPARISON OF MORBIDITY ASSOCIATED WITH PLACENTA PREVIA WITH AND WITHOUT PREVIOUS CAESAREAN SECTIONS

**Shehla Baqai, Nusrat Noor*, Asifa Siraj**

Military Hospital/National University of Medical Sciences (NUMS) Rawalpindi Pakistan, *Pakistan Naval Ship Shifa Hospital Karachi Pakistan

## ABSTRACT

***Objective:*** To compare the morbidity associated with placenta previa with and without previous caesarean sections.

***Study Design:*** Retrospective comparative study.

***Place and Duration of Study***: From March 2014 till March 2016 in the department of Obstetrics and Gynaecology at PNS Shifa hospital Karachi.

***Material and Methods:*** After the approval from hospital ethical committee, antenatal patients with singleton pregnancy of gestational age >32 weeks, in the age group of 20-40 years diagnosed to have placenta previa included in the study. All patients with twin pregnancy less than 20 years and more than 40 years of age were excluded. The records of all patients fulfilling the inclusion criteria were reviewed. Data had been collected for demographic and maternal variables, placenta previa, history of previous lower segment caesarean section (LSCS), complications associated with placenta previa and techniques used to control blood loss were recorded.

***Results:*** During the study period, 6879 patients were delivered in PNS Shifa, out of these, 2060 (29.9%) had caesarean section out of these, 47.3% patients had previous history of LSCS. Thirty three (1.6%) patients were diagnosed to have placenta previa and frequency of placenta previa was significantly higher in patients with previous history of LSCS than previous normal delivery of LSCS i.e. 22 vs. 11 ($p$=0.023). It was observed that the frequency of morbidly adherent placenta (MAP) and Intensive care unit (ICU) stay were significantly higher in patients with previous history of LSCS than previous history of normal delivery.

***Conclusion:*** Frequency of placenta previa was significantly higher in patients with history of LSCS. Also placenta previa remains a major risk factor for various maternal complications.

**Keywords:** Caesarean, Hysterectomy, Placenta previa, Placenta.



## INTRODUCTION

Placenta previa is the partial or complete attachment of placenta in lower uterine segment. Maternal and fetal morbidity and mortality from placenta previa is considerable and associated with high demands on health care resources. Morbidly adherent placenta (MAP) including placenta accrete, increta and percreta is a life threatening condition often associated with massive postpartum hemorrhage and sometimes hysterectomy[1]. The condition results in significant maternal morbidity and mortality and socioeconomic cost in terms of need for invasive surgical intervention, prolonged hospital stay and admission to intensive care unit. MAP is an abnormal adherence of the placenta to the uterine wall owing to absent or faulty decidua basalis[2]. It has become the leading cause of emergency obstetrical hysterectomy[3]. MAP in association with placenta previa and previous caesarean section is a condition of increasing clinical significance because of rising caesarean section rates worldwide[4,5]. Predisposing factors for MAP are previous uterine damage due to prior uterine surgery leading to scarred uterus as in caesarean section, myomectomy, uterine perforation, advanced maternal age, short inter pregnancy interval, placenta previa, and sub mucous myoma. Women with placenta previa have high chances of MAP, if placenta is anterior and they have previous caesarean section. Along with all these factors myometrial impairment due to

**Correspondence: Dr Asifa Siraj,** Classified Gynaecologist, Military Hospital Rawalpindi Pakistan
*Email: asifakashif@yahoo.com*
*Received: 02 Feb 2017; revised received: 22 Mar 2017; accepted: 31 Mar 2017*

caesarean and dilation and curettage are major influencing aspects[13]. There is a dose response relationship between MAP and increasing number of prior caesarean section[6]. The development of new imaging techniques, such a magnetic resonance imaging (MRI) and trans-vaginal colour doppler sonography has allowed antenatal diagnosis of this condition and elective pre-operative planning both by obstetrician and anesthetist[7]. The aim of the study was to compare the frequency of placenta previa between cases with and without prior caesarean section and to assess the relationship of placenta associated morbidity and complications with prior history of caesarean section.

