

**ORIGINAL RESEARCH**

# Maternofetal outcome of Placenta Accreta Spectrum in a tertiary care hospital

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**ABSTRACT**

**Background:** The incidence and prevalence of placenta accreta spectrum (PAS) is increasing with increasing rates of cesarean sections. The high morbidity and mortality associated with PAS calls for detailed clinical study of such cases, so as to identify the risk factors associated with it, standardize management options and improve the patient care. **Aims and Objectives:** Aim of the present study was to determine risk factors and outcome of pregnancies complicated by placenta accreta spectrum presenting to tertiary care hospital and to analyze different management options and thus formulate the best management plan in such patients in a low resource setting. **Materials & Methods:** A study was done in the postgraduate department of Obstetrics and Gynaecology, Government Medical College, Jammu for a duration of 18 months. All case records of dealt cases of placenta accreta spectrum were obtained from medical record section and carefully analyzed to find out risk factors and maternofetal outcome were tabulated. The results were analysed using SPSS software. **Results:** The total number of patients in our study were 35. The mean age was 30.6 years. 48.6% patients had history of previous 2 cesarean sections followed by 42.8% cases with previous one caesarean. Caesarean hysterectomy (total) was the primary surgical procedure in maximum number of patients that is 65.7% followed by subtotal hysterectomy in 17.1%. Uterine preservation was possible in 2 cases (5.7%). There was 1 maternal death (2.9%). There were 10 (28.5%) NICU admissions and 7 (20%) perinatal deaths. **Conclusion:** Risk of developing placenta accreta increases with number of previous caesarean sections. The most important factor affecting outcome is antenatal diagnosis of this condition and management requires a multidisciplinary team approach.

**Keywords:** placenta accreta spectrum, perinatal, caesarean sections.

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**INTRODUCTION**

Placenta accreta spectrum (PAS) disorder (previously called morbidly adherent placenta/abnormally invasive placenta) is known to be associated with significant maternal morbidity/mortality usually because of hemorrhage and an emergent need for blood product transfusion. <sup>1</sup> Over the past few decades, the rate of cesarean delivery (a major risk factor) has increased significantly, resulting in a 10-fold increase in the incidence of PAS disorder, a situation expected to worsen over the next few years, given that true effects of the increased rate of cesarean delivery may be delayed for years. <sup>2</sup>

The risk of PAS disorders correlates with the number of previous caesarean sections (CSs). <sup>3</sup> The detection of further significant risk factors such as placenta praevia has made targeted screening possible. <sup>4</sup> Sonographic markers for PAS disorders were found and standardised. <sup>5</sup> Prenatal diagnosis has been shown to reduce the associated morbidity, particularly caused by peripartum haemorrhage. <sup>6</sup> However, the antepartum diagnosis of placenta accreta in ultrasound

is still limited compared to placenta increta or percreta, and in individual cases, devastating bleeding occurs when a regular attempt is made to remove unknown PAS in the absence of risk factors. <sup>7,8</sup> Optimal conditions for delivery in PAS have been described, including thorough antenatal consultation and management by experienced multidisciplinary teams in large perinatal centres. <sup>9,10</sup> According to current knowledge, the expertise of a well-coordinated team seems to be more decisive than the specific type of procedure. <sup>11</sup> It is a consequence of a defective decidualization determined by placental implantation at an area of preexisting damage to the endometrial-myometrial interface. <sup>12</sup> Previous uterine surgery such as cesarean section, hysteroscopic removal of intrauterine adhesions, cornual resection of ectopic pregnancy is most frequently associated with PAS. Other factors that may be involved in the development of PAS are previous curettage, submucous fibroids, or uterine malformations. <sup>13</sup>

