

ORIGINAL ARTICLE

Fetal and Maternal Outcome in Women with Placenta Accreta

AQUSA BALOCH¹, ROMANA QAIMKHANI², MUHAMMAD SIDDIQUE RAJPUT³, SAIRA TALPUR⁴, HUMERA YASEEN⁵, MEHREEN MEMON⁶, ABRAR AHMED QAIMKHANI⁷¹Woman Medical Officer, Department of Gyne & Obs, Liaquat University Hospital, Hyderabad, Pakistan.²Woman Medical Officer, Taluka Hospital, Digri, Pakistan.³Assistant Professor, Department of Community Health Sciences, PUMHS, Nawabshah, Pakistan.⁴Consultant Gynecologist, Department of Gyne & Obs, Liaquat University Hospital, Hyderabad, Pakistan.⁵Woman Medical Officer, Liaquat University Hospital, Hyderabad, Pakistan.⁶Woman Medical Officer, Liaquat University Hospital, Hyderabad, Pakistan.⁷Senior medical officer, Liaquat University Hospital, Hyderabad, Pakistan.Corresponding to: Muhammad Siddique Rajput, Email: dr_rana82@yahoo.com, Cell: +923338344990

ABSTRACT

Objective: To determine the frequency of fetal and maternal outcome in women with placenta accrete presenting at Liaquat University Hospital Hyderabad / Jamshoro.**Materials and Methods:** Descriptive Cross sectional conducted at Department of Obstetrics and Gynaecology Liaquat University Hospital Hyderabad for Six months (January 2021 to July 2021). A total of 148 relevant ladies with placenta accreta were recruited and entered in the study and were explored for fetal outcome and maternal outcome. All the maneuvers was performed. The data was collected on pre-designed questionnaire.**Results:** Study participant's average age was 26.07±4.49 years. In our study, maternal outcome were history of previous cesarean section (33.1%), emergency surgery (58.1%), elective surgery (41.9%) cesarean hysterectomy (54.1%), urinary tract injuries (19.9), received blood transfusion (79.1%), maternity high dependency unit - HDU admission (61.5%), ICU admission (31.8%) and prolonged hospital stay (59.5%) and hemorrhage (14.2%) while the fetal outcome includes low birth weight (41.2%), preterm births (50%), NICU admission (52%), low APGAR score (<7at 5 min) (29.7%), and neonatal hypoxia (9.5%) respectively.**Conclusion:** To counter the increased risk of maternal morbidity or mortality, placenta accreta should be confiscated in every single case of placenta previa, especially in those with previous history of uterine surgery, high parity, and advanced maternal age as risk. Proper arrangement should be made for planned delivery by trained placenta accreta team in tertiary care hospitals where all required facilities available to manage morbidly adherent placenta.**Keywords:** Placenta Accreta, Aqusa Baloch, Maternal and Fetal Outcome,

INTRODUCTION

When placental trophoblasts infiltrate the myometrium, the superficial uterine endometrium (placenta accreta), or other areas of the uterine serosa, abnormal placental attachment results (placenta percreta).^{1,2} The aetiology is mostly due to the implantation site's improper decasualization. Compared to placenta increta and percreta, placenta accreta happens more commonly.³ In the developed world, equivalent hypertensive disorders are a leading cause of maternal mortality, and placenta accreta-related pathologies are also becoming major contributors to maternal death due to haemorrhage. Xceeding thromboembolism due to haemorrhage is now the leading cause of maternal death.^{4,5} The most common reason for caesarean hysterectomy has now been determined to be diseases associated to acreta. Grave consequences include uterine perforation or rupture into the bladder.⁶ The third stage of labour in cases of placenta accreta is frequently drawn out and may be accompanied by severe uterine bleeding, necessitating extensive life-saving surgical operations such hysterectomy and manipulation of significant pelvic arteries.^{7,8}

