

## FETOMATERNAL OUT COME IN PLACENTA ACCRETA SPECTRUM (PAS) IN A TERTIARY CARE TEACHING HOSPITAL

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### Abstract

**Objective:** To determine the fetomaternal outcomes in PAS-Placenta Accreta Spectrum.

**Methods:** This was an observational descriptive study conducted at Gynae unit 2, of FJMU/, Sir Ganga Ram hospital Lahore. Fifty patients of placenta accreta spectrum were included over one year study period. All booked and un-booked patients who had history of antepartum haemorrhage with or without per vaginal bleeding who were diagnosed of having PAS were included in study.

**Results:** Fifty cases of placenta accreta spectrum (PAS) were studied over one year period. 35 (70%) patients with placenta Accreta Spectrum (PAS) were un-booked. 15 (30%) were booked. In 25 (50%) of patients age group ranged between twenty six to thirty years while the gestational age ranged between 32-36 weeks. In 35 (70%) of patients having type four major degree placenta previa while type three major degree Placenta previa was noted 10 (20%) of the cases. Regarding number of caesarean sections forty five (90%) had more than one caesarean section while only five (10%) had previous one caesarean section.

**Conclusion:** Placenta Accreta spectrum (PAS) is associated with life threatening haemorrhage along with associated high foeto-maternal mortality and morbidity. Early diagnosis by Doppler ultrasound and multidisciplinary is necessary to improve foeto maternal outcome.

**Keywords:** Placenta PAS -Placenta Accreta spectrum, Maternal perinatal morbidity and mortality, Previous caesarean section.

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Incidence of PAS, (Placenta Accreta Spectrum) which consists of invasive and morbidity adherent placenta varies 1:250 to 1:500 of births.<sup>1</sup> It includes three varieties depending upon the range of pathology of the placenta i.e. when placental invasion is restricted to myometrium then it is called placenta Accreta while in place increta and percreta there is villous invasion to the myometrium and into serosa.<sup>2,3</sup> Placenta Accreta is most common type of placenta Accreta Spectrum and is present in 60% of the cases of PAS while in 20% and 15%, placenta percreta and

placenta increta present.<sup>1</sup>

All over the world there is an increase in incidence of PAS-placenta Accreta spectrum and it is a fatal condition because of its association with massive postpartum hemorrhage.<sup>4,5</sup> There is close association of PAS with previous caesarean section as incidence of PAS increased as number of caesarean sections increases in a patient when there is history of previous one caesarean section incidence of PAS is 3% while an incidence of 67% is reported in the patients with previous five caesarean sections while there is an incidence of 21%, 40% and 61% in a patient with previous two, three and four caesarean sections respectively.<sup>6</sup> While history of previous uterine surgeries such as myomectomy, dilation and curettage, operative hysteroscopic procedure and advanced maternal age are other associated risk factors for PAS.<sup>7,8</sup> The clinical features of PAS are massive obstetric haemorrhage which needs transfusion of blood, peripartum hysterectomies and uterine artery

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embolization perinatal and maternal complications. Obstetrics ultrasound especially second tri-mester ultrasound is a primary diagnostic modality to diagnose the PAS prenatally.<sup>9,10</sup> Colour Doppler ultrasound three dimensional Doppler ultrasound is helpful in diagnosis of PAS.<sup>11</sup> Timely diagnosis of PAS improved the out come as blood loss is reduced significantly and requirement of blood components transfusion is reduced to those cases in which diagnosis is made at the time of delivery.<sup>12</sup> PAS should be managed by multidisciplinary team involving expert obstetricians expert anaesthesiologist, interventional radiologist, urologist, nursing team, and blood bank services so that fetomaternal out come can be improved.<sup>13</sup> Management of PAS is either non conservative ie caesarean hysterectomy or in some cases Conservative management with placenta left in situ.<sup>14</sup> There is an increase incidence of fetomaternal mortality and morbidity there fore the aim of this study is to determine the fetomaternal out come in women who is diagnosed as a case of Placenta Accreta Spectrum (PAS). This study will be helpful to improve fetomaternal out come in future by emphasizing early booking, early diagnosis of PAS and thus opting multidisciplinary approach.