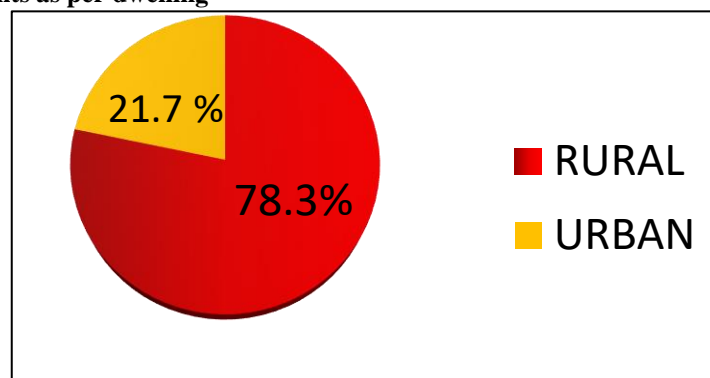
The most important risk factor for the development of a PAS is placenta previa after a prior cesarean

delivery/section. The difficult diagnosis of this pathology explains the variation in placenta accreta prevalence between 1 in 300 and 1 in 2000 pregnancies.<sup>14</sup> In the case of women with a prior single cesarean delivery, the presence of placenta previa is associated with a 3% risk of PAS, while the absence of placenta previa is associated with a 0.03% risk of PAS. In a recent meta-analysis, Jauniaux et al. indicate a PAS prevalence between 0.01% and 1%.<sup>15</sup> This difference of risk is even more evident in women with a history of multiple cesarean sections. Women over 35 years or with a personal history of pelvic irradiation, manual removal of the placenta, endometritis, or infertility have a higher PAS risk compared to control groups.<sup>16</sup> Hence, this study was conducted to determine the maternal and perinatal outcome of pregnancies complicated by placenta accreta spectrum presenting to tertiary care hospital and to analyze different management options and thus formulate the best management plan in such patients in a low resource setting.

**Table 1: Age distribution**

Age (years)	Mean $\pm$ SD
<30	30
30-35	65.2
>35	8
Overall	30.6 $\pm$ 2.62

**Distribution of patients as per dwelling**



48.6% patients had history of previous 2 cesarean sections followed by 42.8% cases with previous one cesarean. Other risk factors identified were previous 3 LSCS, H/O DNCs and Myomectomy. 54.28 % patients were elective cases followed by 42.8% cases who had antepartum haemorrhage (APH) followed by 2.9% cases with retained placenta as clinical presentation. 30 (85.7%) patients were diagnosed as having evidence of PAS preoperatively on ultrasonography whereas additional MRI was required for diagnosing in 3 patients. Caesarean hysterectomy (total) was the primary surgical procedure in maximum number of patients (65.7%) followed by subtotal hysterectomy in 17.1%. Uterine preservation

## MATERIALS & METHODS

This retrospective study was done by Postgraduate Department of Obstetrics and Gynecology GMC JAMMU for duration of 18 months from April 2022 to September 2023 after taking Institutional Ethical Clearance. All the dealt case files of the patients with intraoperative evidence of placenta accretaspectrum were taken and thoroughly analysed. Details regarding age, parity, gestational age, the previous surgical procedures, preoperative investigations, intraoperative, postoperative and neonatal outcome were collected. The results were analysed using SPSS software.

## RESULTS

The total number of patients in our study were 35. The mean age of patients was 30.6 years. 78.3% patients belonged to urban and 21.7% were from rural areas. 91.3 % patients were booked cases.

was possible in 2 cases (5.7%). Intraoperatively, 57.2% patients had placenta accreta followed by 22.8% had placenta increta. Mean operative surgical time was 115 $\pm$  25.2 minutes. The average number of blood transfusions received (irrespective of the procedures) in our study were 3.2  $\pm$  2.36 and fresh frozen plasma received were 3.6  $\pm$  2.03. Most common immediate complication was shock in 28.6% patients and delayed complication was prolonged catheterization due to bladder injury in 17.1% patients. 28.5% patients had Apgar score less than 7 at 5 mins. 91.4% patients had low birth weight babies. There were 28.5% NICU admissions and 20% perinatal deaths.

