

# Burden of Placenta Previa as a Cause of Postpartum Hysterectomy at a Tertiary Care Hospital

ZOBIA JAWAD<sup>1</sup>, DURRIYA IRAM<sup>2</sup>, SADIYA BUTT<sup>3</sup>, AFSHAN RIAZ<sup>4</sup>, SADIYA KHAN<sup>5</sup>, PAREESAE HUMAYUN<sup>6</sup>

<sup>1</sup>Assistant Professor Gynaecology and Obstetrics, Lady Willingdon Hospital, King Edward Medical University, Lahore

<sup>2</sup>SWMO, DHQ Sheikhpura

<sup>3</sup>Senior Registrar, Gyne/Obs, Lady Willingdon Hospital, KEMU, Lahore

<sup>4</sup>Senior Registrar Gyn/Obs, Lady Willingdon Hospital, KEMU, Lahore

<sup>5</sup>Assistant Professor, PEMH Rawalpindi

<sup>6</sup>Assistant Professor, CMH Multan

Correspondence to: Dr. Zobia Jawad, Email: [zobiajawadnaseem@gmail.com](mailto:zobiajawadnaseem@gmail.com), Cell: 03215175875

## ABSTRACT

**Objective:** To find the frequency of placenta previa in females undergoing hysterectomy during cesarean delivery at term.

**Material and methods:** This Cross sectional study was conducted at Department of Obstetrics & Gynecology, Lady Willingdon Hospital, Lahore for 6 months. Total 90 females who will fulfill selection criteria were enrolled in the study from operation theatre. Informed consent was obtained. Demographic features was obtained. Then females undergone cesarean section and planned hysterectomy. All surgeries were done by researcher herself. The location of placenta was noted ultrasound before cesarean and placenta previa was labeled if present. Location of placenta previa was also confirmed during cesarean section.

**Results:** There were total 90 patients in our study among them the mean age was  $36.61 \pm 4.31$  years. There were 60(66.7%) women who underwent caesarean section previously. There were 12(13.3%) women with placenta previa. Frequency of placenta previa in different age groups was 41.7% in 30-34 years, 25% in 35-39 and 33.3% in women whose age was >40 years. (p-value=0.71). No statistically significant association was seen between gestational age of women and placenta previa. i.e. (p-value-0.106) Gestational age 37-38: 25% (3/12) & Gestational age 39-40: 75% (9/12). Statistically significant association was seen between parity status of women and placenta previa. i.e. (p-value-0.000) Parity-1: 0(0%), Parity-2: 0(0%), Parity-3:5(41.7%) and Parity-4:7(58.3%). No statistically significant association was seen between previous cesarean section of women and placenta previa. i.e. (p-value-0.366) No previous CS: 25% (3/12), One previous CS: 33.3% (4/12), Two previous CS: 16.7% (2/12) & Three previous CS: 25% (3/12).

**Conclusion:** High frequency of placenta previa was noted in our study among females undergoing postpartum hysterectomy. Keeping in mind the results of this study it can be concluded that the placenta previa being a risk factor for emergency obstetrics hysterectomy should be identified and screened antenatally to improve disease prognosis to achieve desired clinical outcomes.

**Key words:** Placenta previa, Hysterectomy, Cesarean delivery, Term delivery

## INTRODUCTION

Placenta previa, a common obstetrical complication whose incidence is increasing day by day, in which placenta is located in the lower uterine segment.<sup>1, 2</sup> Patients presenting with placenta previa having scarred uterus are reported to have 16 % risk of underlying emergency peripartum hysterectomy than that of 2 – 4 % among patients having un scarred uterus. The combination of different underlying conditions such as increasing parity, number of previous cesarean sections, miscarriages, previous currettings are significantly associated with high burden of placenta previa and high risks of abnormally adherent placenta.<sup>3-5</sup> Available literature has documented that burden of abnormal placenta has linear relationship with number of previous cesarean deliveries and abnormal placental adherence remains most common cause of emergency peripartum hysterectomy.<sup>6</sup>

In recent years, classical indication for emergency peripartum hysterectomy has gradually shifted from uterine atony to abnormally adherent placenta while burden of emergency peripartum hysterectomy is being reported to vary from 0.24 to 8.9 per 1000 deliveries.<sup>7-9</sup>