## METHODS

It was a descriptive study conducted at Sir Ganga Ram hospital Lahore Pakistan Gynae and Obstetrics unit 2 from December 2021 to December 2022.

This study comprises of 50 patients having Placenta Accreta Spectrum. Study included all women whether booked or un booked who presented with antepartum haemorrhage due to PAS diagnosed by Doppler ultrasound. All asymptomatic patients who have PAS diagnosed by Doppler ultrasound. Patients with gestational age from 28 weeks on wards. And all the pregnant patient having gestational age less than 28weeks having lower lying placenta. Pregnant patients who presents with antepartum haemorrhage other than Placenta previa. pregnant patients who presents with antepartum haemorrhage due to incidental causes.

The data of the patients like her age her parity mode

of delivery, number of previous caesarean sections, her socioeconomic setup, her presenting symptoms like bleeding, her Doppler ultrasound admissible investigations were recorded in a Performa. Women who were asymptomatic with diagnosis of placenta Accreta spectrum advised admission at 32 weeks of gestation.

Management included achievement of optimal health status by getting target haemoglobin between 12.5 to 13.5g/ dl. Patients were instructed in context of their condition and an increased complications including increased risk of haemorrhage, and need of blood transfusion, an increased risk of bladder and ureteral injuries. Possibilities of thrombotic events and death are also explained. Perinatal outcome regarding prematurity need of admission to neonatal ICU and associated perinatal mortality and morbidity is also discussed.

A multidisciplinary approach involving senior obstetrician, senior surgeon, urologist anaesthesiologist, haematology and blood transfusion assistance and paediatricians were adopted. Six units of blood, fresh frozen plasma were arranged at the time of patients admission because there was an increased risk of unprovoked bleeding at any time. Elective delivery was prepared at 36 weeks. Classical Caesarean section was done using subumbilical mid line incision. In most of the cases either total or subtotal hysterectomy was carried out. In cases where there is concern to secure fertility and when there is partial separation of placenta conservative approach with trail of haemostasis after removal of placenta completely with application of multiple uterine bilateral internal iliac artery ligation, abdominal packing was done. All patients were shifted to intensive care unit for immediate postoperative care. Analysis of data was done using SPSS 23 software.

## RESULTS

Out of 50 patients patients 15(30%) were booked and 35(70%) patients were un booked. Out of fifty patients half of the patients have gravidity between 2 to 4 while rest of 25 patients had gravidity above 4.

25(50%) patients were delivered after 34 weeks while 20(40%) delivery took place between 32 to 34 weeks while in delivered between 28- 30 weeks. 5(10%), and 10 had previous one and previous two caesarean section and rest of 35 (70%) patients had more than two previous caesarean section. In 5(10%) patients placenta accreta was diagnosed while in 45(90%) patients placenta increta and percreta was diagnosed. In 5(10%) patients diagnosis was made preoperatively. There was association of placenta Accreta spectrum with previous caesarean section in all fifty of cases. In this study, peri partum caesarean hysterectomy was performed. 35(70%) patients having total hysterectomy'. In patients whom bleeding was not secured, further internal iliac artery ligation was carried out in 20%of the cases along with abdominal

packing. In 5 (10%) cases of placenta accreta application of haemostasis sutures at the site of placental beds carried out. Bladder injury in 10% patients. While disseminated intravascular coagulation developed in 5(10%) patients, re-laparotomies were carried out in 4% of the patients while 25(50%) patients developed septicemia and admitted to ICU. Estimated blood loss during surgery was between 2.5 to 3 litres in 45(90%) patients while 5(10%) patients this loss was above three liters. There was six maternal deaths which was due to disseminated intravascular coagulation.

