

Prevalence of Placenta Accreta in Recent Era and Association of Booking Status with Maternal Outcomes

Umairah Yaqub¹, Maria Habib²

¹Assistant Professor, Army Medical College, Rawalpindi, ²Postgraduate trainee at KRL Hospital, Islamabad

Correspondence: Dr Umairah Yaqub

Assistant Professor, Army Medical College, Rawalpindi

Email: umairah_doc@hotmail.com

Abstract

Objective: To assess the prevalence of placenta accreta and, to examine the effects of booking status & management of the placenta accreta during the third stage on maternal outcomes.

Study Design: Descriptive cross sectional study

Place of study: Military hospital, Rawalpindi

Duration of study: March, 2016 to Feb, 2018

Methodology: Women having placenta accreta diagnosed intraoperatively or during histopathological examination of placenta after hysterectomy were served as cases. Once the diagnosis of placenta accreta was made, then further information was recorded in the questionnaire by following that patient till recovery/death. Descriptive statistics and independent samples t-test were used for analysis.

Results: Out of 11430 deliveries during the study period, 48 women were enrolled with diagnosis of placenta accreta thus making its incidence 41.4/10,000. 14.6% were booked and 85.4% were non-booked. Antenatal complications included antepartum hemorrhage (60.4%) and postpartum hemorrhage (22.9%). Majority were transfused with <5 RCC (Red Cell Concentrate) transfusions (60.4%). 95.8% had undergone hysterectomy. Injuries to the viscera were found in 66.7% patients. Sepsis was found in 10.4 % and disseminated intravascular coagulation in 12.5% women. Mortality rate was 8.3%. The correlation between visiting history and complications is highly significant i-e correlation value is 0.379 with the significance value of 0.08.

Conclusion: This study has highlighted a sharp rise in the incidence of placenta accreta in the recent years because of increasing cesarean section rates. Booking status has significant correlation with the complications encountered by these women.

Key words: Placenta accreta, Booking status, morbidity, mortality

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Introduction

Morbidly adherent placenta (MAP) or placenta accreta is one of the most serious complications faced by the obstetricians because of its association with high morbidity and mortality. The term “accreta” is a common terminology used for all kinds of abnormally attached placenta.

Placenta accreta vera, increta or percreta are the different types depending upon the involvement of myometrium/serosa. In placenta accreta vera, trophoblastic villi are abnormally attached to the

myometrium, increta – invades the myometrium and percreta – penetrates through the myometrium/serosa.¹ Previous surgeries, most importantly cesarean section (LSCS) is the single strongest key factor contributing to its pathology as it increases the risk to 8.7 fold, with placenta previa adding more to its odds.² In the recent years, increasing trends of cesarean section has increased the risk of placenta accreta globally. Its frequency has risen sharply from <1 in 2000 to 1 in 500 in United states.²

Authorship Contribution: ¹Critical review of manuscript & review methodology, ²analysis and interpretation of data, drafting and revision of manuscript

Current imaging modalities which include ultrasound and magnetic resonance imaging (MRI) can help diagnose placenta accreta antenatally, thus allowing for timed delivery with preparation of blood products and availability of skilled staff.³ These strategies can reduce the associated complications of massive obstetric hemorrhage to multiorgan dysfunction and ultimately death.

The existing literature on management of the placenta accreta is conflicting, with majority of the studies have been conducted in the developed world.⁴

The optimal management of accreta in developing countries like Pakistan is not widely reported and majority of the studies are based on small case series. Also, many women present for the first time in hospital for delivery without any antenatal visits in our country. So, the current study has been conducted to assess the prevalence of placenta accreta in our institution and to examine the effects of booking status and management of the placenta during the third stage on maternal outcomes. None of the previous studies have highlighted the importance of booking status in the management of placenta accreta as this is the problem of developing countries.

Methodology

The descriptive cross sectional study was conducted at Military hospital, Rawalpindi from March, 2016 to Feb, 2018. After taking ethical approval from hospital's ethics committee, a well designed questionnaire proforma was used to collect the data of all the women with placenta accreta. Total number of deliveries during the study period were recorded.

Inclusion criteria: Women having placenta accreta/increta/percreta diagnosed intraoperatively or during histopathological examination of placenta after hysterectomy.

Exclusion criteria: All those participants who had normally attached placenta intraoperatively.