According to one study the indication for emergency peripartum hysterectomy was placenta previa, it was present in 33.9% cases<sup>10</sup> but it was 45-73.3% for placenta previa later on.<sup>11,12</sup>

Knight et al., reported that placenta previa was cause of cesarean hysterectomy in 39% cases.<sup>13</sup> But in a local study, the frequency of placenta previa was reported in 2.5% cases of hysterectomy.<sup>14</sup>

This study was done to assess the frequency of placenta previa in females undergoing hysterectomy during cesarean delivery at term. It has been reported that placenta previa is one of the major cause of hysterectomy in females of reproductive age group. In international studies, the frequency of placenta previa as a cause of cesarean hysterectomies was found to be high but in a local study, the frequency was very low. So this study was conducted to find whether the frequency of placenta previa is really

high for cesarean hysterectomies or it is very low as reported in previous local study.

## MATERIAL AND METHODS

This Cross – sectional study was done Department of Gynecology & Obstetrics, Lady Willingdon Hospital, Lahore using non – probability purposive sampling technique from February 2016 till July 2016.

Patients of age 30-45 years, planned to undergo hysterectomy during cesarean delivery due to excessive blood loss (>1000ml) during pregnancy at term (gestational age >36weeks were included in our study while patients with Multiple pregnancies, Placental malformation (succenturiated placentas, accessory placenta), Patients that the location of placenta not clearly shown in medical records were excluded from our study. Sample size of 90 cases was calculated with 95% confidence level, 10% margin of error and taking expected percentage of placenta previa i.e. 33.9% among females undergoing cesarean hysterectomy. Total 90 females who fulfilled selection criteria were enrolled in the study from operation theatre of Department of Obstetrics & Gynecology, Lady Willingdon Hospital Lahore. Informed consent was obtained. Demographic features (name, age, gestational age, parity and number of previous cesarean sections) were obtained. Then females underwent cesarean section and planned hysterectomy. Placenta previa was labeled if placenta partially or wholly blocks the neck of the uterus, so interfering with normal delivery of a baby detected on ultrasound and confirm during cesarean section. It was defined as permanent removal of a woman's uterus or womb due to excessive blood loss (>1000ml) at term (gestational age>36 weeks). Blood loss during cesarean section will be assessed by number of sponges used and collection of blood in sucker. Weight of dry sponge will be subtracted from soaked sponge and 1gm will be considered equal to 1ml. All surgeries were done by researcher herself under supervision of consultant surgeon having experience of 4 year residence. The location of placenta was noted ultrasound before

cesarean and placenta previa was labeled if present. Location of placenta previa was confirmed during cesarean section. All this information was recorded through proforma.

Data was entered and analyzed through SPSS version 21. Quantitative variables like age, gestational age were calculated as mean and standard deviation. Qualitative variables like parity, number of previous cesarean sections and placenta previa were calculated as frequency and percentage. Data was stratified for age, gestational age, parity and number of previous cesarean sections. Post-stratification, chi-square was applied to compare stratified groups taking  $p$ -value $\leq 0.05$  as significant.

## RESULTS

There were total 90 patients in our study their mean age was  $36.61 \pm 4.31$  years. Minimum age was 30 years and maximum was 45 years. The mean gestational age of the women was  $38.56 \pm 1.072$  weeks. Minimum gestational age was 37 weeks and maximum was 40 weeks. There were 12(13.3%) women whose parity was 1, 30(33.3%) women presented with parity 2, 33(36.7%) with parity 3 and 15 (16.7%) women presented with parity 4. There were 60(66.7%) who had caesarean section previously. There 30(33.3%) patients who had no caesarean section, 27 (30%) women had one cesarean section previously, 23(25.6%) had two cesarean sections and 10(11.1%) had three cesarean sections previously. There were 12(13.3%) women with placenta previa. There was no significant association between placenta previa and age groups of women. Frequency of placenta previa in different age groups was 41.7% in 30-34 years, 25% in 35-39 and 33.3% in women whose age was  $>40$  years. ( $p$ -value=0.71). No statistically significant association was seen between gestational age of women and placenta previa. i.e. ( $p$ -value-0.106) Gestational age 37-38: 25% (3/12) & Gestational age 39-40: 75% (9/12).

Statistically significant association was seen between parity status of women and placenta previa. i.e. ( $p$ -value-0.000) Parity-1: 0(0%), Parity-2: 0(0%), Parity-3:5(41.7%) and Parity-4:7(58.3%).