The hospital stays differed significantly. In 40(0%) patients it was between seven to ten days while rest of 10(20%) patients it was more than ten days. Regarding neonatal outcome fetal growth restriction was present

**Table 1:** Clinical and Demographic characteristics of placenta Accreta spectrum.

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1	Patient age at presentation	20-25 years 0	26-30 years 25 (50%)	30-35 years 25 (50%)
2	Antenatal Care Gravidity	Booked 15(30%) 2-3 10 (20%)	4 25(50%)	Un booked 35(70%) >4 15(30%)
3	Gestational Age weeks	28-30 5 (10%)	30-32 15(30%)	>34 30 (60%)
4	Previous Caesarean scars	Previous One Caesarian Section 5 (10%)	Previous Two Caesarian Section 10 (20%)	>Two Previous Caesarian Section 35(70%)
5	Type of placental invasion	Placenta Accreta 15(30%)	Placenta Increta 1 10(20%)	Placenta Percreta 25 (50%)
6	Management of placenta accreta spectrum (PAS)	Total abdominal Hysterectomy 30(60%)	Subtotal Hysterectomy 8(16%)	Uterine Conservation 12(24%)
7	Additional Procedures performed.	Bilateral Internal iliac artery ligation 10 (20%)	Abdominal packing 10(20%)	
8	a) Maternal Complications	Bladder injury 5(10%)	Acute tubular necrosis 8 (16%)	Relaparotomy 2 (4%)
	b) Maternal Complications	DIC 4 (8%)	Septicemia and admission to ICU 20(40%)	Maternal deaths 6(12%)
9	Blood loss at the time of surgery.	Between 2.5 to-3 liters 35(70%)	>3 liters 15(30%)	
10	Amount of blood transfused.	4 to 6 30(60%)	>6 20 (40%)	
11	Hospital stay	7-10 days (40) 40(80%)	>10 days (10) 10 (20%)	
12	Fetal outcome.	Fetal growth restriction. 10(20%)	Preterm birth 35(70%)	Neonatal ICU admission. 15(30%)

in 10 (20,%) cases while 35 (70%) of cases were delivered prematurely. 15, (30%) of cases needs ICU admission.

## DISCUSSION

PAS is a lethal complication of pregnancy. In this condition there is failures of separation of placenta with associated mortality and morbidity. Its incidence increased with rising number of caesarean section.

Only 15(30%) cases of our study were booked while 35(70%) of our patients are un booked. Our study is not persistent with Wasim et al<sup>16</sup> study where 86.1% of the patient are booked. This needs the early booking of patients with previous caesarean section. Most of the patients are of the age group between twenty six and thirty years age. A study carried out by Rabia Wajid and Aggarwal<sup>17</sup> which showed similar age distribution twenty six to twenty seven years .

In our study diagnosis of PAS was at 32weeks of gestation and surgery is performed at 36week. Our study is true with the most of the cases of placenta accreta spectrum (PAS) in our study were diagnosed around 32 weeks of gestation and their surgeries were planned around 36 week of gestation A study carried out by Rabia Wajid & colleagues<sup>17</sup> and by Aggrawal et al<sup>18</sup> showed similar gestation of presentation and time of delivery.

Regarding gravidity of the patients with PAS in 90% of the patients it falls between one to five similar pattern of gravidity was seen in Hassan S, et al<sup>19</sup> study.

There is a strong relation between placenta accreta spectrum (PAS) and number of previous caesarean sections. Our study showed that 70% of our patients had more than two caesarean section contrary to 30% and 10% of the cases who had previous two and previous one caesarean sections respectively. Similar association was found in s study carried out by Abas et al<sup>20</sup> Fifty percent, thirty percent and twenty percent of the cases had placenta percreta, Accreta and increta. However Rabia wajid and colleagues 17 showed different percentage of Placenta Accreta spectrum ie 75.9% 21.26% and 31.5% of placenta Accreta increta and percreta. This difference is due to an increased number of

caesatean sections in our study.