Various maternal outcome were reported as history of previous cesarean section (96%), emergency surgery (28%), elective surgery (72%), cesarean hysterectomy (84%), urinary tract injuries (32%), received blood transfusion (100%), maternity high dependency unit - HDU admission(100%), ICU admission (40%) and prolonged hospital stay (68%) and hemorrhage (16.4%),⁹ while the fetal outcome includes low birth weight (32%), preterm births (64%), NICU admission (75%), 5-min APGAR < 7 (23.5%), and neonatal hypoxia (20%) respectively.¹⁰

Clinical Features: Risk Factors: Placenta previa following a previous caesarean delivery is the main risk factor for developing a PAS. The frequency of PAS rose with the number of caesarean deliveries in women with placenta previa, as First (primary) caesarean birth, 3%, Second caesarean birth, 11%, Third caesarean births, 40%, Fourth caesarean births, and Fifth or more caesarean birth, 67%.¹¹

Clinical Presentation: It is best to suspect Placenta accreta spectrum (PAS) even though the patient is asymptomatic because

of results from an obstetric ultrasound check. Women with a placenta previa on ultrasonography or a low anterior placenta and prior uterine surgery are frequently diagnosed during prenatal screening. There may be an accidental detection on a regular ultrasound examination in women with less projecting risk factors for aberrant placental attachment, but the diagnosis sometimes cannot be determined until the placenta is delivered.¹²

Possible Laboratory findings are:

- Elevated maternal serum alpha-fetoprotein (MSAFP).
- Hematuria
- Magnetic Resonance Imaging¹³

Complications: A systematic review of ten cohort studies and fifty case series / case reports describing four hundred thirty four patients with placenta accreta, increta, or percreta were illustrated by prolonged course and substantial risks of uterine conservation with the placenta left in situ managed conservatively (e.g. expectant management, uterine artery embolization, hemostatic sutures, arterial ligation, balloon tamponade and methotrexate therapy).¹⁴ Following outcomes were reported as conclusion:

- Vaginal bleeding: 53%
- Sepsis: 6% both mother and baby were be affected.
- Secondary hysterectomy: 19%
- Subsequent pregnancy: 67%
- Death: 0.3%

In a systematic review concluded that 7001 cases of PAS among nearly 5.8 million births, the overall pooled prevalence was 0.17 percent.¹⁵

Rationale: This study is specific to determine the magnitude of placenta accreta and its outcome so that the patients can be properly rationalized and also to explore any variation and deviation among national and international results so that proper health management strategies can be planned to reduce the burden of adverse maternal and neonatal outcome in women with placenta accrete.

Objective: To determine the frequency of fetal and maternal outcome in women with placenta accrete presenting at Liaquat University Hospital Hyderabad / Jamshoro.

MATERIAL AND METHODS

Setting: Department of Obstetrics and Gynaecology, Liaquat University Hospital Hyderabad.

Study design: Cross sectional descriptive

Duration of study: Six months from January 2021 to July 2021

Sample size: By taking the lowest proportion of hemorrhage in placenta accreta as 16.5% d=6%, n = 148 women with placenta accreta.

Sample technique: Consecutive non probability

Sample selection:

Inclusion Criteria:

1. All the females of age 20-45 years having 32-37 week gestational age either primipara or multiparous with placenta accrete admitted in the Gynecology and Obstetrics ward at Liaquat University Hospital, Hyderabad

Exclusion Criteria:

1. Women with multiple pregnancy, disseminated intravascular coagulation (DIC), hereditary anemia was excluded and evaluate by taking specific clinical history, physical examination and investigations and existence of previous medical / health record for known / specific diagnosis provided by consultant gynecologists and obstetricians.

2. The ladies having medical disorders like, hepatic malignancy, cardiopulmonary and renal failure evaluate on existence of previous health / medical record of co-morbidities.