No statistically significant association was seen between previous cesarean section of women and placenta previa. i.e. ( $p$ -value-0.366) No previous CS: 25% (3/12), One previous CS: 33.3% (4/12), Two previous CS: 16.7% (2/12) & Three previous CS: 25% (3/12).

## DISCUSSION

Obstetric hysterectomies in the developed nations are generally performed for certain gynecological indications including sterilization and leiomyoma<sup>14</sup>. However in low and middle income countries, it is generally performed when conservative options have already failed to control the hemorrhage and recent estimates have reported increasing incidence all over the world<sup>15</sup>.

There were total 90 patients in our study their mean age was  $36.61 \pm 4.31$  years. Minimum age was 30 years and maximum was 45 years. Similar results have been reported in other studies, A study conducted in Nigeria by Gbadebo et al<sup>16</sup> has also reported 32.4 years mean age of the women undergoing postpartum hysterectomy, similar to our results. Fayyaz et al<sup>17</sup> from Peshawar has reported  $29.69 \pm 7.10$  years mean age, also similar to our results. Javed et al<sup>18</sup> from Lahore also reported majority of patients belonging to age groups 25 – 36 years. Sultana et al<sup>19</sup> from Rawalpindi also reported majority of patients were aged more than 30 years, similar to that of our results. Fatima et al<sup>20</sup> from Lahore also reported 30 years man age, similar to our results.

The mean gestational age of the women was  $38.56 \pm 1.072$  weeks. Minimum gestational age was 37 weeks and maximum was 40 weeks. Fatima et al<sup>20</sup> from Lahore also reported 38 weeks, similar to our results.

There were 12(13.3%) women whose parity was 1, 30(33.3%) women presented with parity 2, 33(36.7%) with parity 3 and 15 (16.7%) women presented with parity 4. A study conducted in Nigeria by Gbadebo et al<sup>16</sup> has also reported similar results. Javed et al<sup>18</sup> from Lahore also reported 38.46 % had parity 1 – 2

while 46.15 % had parity 3 – 5, similar to our results. Sultana et al<sup>19</sup> from Rawalpindi also reported 65 % women having parity up to 4, similar to our results. Fatima et al<sup>20</sup> from Lahore also reported similar results.

There were 60(66.7%) who had caesarean section previously. There 30(33.3%) patients who had no caesarean section, 27 (30%) women had one cesarean section previously, 23(25.6%) had two cesarean sections and 10(11.1%) had three cesarean sections previously. A study conducted in Nigeria by Gbadebo et al<sup>16</sup> has also reported 68 % previous history of cesarean section, similar to our results. Javed et al<sup>18</sup> from Lahore also reported 84 % cesarean section. Fatima et al<sup>20</sup> from Lahore also reported 86 % cesarean section, similar to our results.

There were 12(13.3%) women with placenta previa. There was no significant association between placenta previa and age groups of women. A study conducted in Nigeria by Gbadebo et al<sup>16</sup> has also reported 9% placenta previa in postpartum hysterectomy, similar to our results. Javed et al<sup>18</sup> from Lahore reported 38 % placenta previa which is slightly higher than that of our findings. Sultana et al<sup>19</sup> from Rawalpindi also reported 11.53 placenta previa, close to our results.

Frequency of placenta previa in different age groups was 41.7% in 30-34 years, 25% in 35-39 and 33.3% in women whose age was  $>40$  years. ( $p$ -value=0.71). No statistically significant association was seen between gestational age of women and placenta previa. i.e. ( $p$ -value-0.106) Gestational age 37-38: 25% (3/12) & Gestational age 39-40: 75% (9/12). Javed et al<sup>18</sup> from Lahore also reported similar results.

Statistically significant association was seen between parity status of women and placenta previa. i.e. ( $p$ -value-0.000) Parity-1: 0(0%), Parity-2: 0(0%), Parity-3:5(41.7%) and Parity-4:7(58.3%). A study conducted in Nigeria by Gbadebo et al<sup>16</sup> has also reported similar results.

No statistically significant association was seen between previous cesarean section of women and placenta previa. i.e. ( $p$ -value-0.366) No previous CS: 25% (3/12), One previous CS: 33.3% (4/12), Two previous CS: 16.7% (2/12) & Three previous CS: 25% (3/12). Javed et al<sup>18</sup> from Lahore also reported similar results.