**Table 2: Obstetric characteristics of the patients.**

<b>Parity</b>	
Primiparous (n)	0%
Multiparous (n)	100%
<b>Gestational age at delivery</b>	
Less than 28 weeks	8.57 %
28-34 weeks	34.28 %
More than 34 weeks	57.15%
<b>Risk factors</b>	
Placenta previa	100%
Previous 2 LSCS	48.6%
Previous 1 LSCS	42.8%
Previous history of 1 or more DNCs	28.5%
Previous 3 LSCS	8.6%
Previous history of Myomectomy	2.9%

**Table 3: Chief complaint at presentation**

Complaint	N	Percentage
APH	15	42.8%
Asymptomatic	19	54.28%
Retained placenta	1	2.9%
Total	35	100%

**Table 4: Surgical procedure**

Surgical procedure	N	Percentage
Caesarean section with uterine artery ligation with homeostatic stitches	2	5.7%
Caesarean hysterectomy [total]	23	65.7%
Caesarean subtotal hysterectomy	6	17.1%
Peripartum hysterectomy	1	2.9%
Hysterotomy f/b hysterectomy	3	8.6%
Bladder repair	6	17.1%

**Table 5: Intraoperative findings**

Findings	Percentage
Focal accreta	5.8%
Accreta	57.2%
Increta	22.8%
Percreta	14.2%

**Table 5: Duration of surgery**

Operative time	Percentage
60-90	17.4%
90-120	10.1%
120-150	72.5%
Mean	115±25.2min.

**Table 6: Maternal complications**

Post operative complications	Number	Percentage
Shock	10	28.6 %
DIC	3	8.6 %
Bladder injury	6	17.1%
Sepsis	8	22.8%
Cardiac arrest and death	1	2.9%

**Table 7: Fetal Outcome**

Fetal parameters	Number	Percentage	
Apgar score less than 7 at 1min	16	45.71%	
Apgar score less than 7 at 5 mins	10	28.57%	
Low Birth weight	32	91.4%	
NICU Admission	Preterm/ Prematurity	5	14.2%
	Respiratory Distress	5	14.2%
Perinatal deaths	Preterm/Prematurity with Respiratory distress syndrome	5	14.2%
	IUD	2	5.7%

## DISCUSSION

Placenta accreta spectrum (PAS) is a potentially life-threatening obstetric complication. It is characterized by invasive placentation due to the absence of the decidua basalis layer, resulting in placental anchoring villi coming in direct apposition with the myometrium due to a deficient Nitabuch's layer. Different terminology has been used to explain this condition; however, the recent consensus is to include accreta, increta, and percreta in PAS.<sup>17</sup> Depending on the extent of placental invasion, PAS is categorized into placenta accreta and placenta increta. In placenta accreta, placental villi remain attached to the myometrium without invading it, whereas in placenta increta, placental villi penetrate the myometrium and extend up to or beyond the uterine serosa. Placenta accreta is further divided into two types depending on the timing of diagnosis; those diagnosed during the antenatal period by imaging are called expected PAS, and those diagnosed during the intrapartum period with adherent or retained placenta are called unexpected PAS. The diagnosis of PAS will be considered with the presence of one of the following 1) the need for manual removal of the placenta either completely or partially, 2) evidence of gross placental invasion during surgery, 3) ultrasound diagnosis of PAS confirmed during the third stage of labor, and 4) histological confirmation of hysterectomy specimen.<sup>18</sup>Hence, this study was conducted to determine the maternal and perinatal outcome of pregnancies complicated by placenta accreta spectrum presenting to tertiary care hospital and to analyze different management options and thus formulate the best management plan in such patients in a low resource setting.