3. The non-cooperative ladies not interested and willing to participate in the study

Data Collection Procedure: All women fulfilling the inclusion criteria was enrolled after the approval of the study by REU, College of Physicians and Surgeon Pakistan (CPSP) for conducting the study and after taking consent from every relevant patient. All the specific and relevant ladies with placenta accreta were recruited and entered in the study and were explored for fetal outcome as (low birth weight baby, preterm births, admission to NICU, low APGAR score and neonatal hypoxia) and maternal outcome as (previous cesarean section, emergency surgery, elective surgery, cesarean hysterectomy, urinary tract injuries, received blood transfusion, admission to maternity HDU, admission to ICU, prolonged hospital stay and hemorrhage) as per operational definition while to control confounders and bias of the study all the ladies were also interview, inquire, examine, investigate, sort properly along with exploring the existence of previous health / medical record to exclude known medical problems & co-morbid (as per exclusion criteria) that could affect placenta accreta and feto-maternal outcomes. All the maneuvers (clinical history taking, examination, investigation and intervention) were performed by principal investigator with the directions and guidance of obstetrician of the ward having good obstetric experience while the data was collected on pre-designed questionnaire.

Data Analysis Procedure: The data was analyzed in SPSS version 24.0 and frequencies, percentages and significant values were calculated for residence (urban / rural), antenatal care (booked / un-booked), parity (primipara / multiparous), obesity, anemia, diabetes, hypertension, previous cesarean section, emergency surgery, elective surgery, cesarean hysterectomy, urinary tract injuries, received blood transfusion, admission to maternity HDU, admission to ICU, prolonged hospital stay and hemorrhage, low birth weight baby, preterm births, admission to NICU, low APGAR score and neonatal hypoxia. The mean ± SD was calculated for age and gestational age, birth weight, BMI, APGAR score and hospital stay.

The stratification was done for residence, antenatal care, parity, obesity, anemia, diabetes and hypertension to see the effect on fetal and maternal outcome. The post stratification chi-square test was applied on categorical variables at 95% confidence interval (CI) and the p-value ≤0.05 was considered as statistically significant.

RESULTS

In our study total 148 women of age 20-45 years having 32-37 week gestational age either primipara or multiparous with placenta accrete were included.

Table 1: Maternal and Fetal Demographic Characteristics (n=148)

Variable	Mean	SD	(95%CI)	
			Lower	Upper Bound
Age (Years)	26.07	4.49	25.34	26.80
Gestational Age (Weeks)	35.16	3.32	34.62	35.70
Weight (Kg)	62.70	7.29	61.51	63.88
Height (cm)	151.93	5.27	151.08	152.79
BMI (kg/m ²)	27.16	2.91	26.68	27.63
HB	10.82	1.09	10.64	10.99
Weight of baby (kg)	2.48	0.68	2.36	2.59
Apgar Score at 1m	6.60	1.24	6.40	6.80
Apgar Score at 5m	7.97	1.51	7.72	8.21

As shown in above table the average age of the participants was 26.07 ± 4.49 years and gestational age was 35.16 ± 3.32 weeks. Weight and height was measured to calculate BMI which was 27.16 ± 2.91. Hemoglobin level was as base line investigation and it was 10.82 ± 1.09 g/dl to see the status of Anemia. Weight of the baby was measured at the time of birth and was noted mean weight was 2.48 ± 0.68 kilograms. APGAR score was also observed in delivered babies and score was 6.60 ± 1.24 at 01 minute and 7.97 ± 1.51 at 5 minutes.