Operational definitions: Placenta accreta; occurs when all or part of the placenta abnormally attaches to the myometrium. Three grades of abnormal placental attachment are defined according to the depth of attachment and invasion into the muscular layers of the uterus

- Accreta – chorionic villi attach to the myometrium.
- Increta – chorionic villi invade into the myometrium.
- Percreta – chorionic villi invade through the perimetrium (uterine serosa).

After explaining objectives of the study, a verbal informed consent was taken from the patient/guardian for recruitment in the study.

Once the diagnosis of placenta accreta was made, then further information was recorded in the questionnaire by following that patient till recovery/death. Data of all the cases were counter checked regularly by the senior researcher for the validity of information entered.

Statistical analysis: The statistical software package for social sciences (SPSS) version 19 was utilized for analysis. Descriptive statistics were used for count and percentages. Independent samples t-test were applied where appropriate. P value <0.01 was regarded as statistically significant.

Results

During our 2 years study period, out of 11430 deliveries we enrolled 48 pregnant women with diagnosis of placenta accreta making its incidence 41.4/10,000. Of these, 47 had previously undergone at least one LSCS and 25 had a history of other surgery too (myomectomy or curettage, etc).

Out of these 48 patients, 14.6% were booked and 85.4% were non-booked. None of them were Primigravida. Women with gestational age of 26-34 weeks were 22.9%, 35-37 weeks were 68.8% and 38-40 weeks were 8.3%. Increasing number of cesareans sections increased the risk of placenta accreta. Distribution according to history of previous cesarean sections were: no history of LSCS (2.1%), one LSCS (31.3%), two LSCS (18.8%), three LSCS (12.5%), four LSCS (35.4%). Amongst those who had no history of previous cesarean section, 39.6% had history of dilatation and curettage, 12.5% had history of previous myomectomy. However, 47.9% had no history of previous surgery.

Placenta accreta was already suspected by ultrasound/MRI findings in majority of the women before surgery (74.4%). Antepartum hemorrhage (APH) was found in 60.4%, postpartum hemorrhage

(PPH) in 22.9% and 16.7% were asymptomatic. Blood transfusion (RCC) was categorized according to the number of transfusions. 60.4% were transfused with <5 RCC transfusions, 29.2 % were with 5-8 RCC transfusions and 10.4% were with more than 8 RCC transfusions. This indicate a good control of blood loss during management of placenta accreta.

95.8% had undergone hysterectomy and 4.2% uterus were conserved successfully. Injuries to the viscera were found in 66.7% patients and 33.7% had no injury. All 66.7% were bladder injuries.

Mortality rate was 8.3% and the cause of mortality was excessive hemorrhage. Internal Iliac artery ligation as life saving management was done in 22.9% and second look laparotomy was done in 8.3% patients. Sepsis was found in 10.4 % and disseminated intravascular coagulation (DIC) in 12.5% women.

Admission days in intensive care unit (ICU) were divided in 2 categories; patients who stayed in ICU for less than 3 days were 81.3% which shows their fast post operative recovery and only 18.8% patients had a stay of >3 days.

The correlation between visiting history and complications is highly significant i.e. correlation value is 0.379 with the significance value of 0.08. It means that as visiting status improved, complication rates also improved. The improvement in complication rates mean that less complications are expected. But at the same time the correlation between gestational age at delivery and complication rates shows no significant correlation and technically it supports generally accepted clinical theories. (Table I & II)

Discussion

Table I: Correlations

			gestational age at delivery	visiting history	Complications
Spearman's rho	gestational age at delivery	Correlation Coefficient	1.000	.217	.006
		Sig. (2-tailed)	.	.138	.970
		N	48	48	48
	visiting history	Correlation Coefficient	.217	1.000	.379**
		Sig. (2-tailed)	.138	.	.008
		N	48	48	48
	Complications	Correlation Coefficient	.006	.379**	1.000
		Sig. (2-tailed)	.970	.008	.
		N	48	48	48

** . Correlation is significant at the 0.01 level (2-tailed).

Table II: Complications with respect to gestational age at delivery and no. of previous LSCS

gestational age			Number of previous LSCS history					Total
			no LSCS	one LSCS	2 LSCS	3 LSCS	4 LSCS	
26-34 weeks	Complications	Yes		1	0		0	1(9%)
		No		4	1		5	10(91%)
	Total			5	1		5	11(100%)
35-37 weeks	Complications	Yes	0	2	1	2	0	5(15%)
		No	1	8	6	4	9	28(85%)
	Total		1	10	7	6	9	33(100%)
38-40 weeks	Complications	No			1		3	4(100%)
	Total				1		3	4(100%)
Total	Complications	Yes	0	3	1	2	0	6(12.5%)
		No	1	12	8	4	17	42(87.5%)
	Total		1	15	9	6	17	48(100%)