## MATERIAL AND METHODS

This retrospective comparative study was conducted, from March 2014 till March 2016 in the department of Obstetrics and Gynecology at PNS Shifa hospital Karachi with a sample size of 6879 inducted through non probability convenient sampling technique. After approval from hospital ethical committee, antenatal patients with singleton pregnancy of gestational >32 weeks, within 20-40 years of age and diagnosed to have placenta previa were included in the study. All patients with normal delivery or with twin pregnancy were excluded. The records of all the patients fulfilling the inclusion criteria were reviewed. Data had been collected for demographic and maternal variables, placenta previa, history of previous LSCS/previous normal delivery, complications associated with placenta previa and techniques used to control blood loss. Statistical analysis was carried out using SPSS version 17. Descriptive statistics were used to describe the variables i.e frequency and percentages for qualitative variables. Chi-squares test/Fisher exact test was applied to compare the frequency of placenta previa and associated complications between the two groups. A *p*-value <0.05 was considered as statistically significant.

## RESULTS

Over the period of two years 6879 patients were delivered in PNS Shifa, out of these 2060 LSCS patients, 970 (47.1%) patients had positive previous history of LSCS while 1090 (52.9%) had negative previous history of LSCS. A total of 33 (1.6%) patients were diagnosed to have placenta previa, which was confirmed by trans abdominal ultrasonography (TAU). Frequency of placenta previa was significantly higher in patients with positive previous history of LSCS than negative previous history of LSCS i.e. 22 vs 11 (*p*=0.023).

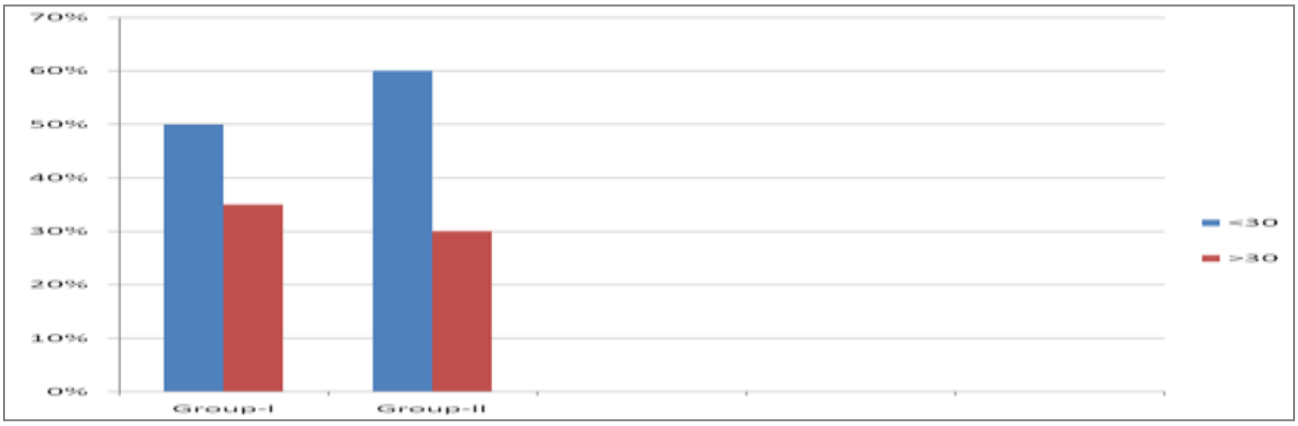


**Figure: Frequency of placenta previa among maternal age groups.**

To study the complications associated with placenta previa, patients were divided into two groups i.e group-1 included patients of placenta previa with previous LSCS (n-22) while group-II included patients of placenta previa without previous LSCS (n-11). Maternal age of patients of both the groups is shown in figure.

Complications associated with placenta previa were compared between the two groups (table-I). It was observed that the frequency of MAP and ICU stay were significantly higher in

group-I than in group-II. Although frequency of other complications were also higher in group-I than in group-II but it could not achieve the significance. Various techniques are used to control blood loss intra operatively as shown in table-II.