Table 2: Maternal Residential, Booking, Parity and Comorbid Status

Variables and categories	Count	Percentage
Residence	Urban	85 (57.4%)
	Rural	63 (42.6%)
Booked	Un-booked	67 (45.3%)
	Booked	81 (54.7%)
Parity	Primiparous	64 (43.2%)
	Multiparous	84 (56.8%)
Diabetes mellitus	No	113 (76.4%)
	Yes	35 (23.6%)
Hypertension	No	130 (87.8%)
	Yes	18 (12.2%)
Anemia	No	69 (46.6%)
	Yes	79 (53.4%)

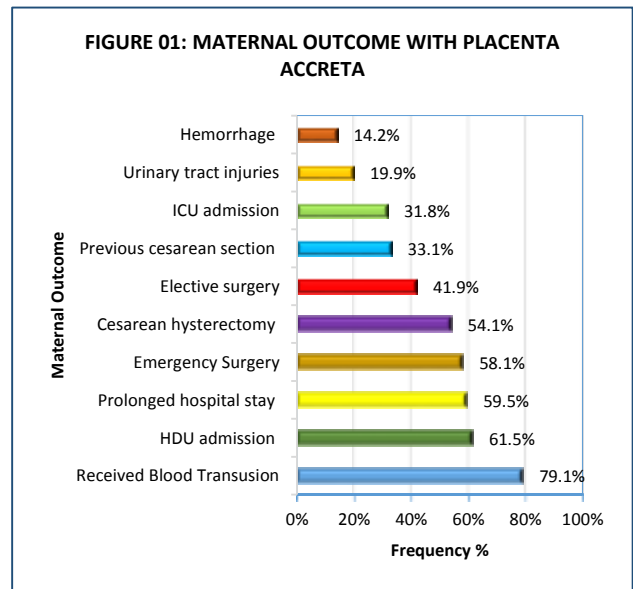


Figure 1: Frequency of Maternal Outcome with Placenta Accreta

From the above table participants belonging to urban area were 85 (57.4%) and rural were 63 (42.6%). Booked cases were

81 (54.7%) and remaining were Un-booked cases. As per our data primiparous women were 64 (43%) with Placenta accreta and Multiparous were 84 (56%). The associated common comorbidities were seen in participating women and Anemia was common presentation which was seen in 79 (53.4%) cases, than DM was in 23.6% cases and history of Hypertension was in 12.2% cases.

In our study, maternal outcome were observed and acute complications management protocol was seen in these patients which were noted as received blood transfusion (79.1%), maternity high dependency unit - HDU admission (61.5%), prolonged hospital stay (59.5%), emergency surgery (58.1%), elective surgery (41.9%), history of previous cesarean section (33.1%), cesarean hysterectomy (54.1%), admission to ICU (31.8%), urinary tract injuries (19.9), and hemorrhage (14.2%) (Figure 1)

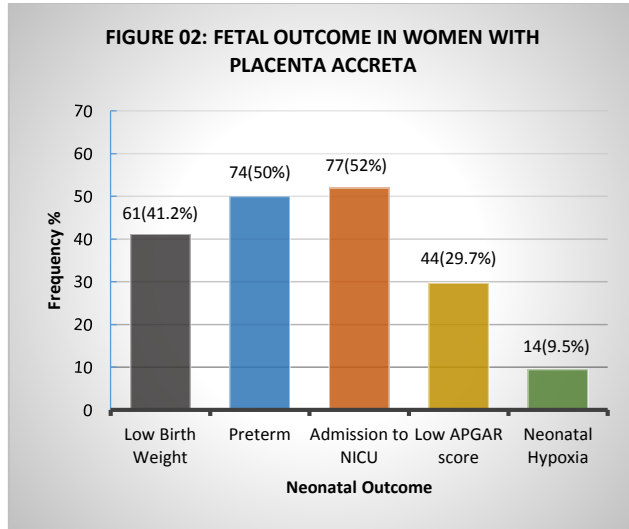


Figure 2: Frequency of Fetal Outcome in Women with Placenta Accreta

The above table shows fetal outcome in patients with placenta accreta, the fetal outcome includes low birth weight (41.2%), preterm births 50%, NICU admission (52%), low APGAR score (<7at 5 min) (29.7%), and neonatal hypoxia (9.5%) respectively.