Patient out come is favourable when the diagnosis of placenta Accreta spectrum is made antenatally before the onset of uterine contraction vaginal bleeding and disruption of placenta at level three and four maternity units.<sup>21</sup> Now a days two dimensional grey's scale ultrasound colour flow ultrasound and three dimensional power Doppler ultrasonography are used to diagnose placenta accreta spectrum. Almost 50% to 66% of PAS are not diagnosed antenatally which emphasized the need of prenatal PAS screening of placenta accreta spectrum and further need of appropriate management of the cases of PAS. Both fetomaternal morbidity and mortality is reduced when prenatal diagnosis is made by Doppler ultrasound <sup>21,22</sup> In our study only thirty percent of our patients there is prior localization of placenta as most of the patients in our study were un booked how ever our study was not consistent with the study carried out by Aggrawal et al.<sup>18</sup> In which 70% women had placental localization before delivery.

A recent study carried out in Italy revealed that there was an improved maternal out come when PAS was diagnosed at antenatal period and patient was referred and managed in a specialized centers with multidisciplinary team involvement at a tertiary care teaching hospital involving senior obstetrician, haematologist, blood transfusion experts, critical care anaesthesia team, radiologist expert in intervention radiology.

Fetomaternal out come is improved by the use of multidisciplinary approach.<sup>23</sup> In patients with placenta Accreta spectrum following complications are assessed peripartum hysterectomies blood loss and associated acute transfusion reactions renal failure DIC, injuries to bladder bowel and admission to ICU<sup>24</sup> Most cases of PAS ended into Hysterectomy.

The other alternative measurement is after caesatean section leaving the placenta in situ. Uterine artery and internal iliac artery ligation application of Blynch compressions sutures.<sup>25</sup> conservative management is associated with infection, haemorrhage risk of hysterectomy and even mortality.<sup>26</sup> Among fifty patients in our study Thirty (60%) patients had total caesarean hysterectomies while subtotal hysterectomies were

carried out in 8(16%) of the patients. Bilateral Internal iliac artery ligation was carried in 10 (20%) patients to continue bleeding.

Following Postoperative complication noted. Bladder injuries (10%), acute tubular necrosis (16%) septicemia along with ICU admission 40% of cases noted.

While a study carried out by Seema Dwivedi et al<sup>27</sup> reported ICU admission, DIC and sepsis in 21%, 2% and 13%, of the cases respectively. In our study 40 (80%) hospital stay was between 7-10 days while 10(20%) remained admitted for more than 10 days. In our study maternal deaths reported were 6(12%) causes of these deaths were DIC due to excessive haemorrhage. Same causes of maternal deaths were reported as in a study carried out by Seema Dwivedi et al<sup>27</sup> In these cases causes of maternal deaths were also haemorrhage.

Regarding the neonatal outcome intrauterine growth restriction prematurity and admission to neonatal ICU detected in 10(20%), 35(70%) and 15(30%) of neonates respectively. In a study carried out by Sabreena et. al<sup>20</sup> 22% of the cases had Intrauterine growth restriction while premature birth was present in 66.7% of cases .31.1% admitted to neonatal ICU. This study result are consistent with our findings.

## CONCLUSION

Percentage of PAS has been increasing because of an increase in number of caesarean sections.

There is an increase in fetomaternal mortality and morbidity due to this life threatening haemorrhage which can be reduced by early diagnosis by prenatal Doppler and multidisciplinary approach involving senior obstetricians hamotologist and anesthetists.

Standard management is caesarean hysterectomies with or without Internal iliac artery ligation. However in less severe cases conservative management can be practiced.

Early booking and regular antenatal care should be enforced for early detection of low lying placenta and further evaluation by Doppler ultrasound to detect PAS and further counselling the patient regarding her

visits optimization of her haemoglobin admission. Counselling regarding associated fetomaternal mortality morbidity and needs of blood transfusion may be done.

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