In this study it was observed that frequency of placenta previa was 13.3% among women undergoing hysterectomy during cesarean delivery at term. However no statistically significant association was seen between placenta previa and age groups of women, gestational age of women and number of previous cesarean section. However a statistically significant association was seen between placenta previa and parity status of women. According to the results of a recently published Indian study in which among (8.9%) women placenta previa was the indication for emergency obstetric hysterectomy.<sup>21</sup> However according to the results of a local study the persistent bleeding from placental site was the etiology in 3(2.5%) patients with major degree of placenta previa necessitating hysterectomy.<sup>14</sup> Both the studies from Pakistan and India showed a low frequency of placenta previa in women undergoing hysterectomy during cesarean delivery at term. These findings supports the results of this study that in our set up women who were undergoing hysterectomy during cesarean delivery at term frequency of placenta previa is low although in literature it was reported as one of the major and significant risk factors. In 1984, Stanco et al had documented that 43.4% of total emergency hysterectomies were performed in which 33.9% were done due to placenta previa with accrete<sup>22</sup>. Joana Ferreira Carvalho in his study reported that the second most common indication for hysterectomy was placenta previa (2/13:15.38%).<sup>23</sup> Thus higher frequency reported in international literature might be due to many systematic and methodological issues or difference in sample size or other systematic criteria. Marian Knight in his study reported the frequency of placenta previa as 16% in women who Have Had a Peripartum Hysterectomy and Previous Cesarean Delivery.<sup>24</sup> Jin R in his study reported that placenta previa is an independent and significant risk factor for emergency peripartum

hysterectomy, placenta previa (OR: 6.9; 95% CI 1.6-2.9, p-value = 0.008).<sup>25</sup>

## CONCLUSION

High frequency of placenta previa was noted in our study among females undergoing postpartum hysterectomy. Keeping in mind the results of this study it can be concluded that the placenta previa being a risk factor for emergency obstetrics hysterectomy should be identified and screened antenatally to improve disease prognosis to achieve desired clinical outcomes.