DISCUSSION

A serious pregnancy condition called placenta accreta is currently thought to be the most typical reason for peripartum hysterectomy. It has become a frequent problem, which is why the prevalence of caesarean deliveries is rising.¹⁶ Placenta accreta happens when chorionic villi inappropriately enter the myometrium. It is categorised into three classes based on histology, namely placenta accreta, increta, and percreta. The most serious pregnancy problem of all is placenta accreta, which is linked to massive, potentially fatal intra and postoperative haemorrhage.¹⁷ Placenta accreta accounts for 60% maternal morbidity and 7% maternal mortality in women. On the other side, there is also a rise in the frequency of perinatal problems such preterm birth and small-for-gestational-age fetuses. In developing and developing countries, placenta accreta cases are on the rise.¹⁸

In this study, the age of the participants ranged from 20 to 45 years and the average age was 26.07±4.49 years which is similar to observation made by Kandila et al¹⁹ having range between 20 and 43 years and the mean age calculated was 30.13 ± 5.08 years, which is in accordance with our study as well.

Maternal outcome and Neonatal outcome is an important indicator for maternal and neonatal mortality. The present results of our study revealed that the majority cases of placenta accreta spectrum disorders needed blood transfusion. These results were supported by a recent study conducted in 2018 reported 94.7% of

cases with PAS disorders received blood transfusion.²⁰ In our study, participants who received blood transfusion were (79.1%). This is in accordance with that study as well.

It was also proven in our study that patients admitted with Placenta accreta have prolonged hospital stay (59.5%), admission in maternity high dependency unit – HDU (61.5%) and admission to ICU (31.8%), emergency surgery (58.1%), elective surgery (41.9%), history of previous cesarean section (33.1%), cesarean hysterectomy (54.1%), urinary tract injuries (19.9), and hemorrhage (14.2%). Which is likely with the statistical results of Kandila et al¹⁹ study who observed that the incidence of selective cesarean deliveries was 67.0 percent and emergency rate was 32.5 percent. And in Kassem and Al-Zahrani et al²¹ study, the incidence of elective cesarean sections was 54.1 percent at 36–40 weeks of gestation and emergency cesarean deliveries was 45.9 percent of the patients.

In this study the fetal outcome includes low birth weight (41.2%), preterm births (50%), NICU admission (52%), low Apgar score (<7at 5 min) (29.7%), and neonatal hypoxia (9.5%) respectively. In Kandil et al¹⁹ study there was low incidence of neonatal ICU admission compared with the results of Fitzpatrick et al²², confirmed 80% of all neonates delivered were suspected having complications admitted in ICUs for further management.

CONCLUSIONS

Placenta accreta in pregnancy is increasingly common currently and is going to be a major cause of maternal complications leading to secondary hysterectomy. To counter the increased risk of maternal morbidity or mortality, placenta accreta should be confiscated in every single case of placenta previa, especially in those with previous history of uterine surgery, high parity, and advanced maternal age as risk. Proper arrangement should be made for planned delivery by trained placenta accreta team in tertiary care hospitals where all required facilities available to manage morbidly adherent placenta.

Recommendations: Strategies should be developed for complete management and to support the poor patients admitting in Secondary level hospitals. There should be NICU and ICU for Neonatal care and maternal care to prevent morbidity and mortality among neonates as well as females.

Conflict of Interests: Authors declare no any conflict of interest.