Surprisingly, the present study has demonstrated a sharp rise in the incidence of placenta accreta from 6.3/10,000 to 41.9/10,000 over the period of 7 years in the same institute.⁵

In the present study, majority were non-booked, belonging to a gestational age of 35-37 weeks. Our results are in line with other studies⁶ which highlighted a mean gestational age at delivery was 36 weeks, though majority of their patients were booked. The important identifiable risk factor was increasing no. of previous cesarean section like previous studies.⁶

During antenatal period, the major complication experienced by the women was APH. This is because of the close association of placenta accreta with previa.⁷

Massive hemorrhage followed by blood transfusion is the hallmark of placenta accreta. In our study, majority of the women were transfused with <5 RCCs (60.4%). Those transfused with 5-8 RCCs were 29.2% and only few were transfused with >8 RCCs (10.4%) which indicate a good control of blood loss. The blood transfusion of around 5 RCCs is thought to be the norm in the management of placenta accreta.⁸ The reality is that, if the patients are managed by experienced healthcare professionals, blood loss can be controlled.

While talking about the management options, hysterectomy was the main procedure carried out to save the life of a mother in our study (95.8%). However, in few women uterine conserving surgery was attempted successfully (4.2%). Internal Iliac artery ligation was done in 22.9%. In a study of Tan SG et al, all of their 27 patients ended up in hysterectomy to control the hemorrhage. Other studies have shown that uterine conserving surgery rates are marked improved (up to 35%) if other modalities are employed to control the hemorrhage like balloon tamponade/B-lynch suture/uterine artery embolization/pelvic artery ligation/packing/recombinant.^{6,9}

Iatrogenic injuries were found in 66.7% of women and all of them were bladder injuries. Unlike other studies, none of our patients had ureteric or bowel injuries showing surgical expertise. Bladder injuries are widely reported in the literature in the management of placenta accreta. This is because of

the involvement of bladder in cases of placenta percreta. Even in cases of accreta or increta, bladder adhesions due to previous surgeries increase the incidence of bladder injury.^{9,10}

Though all the surgeries were performed by highly skilled healthcare professionals in our study, the mortality rate was 8.3% and massive hemorrhage was the cause of mortality. This may be because majority of the women in our study were non-booked. This is the dilemma in developing countries like Pakistan where low socioeconomic status and lack of education are the contributing factors for the antenatal visits. In contrast to our results, a more recent case control study from Australia and New Zealand has shown a markedly decreased mortality rates of only 0.6%.¹¹

Morbidity in the form of sepsis was found in 10.4% of our postoperative patients. A study on management of accreta was conducted by Sentilhes L et al and he found complications like sepsis in around 6% women. These complications are expected in any kind of major surgeries. In contrast to other studies, none of our patients developed thromboembolic complications, vesicovaginal fistula etc.^{9,12}

Intensive care unit (ICU) facilities are often required for post operative monitoring and management of complications because of association of accreta with high morbidity and mortality. In our study, the protocol was to shift all the patients to ICU for postoperative monitoring. Majority stayed in ICU for <3 days which is reflecting their quick uneventful recovery (81.3%). Other studies have also demonstrated the need of ICU admissions in >50% women. Routine ICU monitoring can help in early detection of any complications but at the expense of increased cost of care.¹³

This study has highlighted a very important issue that booking status had significant correlation with complications. By improving the booking status, complications can be reduced by antenatal detection of placenta accreta and timed delivery with preparation of the needs of this kind of surgery. Majority of the women were non-booked in our study. The local and international data is in contrast to our results as majority of the women in other studies were booked.^{14,15} This may be because our hospital is the main referral centre from other hospitals. Also, low socioeconomic status and lack of

education is a contributory factor in developing countries like Pakistan.

Conclusion

Our study has highlighted a sharp rise in the incidence of placenta accreta in the recent years because of increasing cesarean section rates. Booking status has significant correlation with the complications encountered by these women. By reaching the recommended international standards of cesarean section rates and educating our women for proper antenatal visits might reduce the burden of high morbidity and mortality associated with this condition.

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