In the present study, the mean age was 30.6years..Caesarean hysterectomy (total) was the primary surgical procedure in maximum number of patients (65.7%) followed by subtotal hysterectomy in 17.1%. Uterine preservation was possible in 2 cases (5.7%). In the present study, the average number of

blood transfusions received (irrespective of the procedures) in our study were  $3.2 \pm 2.36$  and fresh frozen plasma received were  $3.6 \pm 2.0$  .

In the study by Varlas VN et al, the conservative management was obtained in one case at <37 weeks of gestation, and the maternal outcome was uterine preservation. Among the 12 patients, the mean age was  $34 \pm 3.44$  years. All women had risk factors for abnormally invasive placenta, such as placenta previa or previous cesarean delivery. Most women underwent planned cesarean delivery at the mean gestational age of  $36.4 \pm 0.9$  weeks. The uterus was preserved in only one case (8.33%), and hysterectomy with preservation of ovaries was performed in the rest of the cases. Mean maternal blood loss during surgery was  $2175 \pm 1440$  ml. Severe maternal outcomes were recorded only in one case (8.33%).<sup>19</sup>

Another study by Erfani H et al, fifty-four of the 243 patients (22.2%) were in the unexpected placenta accreta spectrum group. Patients in the expected placenta accreta spectrum group had a higher rate of previous cesarean delivery (170 of 189 [89.9%] vs 35 of 54 [64.8%];  $P < .001$ ) and placenta previa (135 [74.6%] vs 19 [37.3%];  $P < .001$ ). There was a higher proportion of increta/percreta in expected placenta accreta spectrum vs unexpected placenta accreta spectrum (125 [66.1%] vs 9 [16.7%],  $P < .001$ ). Both primary outcomes were higher in the unexpected placenta accreta spectrum group (estimated blood loss, 2.4 L [1.4–3] vs 1.7 L [1.2–3],  $P = .04$ ; red blood cell units, 4 [1–6] vs 2 [0–5],  $P = .03$ ).<sup>20</sup>In our study, 48.6% patients had history of previous 2 caesarean sections and 42.8 % had previous 1 lscs..The surgical technique used for closing the uterus during cesarean delivery could play a role in the etiology of PAS. Studies suggest that a single-layer uterine closure compared with a multiple-layer uterine closure, locked versus interrupted suturing or suture materials could influence the risk of PAS in future pregnancies.<sup>21</sup> However, single-layer closure of the uterine incision is associated with a reduction in mean

blood loss and duration of the operative procedure.<sup>22</sup> More studies are necessary to assess the impact of surgical techniques used during cesarean delivery on the risks of PAS. Ultrasound can assess the topography of the placental invasion, the degree of vascularization in the lower uterine segment and the depth of the area of abnormal adhesion, as well as the invasion of other structures determining factors of maternal morbidity.<sup>23</sup> When placenta previa associated with PAS is suspected, surgeons should consider uterine incision at a site distant from the placenta and should deliver the baby without disturbing the placenta in order to enable conservative management or elective hysterectomy with a reduced blood loss.<sup>24</sup> The abdominal incision must allow sufficient access to the uterus, and hysterotomy should be above the upper placental margin. Preoperative or intraoperative ultrasound examination enables a good visualization of the upper placental margin, and as a result, helps the surgeons to establish both the abdominal and uterine incision.<sup>25</sup> The total incidence of PAS disorders at the study centre was comparable to other published data for tertiary perinatal centres, but it was higher than the pooled data of a recent meta-analysis considering studies of the last four decades.<sup>26</sup> One reason for this could be the increasing treatment of PAS disorders in experienced centres, which is recommended in the ACOG guidelines.<sup>27</sup> On the other hand, increasing incidences of PAS have been shown for the last decades in the course of rising CS rates.<sup>28</sup>

## CONCLUSION

Risk of developing placenta accreta increases with history of previous caesarean sections. The most important factor affecting outcome is antenatal diagnosis of this condition. Management requires a multidisciplinary team approach.

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