REFERENCES

1. Al-Khan A, Gupta V, Illsley NP, Mannion C, Koenig C, Bogomol A, et al. Maternal and fetal outcomes in placenta accreta after institution of team-managed care. *Rep Sci.* 2014;21(6):761-77
2. Silver RM, Barbour KD. Placenta accreta spectrum: accreta, increta, and percreta. *Obstet Gynecol Clin North Am.* 2015;42(2):381-402
3. Jauniaux E, Collins SL, Jurkovic D, Burton GJ. Accreta placentation: a systematic review of prenatal ultrasound imaging and grading of villous invasiveness. *Am J Obstet Gynecol.* 2016;215(6):712-21
4. Fitzpatrick KE, Sellers S, Spark P, Kurinczuk JJ, Brocklehurst P, Knight M. The management and outcomes of placenta accreta, increta, and percreta in the UK: a population-based descriptive study. *BJOG.* 2014;121(1):62-70
5. Balayla J, Bondarenko HD. Placenta accreta and the risk of adverse maternal and neonatal outcomes. *J Perinat Med.* 2012;8:1-9
6. Javid S, Yasmeen T. Placenta praevia and accreta and its relationship with previous caesarean section. *Pak J Med Health Sci.* 2011;5(3):421-5
7. Jauniaux E, Collins S, Burton GJ. Placenta accreta spectrum: pathophysiology and evidence-based anatomy for prenatal ultrasound imaging. *Am J Obstet Gynecol.* 2018;218(1):75-87.
8. 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;217(1):27-36
9. Kassem GA, Alzahrani AK. Maternal and neonatal outcomes of placenta previa and placenta accreta: three years of experience with a two-consultant approach. *Int J Womens Health.* 2013;5:803-10.
10. Anjum F, Bashir R, Rahim A. Maternal and foetal outcome in cases of placenta previa, accreta and increta. *Annals.* 2016;22(4):296-300.

11. Silver RM, Landon MB, Rouse DJ. Maternal morbidity associated with multiple repeat cesarean deliveries. *ObstetGynecol* 2006; 107:1226-30.
12. Salmanian B, Fox KA, Arian SE. In vitro fertilization as an independent risk factor for placenta accreta spectrum. *Am J ObstetGynecol* 2020; 223:568-72.
13. Heller DS, Wyand R, Cramer S. Recurrence of Basal Plate Myofibers, with Further Consideration of Pathogenesis. *Fetal PediatrPathol* 2019; 38:30-35.
14. Faranesh R, Shabtai R, Eliezer S, Raed S. Suggested approach for management of placenta percreta invading the urinary bladder. *Obstet Gynecol* 2007;110:512–515.
15. Jauniaux E, Bunce C, Gronbeck L, Langhoff-Roos J. Prevalence and main outcomes of placenta accreta spectrum: a systematic review and meta-analysis. *Am J ObstetGynecol* 2019; 221:208-12.
16. Garmi G, Salim R. Epidemiology, etiology, diagnosis, and management of placenta accreta. *Obstet Gynecol Int* 2012; 2012:873929.
17. Faranesh R, Shabtai R, Eliezer S, Raed S. Suggested approach for management of placenta percreta invading the urinary bladder. *Obstet Gynecol* 2007;110:512–515.
18. Warshak CR, Ramos GA, Eskander R, Benirschke K, Saenz CC, Kelly TF, et al. Effect of predelivery diagnosis in 99 consecutive cases of placenta accreta. *Obstet Gynecol* 2010;115:65–69.
19. Kandil MA, Sayyeda TM, Salaha A, Al Gilanyb NM. Maternal and neonatal outcomes of placenta accreta: a descriptive case series study. *Menoufia Medical Journal*. 2019;32(1):368.
20. Zakherah MS, Abdel-Aziz M, Othman ER, Abbas AM. Maternal and neonatal outcomes of placenta previa and accreta at Assiut women's health hospital, Egypt. *Int J Reprod Contracept Obstet Gynecol*. 2018;7(8):3024.
21. Kassem GA, Al-Zahrani A. Maternal and neonatal outcomes of placenta previa and placenta accreta: three years of experience with a two-consultant approach. *Int J Womens Health* 2013; 5:803–810.
22. Fitzpatrick KE, Sellers S, Spark P, Kurinczuk JJ, Brocklehurst P, Knight M. The management and outcomes of placenta accreta, increta, and percreta in the UK: a population-based descriptive study. *BJOG* 2014; 121:62–70.