## REFERENCES

- Zheng X, Li X, Xu J, Wei Y. Intelligent Recognition Algorithm-Based Color Doppler Ultrasound in the Treatment of Dangerous Placenta Previa. *J Healthc Eng*. 2021 Nov 29;2021:9886521. doi: 10.1155/2021/9886521. PMID: 34880982; PMCID: PMC8648457.
- Takeda S, Takeda J, Makino S. Cesarean Section for Placenta Previa and Placenta Previa Accreta Spectrum. *Surg J (N Y)*. 2020 Mar 9;6(Suppl 2):S110-S121. doi: 10.1055/s-0039-3402036. PMID: 32760794; PMCID: PMC7396465.
- Li P, Tang Y, Jiang Y, Li D. Analysis of clinical features of 231 cases with pernicious placenta previa: A retrospective cohort study. *Medicine (Baltimore)*. 2021 Mar 19;100(11):e25023. doi: 10.1097/MD.00000000000025023. PMID: 33725977; PMCID: PMC7982193.
- Zhu L, Lu J, Huang W, Zhao J, Li M, Zhuang H, et al. A modified suture technique for the treatment of patients with pernicious placenta previa and placenta accreta spectrum: a case series. *Ann Transl Med*. 2021 Jul;9(14):1140. doi: 10.21037/atm-21-2318. PMID: 34430581; PMCID: PMC8350683.
- Park HS, Cho HS. Management of massive hemorrhage in pregnant women with placenta previa. *Anesth Pain Med (Seoul)*. 2020 Oct 30;15(4):409-416. doi: 10.17085/apm.20076. PMID: 33329843; PMCID: PMC7724116.
- Yu SCH, Cheng YKY, Li WT, Sahota DS, Chung MY, Wong SSM, et al. Perioperative prophylactic internal iliac artery balloon occlusion in the prevention of postpartum hemorrhage in placenta previa: a randomized controlled trial. *Am J Obstet Gynecol*. 2020 Jul;223(1):117.e1-117.e13. doi: 10.1016/j.ajog.2020.01.024. Epub 2020 Jan 21. PMID: 31978436.
- Jauniaux E, Bhide A. Prenatal ultrasound diagnosis and outcome of placenta previa accreta after cesarean delivery: a systematic review and meta-analysis. *Am J Obstet Gynecol*. 2017 Jul;217(1):27-36. doi: 10.1016/j.ajog.2017.02.050. Epub 2017 Mar 6. PMID: 28268196.
- Wang N, Shi D, Li N, Qi H. Clinical value of serum VEGF and sFlt-1 in pernicious placenta previa. *Ann Med*. 2021 Dec;53(1):2041-2049. doi: 10.1080/07853890.2021.1999492. PMID: 34927512; PMCID: PMC8725906.
- Pagani G, Cali G, Acharya G, Trisch IT, Palacios-Jaraquemada J, Familiari A, et al. Diagnostic accuracy of ultrasound in detecting the severity of abnormally invasive placentation: a systematic review and meta-analysis. *Acta Obstet Gynecol Scand*. 2018 Jan;97(1):25-37. doi: 10.1111/aogs.13238. Epub 2017 Nov 28. PMID: 28963728.
- Clark SL, YEH S-Y, Phelan JP, Bruce S, Paul RH. Emergency hysterectomy for obstetric hemorrhage. *Obstet Gynecol* 1984;64(3):376-80.
- Stanco LM, Schrimmer DB, Paul RH, Mishell DR, Jr. Emergency peripartum hysterectomy and associated risk factors. *Am J Obstet Gynecol* 1993;168(3 Pt 1):879-83.
- Machado LS. Emergency peripartum hysterectomy: Incidence, indications, risk factors and outcome. *N Am J Med Sci* 2011;3(8):358.
- Knight M, Kurinczuk JJ, Spark P, Brocklehurst P, Committee UKOSSS. Cesarean delivery and peripartum hysterectomy. *Obstet Gynaecol* 2008;111(1):97-105.
- Korejo R, Nasir A, Yasmin H, Bhutta S. Emergency obstetric hysterectomy. *J Pak Med Assoc* 2012;62:1322-5.
- Wasim T, Bushra N, Riaz S, Iqbal HI. Fetomaternal outcome in patients with placenta previa. *Pak J Med Sci*. 2020 Jul-Aug;36(5):952-957. doi: 10.12669/pjms.36.5.1647. PMID: 32704270; PMCID: PMC7372655.
- Gbadebo AA, Edwin E, Anawo AC. Inevitable peripartum hysterectomy in a tropical hospital: indications and maternofetal outcome. *Pak J Med Sci Jan - Mar* 2008;24(1):122-6.
- Fayyaz S, Faiz NR, Rahim R, Fawad K. Frequency of postpartum hemorrhage in maternal mortality in a tertiary care hospital. *J Postgrad Med Inst Jul - Sep* 2011;25(3):257-62.
- Javaid S, Yasmeen T, Rafique S, Malik S. Postpartum and emergency caesarean hysterectomy Pak J Med Health Sci Apr - Jun 2011;5(2):239-42.
- Sultana S, Khan MNA, Sadia S, Khan NM, Waqar F, Saeed A, et al. Emergency Peripartum Hysterectomy in Pakistan Railway Teaching Hospital Rawalpindi: Eleven Years Review. *J Islamic Int Med Coll Dec* 2013;8(3):103-9.
- Fatima T, Qayyum FI, Tabassum Z. Ten Years Experience and Review of Postpartum Hysterectomy Cases in Fauji Foundation Hospital Lahore. *Pak J Med Health Sci Jan - Mar* 2019;13(1):37-9.
- Chawla J, Arora CD, Paul M, Ajmani SN. Emergency obstetric hysterectomy: a retrospective study from a teaching hospital in North India over eight years. *Oman Med J*. 2015;30(3):181.
- Stanco LM, Schrimmer DB, Paul RH, Mishell Jr DR. Emergency peripartum hysterectomy and associated risk factors. *Am J Obstet Gynecol*. 1993;168(3):879-83.
- Ferreira Carvalho J, Cubal A, Torres S, Costa F, Carmo Od. Emergency Peripartum Hysterectomy: A 10-Year Review. *ISRN Emergency Medicine* 2012;2012.
- Knight M, Kurinczuk JJ, Spark P, Brocklehurst P, Committee UKOSSS. Cesarean delivery and peripartum hysterectomy. *Obstet Gynecol*. 2008;111(1):97-105.
- Jin R, Guo Y, Chen Y. Risk factors associated with emergency peripartum hysterectomy. *Chin Med J*. 2013;127(5):900-4.