

## PLACENTA PRAEVIA AND MATERNAL MORBIDITY IN SCARRED UTERUS

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### ABSTRACT

**OBJECTIVES:** To determine the frequency and types of placenta praevia (PP) in previous one caesarean section (C/S) along with associated maternal morbidity and mortality in resource poor country like Pakistan where social preference is for large family size.

**METHOD:** Prospective case series was conducted in department of obstetrics and gynecology civil hospital Karachi from March 8<sup>th</sup> 2018 to March 8<sup>th</sup> 2019. All pregnant women with singleton pregnancy and previous one caesarean section were included. Gestational age and type of praevia was confirmed by prenatal ultrasound and clinical examination. Maternal outcomes were assessed in terms of complications like post-partum hemorrhage (PPH), Obstetrical hysterectomy, need for blood transfusion and intensive care unit admission.

**RESULTS:** One hundred and thirty nine pregnant women were included in this study. Mean age of women was  $30.9 \pm 1.6$  years. Mean gestational age was  $38.2 \pm 1.6$  Weeks. PP was found in 8 (5.8%) women. Type 2 was seen in 4 (50%) of women. Out of 8 women with PP, maternal morbidity was seen in 5 (62.5%) cases. Blood transfusion was given in 4 (50%) women. Obstetrical hysterectomy was observed in only 1 (12.5%) woman and only one patient shifted to intensive care unit (12.5%) because of massive PPH. Type-IV PP was most frequently associated with maternal morbidity (50%).

**Conclusion:** A previous one C/S is associated with increased risk of PP especially type-II PP, although type-IV was most commonly associated with maternal morbidity.

**KEYWORDS:** Scarred uterus, maternal morbidity, placenta Praevia

## INTRODUCTION

Placenta that is partially or completely implanted in lower uterine segment is called as placenta praevia.<sup>1</sup> PP complicates 0.3 to 0.5 % of all pregnancies and is a major cause of third trimester hemorrhage. Which is increasing day by day because of increase in incidence of caesarean section.<sup>2</sup>

The prevalence of PP in Pakistan is reported to be 0.5%<sup>3</sup>. The maternal mortality rate secondary to placenta praevia is 0.03% either due to hemorrhage or complication of C/S.<sup>3</sup> Etiology of PP is still not fully understood although number of investigators have linked its association with advanced maternal age, multiparity, previous C/S or other uterine surgeries resulting in scarring, dilatation and curettage, smoking and multiple gestation.<sup>4</sup>

Prenatal ultrasound may help to predict the depth and topography of placental invasion which are the major determinants of maternal morbidity.<sup>5</sup> In non scarred uterus, the placenta moves up in the upper uterine segment as the pregnancy advances but in scarred uterus, placenta fails to do so because it pierces deep in the scarred tissue.<sup>6</sup> Maternal risks with PP include life threatening hemorrhage, anesthesia and emergency cesarean section related complications. Other less

common complications are post-partum sepsis, and an abnormal degree of placental adherence.<sup>7</sup> Risk of PP is increased with previous C/S. Kouser et al in her study found that risk of PP is 1.87% with previous one, 2.4% for two, 2.8 for three and 10% for four or more C/S.<sup>8</sup>

The aim of this study was to find out the incidence, type and outcomes of placenta praevia in terms of maternal morbidity and mortality in previous one C/S in resource poor country like Pakistan where social preference is for a large family. This phenomenon is further compounded by increasing caesarean section rate in Pakistan which is 64.7% in a study done by Haider et al.<sup>9</sup>

## PATIENTS AND METHOD

Prospective case series was conducted in department of obstetrics and gynecology civil hospital Karachi (CHK) from March 8th 2018 to March 8th 2019. All pregnant women aged between 30 – 40 years (targeted age group) having singleton pregnancy of > 28 weeks of gestation with history of previous one caesarean section admitted for delivery in labor room of CHK either admitted via emergency or outpatient department. Type of placenta praevia was determined by ultrasound and further confirmed intra-operatively. Women with previous history of abortions, more than 1 caesarean section, submucous fibroid, previous myomectomy, present pregnancies with multiple pregnancy were

excluded from the study as these all conditions increase the risk of placenta praevia and haemorrhage.

These women were observed to determine outcome measures like blood transfusion, obstetrical hysterectomy and need for ICU at time of delivery and one week thereafter. Basic demographic characteristics, detail of current and past obstetrical history, incidence and type of PP were recorded by 3-4 year resident in obstetrics and gynaecology department. Maternal outcomes in terms of maternal complications were determined.

Data was analyzed by SPSS version 19. Frequencies and percentages were calculated for all qualitative variables like presence, type of placenta praevia, maternal morbidities (i.e. blood transfusion and obstetrical hysterectomy), parity, age group and gestational age groups etc. Mean  $\pm$  SD was measured for quantitative variables like maternal age, gestational age, parity etc. Stratification was done with respect to age and placenta praevia to see the effect of these on outcomes.