## DISCUSSION

Hemorrhage in pregnancy is the most important cause of maternal deaths worldwide. Its contribution to maternal mortality rate is even more striking in countries with low resources[8]. Placenta previa is one of the most dreaded complication in obstetrics due to its associated adverse maternal and perinatal outcome. In our study placenta previa complicated 0.47% of all deliveries, which was within the range of 0.3%-0.8% as observed in other studies[9,10]. The frequency of caesarean section is increasing worldwide with a parallel rise in maternal mortality and morbidity. The higher incidence of caesarean delivery today is strongly associated with greater frequency of placenta previa. The incidence of morbidly adherent placenta has increased dramatically over the last three decades with increase in caesarean delivery rate[11]. Many studies conducted around the world confirm a 2-5 fold increase of placenta previa with previous history of caesarean sections[12]. In this study, the association of MAP with previous caesarean section was 1.3%. The relationship of placenta previa with previous caesarean section was 2.256%. According to different studies, it has been seen that the development of placenta previa is associated with previous caesarean sections with a frequency of 3%-10%. Some studies have found even higher frequency of placenta previa in women having history of caesarean section[14]. A single caesarean section increases the risk by 0.65% and it is increased to 10% by four or more c-sections[15]. In this study, 38% of placenta previa was noted in patients with previous 4 or more caesarean sections while 32% of placenta previa was observed in previous 3 caesarean sections. This is comparable to many studies conducted in different regions[21,22]. In this study, 46% of obstetrical hysterectomies were carried out in patients with pervious 4 or more caesarean sections, 34% of patients were in age group of 26-30 years, while 27% were in the 31-35 years age group. Our results match with the study conducted by Quddusi and Shafi, where it was noted that frequency of placenta previa was higher in old age group[16]. Studies shows that placenta previa with accreta occurs in

**Table-I: Comparison of complications associated with placenta previa between the groups**.

| Complication | Group-I (n-22) n(%) | Group-II (n-11) n(%) | *p*-value |
|---|---|---|---|
| MAP | 13 (59) | 0 (0) | 0.001 |
| APH | 10 (45.4) | 7 (63.6) | 0.324 |
| PPH | 8 (36.4) | 2 (18.2) | 0.43 |
| Bladder repair | 5 (22.7) | 0 (0) | 0.143 |
| Anemia | 17 (77.3) | 9 (81.2) | 1 |
| Wound Infection | 6 (27.3) | 3 (27.3) | 1.000 |
| ICU Stay | 18 (81.8) | 5 (45.4) | 0.049 |

**Table-II: Techniques used for control of blood loss intra operatively**.

| Complication | Group-I (n-22) n(%) | Group-II (n-11) n(%) | *p*-value |
|---|---|---|---|
| Placental bed Haemostatic sutures | 5 (22.7) | 6 (54.5) | 0.117 |
| Uterotonics | 9 (40.9) | 3 (27.3) | 0.702 |
| Internal iliac artery ligation | 1 (4.5) | 0 (0) | 1 |
| Uterine artery ligation | 3 (13.6) | 2 (18.2) | 1 |
| Hysterectomy | 4 (18.2) | 0 (0) | 0.131 |

approximately 1:1000 deliveries with a reported range from 0.04% rising up to 0.9%[12]. Over the last few decades indications for emergency hysterectomy have shown a change of trend. It is attributable to increasing caesarean section rates which increases risk of placenta previa and MAP. Abnormal placentation was the primary cause of caesarean hysterectomy in many studies as reported by Majeed et al and Chisara et al[17,18]. Prompt surgical interventions like hemostatic sutures in placental bed, uterine and internal iliac artery ligation and application of B-lynch suture in combination with quick resuscitation, management and expertise of a surgeon minimizes morbidity and mortality[19,20]. Need for blood transfusion remained 100% in this study as compared to a similar study conducted by Anjali and Rekha[21]. There was no maternal mortality noted, that is probably because of efficient antenatal care and triage of high risk patients in our setup along with well-planned, timely intervention and good teamwork.

## CONCLUSION

Frequency of placenta previa was significantly higher in patients with history of LSCS. Also placenta previa remains a major risk factor for various maternal complications.

## RECOMMENDATION

Keeping in view the results of our study and the related work done worldwide it is recommended that efforts should be made to reduce the rate of caesarian section in order to avoid long term complications like MAP which is going to contribute to reduction in maternal morbidity and mortality rates. Efficient maternity care services are recommended to triage high risk cases and to refer them to tertiary care centres where the team of qualified multidisciplinary care providers take charge and help reduce the morbidity associated with these cases.

## CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

## REFERENCES


1. Esakoff TF, Sparks TN, Kaimal AJ, Kim LH, Feldstein VA, Goldstein RB, et al. Diagnosis and morbidity of Placenta accrete: Ultrasound Obstet Gynecol 2011; 37(3): 324-7.
2. Kuczkowski KM. Anesthesia for the repeat caesarean section in the parturient with abnormal placentation: What does an obstetrician need to know? Arch Gynecol Obstet 2006; 273(6): 319-21.
3. Uzma S, Kiani BA, Khan FS. Frequency of placenta with previous caesarean section. Ann Pak Inst Med Sci 2015; 11(4): 202-05.
4. Daskalakis G, Anastasakis E, Papantoniou N, Mesogitis S, Theodora M, Antsaklis A. Emergency obstetric hysterectomy. Acta obstet Gynecol Scand 2007; 86(2): 223-7.
5. Solheim KN, Esakoff TF, Little SE, Cheng YW, Sparks TN, Canghey AB. The effect of caesarean delivery rates on the future incidence of Placenta Previa, Placenta accrete and maternal mortality. J Matern Fetal Neonatal Med 2011; 24(11): 1341-6.
6. Royal college of Obstet and Gynecol. Placenta Previa and Placenta Previa accrete: Diagnosis and management. Green-top Guideline No 27: 2011.
7. Belfort MA. Placenta accreta. Am J Obstet Gynecol 2010; 203(5); 430-9.
8. Oyclese Y, Simulian JC. Placenta Previa, Placenta accreta, vasa previa. Obstet Gynecol 2006; 107(4); 927-41.
9. Obstetrics hemorrhage, In: Cunningham FG, Laveno KJ, Bloom SL, Rouse DJ, Hauth JC, Spong CY, editors, William Obstetrics 23rd ed. New York: The McGrawHill Companies: 2010 p.757-803.
10. Bhutia PC, Lertbunnaphong T, Wongwanunuruk T. Prevalence of pregnancy with placenta previa in siriraj Hospital. Siriraj Med J 2011; 63(6); 191-95.
11. Rahim N, Rehana T, Anjum A. Risk factors associated with major Placenta Previa. J Med Sci 2014: 22(2): 63-5.
12. Warshak CR, Eskandar R, Hull AD, Sciorcia AL, Mattrey RF, Benirshke K, et al. Accuracy of ultrasonography and magnetic resonance imaging in the diagnosis of placenta accreta. Obstet Gynecol 2006; 108(3); 573-81.
13. Garmi G, Salim R. Epidemiology etiology diagnosis and management of placenta accreta. Obstet Gynecol 2012; 873929.
14. Memon S, Kumari K, Yasmin H, Bhutta S. Is it possible to reduce rates of Placenta Previa? J Pak Med Assoc 2010; 60(7): 566-69.
15. Bashir A, Jadoon H, Abbasi AN. Frequency of placenta previa in women with history of previous caesarean and normal vaginal deliveries. J Ayub Med Col Abbottabad 2012: 24(3): 151-4.
16. Quddusi H, Shafi S. Frequency of placenta previa-placenta accreta in patients with previous caesarean sections. Annals 2011: 17(4): 407-9.
17. Majeed T, Waheed F, Mahmood Z, Saba K, Mahmood H, Bukhari MH. Frequency of placenta previa in previously scarred and non-scarred uterns. Pak J Med Sci 2015; 31(2): 360-63.
18. Chisara C, Ume Z, Paul A, Waboso F, Charles A. Peripatum hysterectomy in Aba Southeastern Nigeria. Aust NZJ Obstet Gynaecol 2008; 48(6): 580-82.
19. Bukhari S, Meyer BA. Indications for and outcome of emergency peripartum hysterectomy. A five year review. J Reprod Med 2000; 45(9): 733-7.
20. Najam R, Bansal P, Sharma R, Agarwal D. Emergency obstetric hysterectomy: A retrospective study at a tertiary care hospital. J Clin Diagn Res 2010; 4: 2864-68.
21. Anjali K, Rekha S. Obstetric hysterectomy, A retrospective study at a tertiary care centre. Int J Reprod Contracept Obstet Gynecol 2013; 2(4): 562-65.
22. Sharma M, Chaudary J. Placentra Previa correlation with caesarean sections, multiparity and smoking. Int J Cur Res Rev 2014; 6(4): 21-6.