## RESULTS

A total of 139 pregnant women met the inclusion criteria in a given time period were included in the study. Mean  $\pm$ SD age of women was  $30.9 \pm 1.6$  years with

range 30 – 35 years. Mean  $\pm$ SD for gestational age and parity are shown in [table](#)

1. Out of 139 pregnant female, PP was found in 8 (5.8%) women. Among 8 women with PP, low lying placenta I was seen in 4 (50%), major placenta praevia in 4(50%%) and Frequency of PP was high in age 30 – 34 years. Out of 8 women with PP, 7 (87.5%) women had age between 30 – 34 years and only 1 (12.5%) woman had age > 34 year (figure 1). Maternal morbidity was seen in 5 (62.5%) patients with PP. Four (50%) patients required blood transfusion while obstetrical hysterectomy and need for ICU care was observed in 1 (12.5%) each. Major PP was most common type associated with maternal morbidity (50%) (Table 2).

**Table-1**  
**Demographics**

<b>Variables</b>	<b>Mean<math>\pm</math> SD/ %</b>
<b>Age</b>	<b>30.9(<math>\pm</math> 1.6)</b>
<b>Gestational age</b>	<b>38.2 (<math>\pm</math> 1.6)</b>
<b>PARITY</b>	
<b>Para 1</b>	<b>49 (35.2%)</b>
<b>Para 2</b>	<b>46 (33.1%)</b>
<b>Para 3</b>	<b>30 (21.6%)</b>
<b>Para 4 or &gt;</b>	<b>14 (10.1%)</b>

**Baseline**

Types of Placenta Praevia	Maternal Morbidity	
	Blood Transfusion	Obstetric Hysterectomy
Low lying	1 (12.5%)	0
Major PP	3 (37.5%)	1 (12.5%)

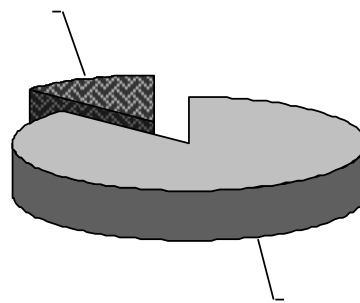
**Table- 2 Maternal and types of praevia**

**morbidity placenta**

**Figure =1**

**PLACENTA PRAEVIA IN AGE GROUP**

> 34 years  
 1 (12.5%)



30 - 34 years  
 7 (87.5%)

## **DISCUSSION**

Placenta praevia is a serious complication of pregnancy that is still significantly associated with increased perinatal and maternal morbidity and mortality in developing countries.<sup>10</sup> The likelihood of PP increases in a dose-response fashion with a greater number of prior cesarean deliveries and with greater parity.<sup>11</sup>

In our study percentage of PP in patient with previous one C/S was 5.8%, this relatively high percentage may be due to the fact that this study was performed in the tertiary care center where high risk pregnancies are managing, and major bulk of patients are non-booked and referred. Still comparable with previous studies where incidence of PP with previous one C/S was 5.7 and 13.5% respectively.<sup>12,13</sup> Study by metgud et al shows risk of PP was 10/1000 (1%) second birth where first birth was through cesarean section.<sup>13</sup> Many studies conducted around the world shows 2-5 fold increase in risk of PP with previous history of cesarean section.<sup>15,16</sup>

In this study frequency of PP was high in age 30 – 34 years. Out of 8 women 7 (87.5%) women had age between 30 – 34 years. In one previous study high proportion of pregnant women (31.8%) are in the age group of 30-39 and another 10.1% belong to even a higher age group of 40-49.<sup>17</sup> The study provides an analysis that increasing maternal age is strongly associated with PP. Rasmussen<sup>18</sup> also found that increasing maternal age was associated with PP and incidence was lowest in women between 20-29 years of age.

In our study majority of patient was para 1 or 2 that is same like study done in holy family hospital where majority of patients were para 0 or 1.<sup>6</sup> Unlike our study, most of previous studies shows risk of PP is increasing with increasing parity.<sup>19,20</sup>

In our study maternal morbidity was seen in 5(62.5%) cases. Study done in holy family hospital also shows 10% incidence of caesarean hysterectomy due to PP with scarred uterus.<sup>5</sup> Unlike our study McShane et al<sup>21</sup> also reported a low 4.1% maternal morbidity in his study. Maharat Nakhon Ratchasima Hospital reported maternal morbidities that significantly associated with PP were blood transfusion 15.6%, postpartum hemorrhage 7.6% and postpartum hysterectomy 1.3%<sup>22</sup>, same like our study but with low percentages. Study by majeed et al shows 10.7% incidence of PP in scarred uterus that was quite high also like our study.<sup>23</sup>

## **CONCLUSION :**

Cesarean first birth is associated with increased risk of PP especially type-II placenta previa. Other factor that significantly associated with PP development was advanced maternal age. Therefore strategies should be adopted to reduce cesarean section rate by carefully monitoring labor and cesarean section on social ground should be discourage. Among women with PP, type-IV was most commonly associated with maternal morbidity. Blood transfusion was most frequent morbidity, observed in 50% women. Therefore, providers and then patients should be aware of that, even prior one cesarean delivery increasing the risk of PP in a subsequent pregnancy. Hence, women with PP and with scarred uterus especially major type of praevia (type III and IV) should be delivered in tertiary care hospital where blood transfusion and ICU facilities are available.

## **ACKNOWLEDGEMENT:**

Dr. Khadim hussain for his valuable input in writing and revision of article.

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