

ASSOCIATION OF AN INCREASE INCIDENCE OF MORBIDLY ADHERENT PLACENTA WITH PREVIOUS CAESAREAN SECTION AND ITS OUTCOMES: A 3 YEARS ANALYSIS IN A TERTIARY CARE HOSPITAL

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ABSTRACT:

Objective: To determine the association of morbidly adherent placenta with previous caesarean section and its management.

Study design:

Descriptive study:

Place and duration: Department of Obstetrics and Gynaecology unit-III, Lahore General Hospital Lahore from December 2014 to December 2017.

Patient and Methods: During this three year study a total of sixty pregnant women with history of previous cesarean sections beyond 32 weeks of gestation, whether booked or unbooked irrespective number of caesarean scars with or without bleeding per vagina diagnosed of having low lying placenta previa on ultrasound were include in this study. The number of cesarean section, treatment, complications and maternal morbidity and mortality associated with morbidly adherent placenta were described.

Results: A total of 60 cases of morbidly adherent placenta was studied over three year period. 40 (66.6%) patients with morbidly adherent placenta were unbooked.

30 (50%) patients were the age group between 26-30 years. The average gestational age was between 32-36 weeks. In 40 (66.6%) type IV placenta previa was found. In 20 (33.3%) type III placenta previa was detected. In 5 (8.3%) patient with morbidly adherent placenta had previous once caesarean section while 55 (91.6%) patients had two or more caesarean section.

In 40 (66.6%) patients the presentation was bleeding per vagina while 20 (33.3%) patients were asymptomatic at presentation. In 20 (33.3%) patients placenta accreta was found while placenta increta and percreta were found in 40 (66.6%) patients. Total abdominal hysterectomy done in 35 (58.33%) patients and subtotal hysterectomy performed in 5 (8.3%) cases. Uterine sparing along with internal iliac artery, ligation was carried out in 5 (8.33%). Bladder invasion which needed bladder repair was found in 6 (10%) cases. 4 (6.66%) maternal deaths were noted in this study. Mean Intraoperative blood loss was between 2.5-3 litres . Blood transfusion was needed in 58 (96.6%) patients.

Conclusion: The percentage of placenta previa and morbidly adherent placenta has risen with increasing number of caesarean sections. It is a life threatening hemorrhagic condition associated with high rate of maternal morbidity and mortality. Antenatal diagnosis by Doppler ultrasound, multi-disciplinary approach with involvement of senior obstetrician, anesthetist and haematologist is pivotal. In most of cases caesarean hysterectomy with or without internal iliac artery ligation is standard management protocol. In less serious conditions conservative measures can be practiced.

Keywords: Morbidly adherent placenta, Previous caesarean section, Placenta previa.

INTRODUCTION:

The prevalence of uterine scar is increasing following the rise in caesarean section. Women with multiple previous caesareans sections are particularly at risk. Bender suggested that in subsequent pregnancy the placenta praevia is strongly associated with placenta accrete^[1]. Bleeding in the placenta praevia is often associated with placental adhesion, morbidly adherent placenta (MAP)^[2]. In the women who were deliver previously caesarean section there is an increase incident of Morbidly adherent placenta^[3,4,5]. 25% of the women who had previous one caesarean delivery have a MAP whereas the women who have previous to cesarean section have 50% risk of MAP in the presence of placenta previa in current pregnancy^[6]. Morbidly adherent placenta (MAP) is a life threatening condition often associated with massive post-partum hemorrhage and increase chances of hysterectomy^[7]. In Morbidly adherent placenta placental fails deliver which leads to massive postpartum hemorrhage along with possibility of multiple organs failure and injury to adjacent organ such as bladder bowel and ureters^[8]. There Is an increased risk of emergency hysterectomy in such cases approximately when third to one half of all such hysterectomies are performed as a result of adhesive placental disorders^[9]. Classification of MAP is according to the depth of infiltration into the myometrium; in placenta accrete there is direct between chorionic villi and myometrium without decidua basils while in placenta increta there is mayometrial invasion without reaching the serosa layers; in placenta percreata there is invasion of villi through the myometrium to reach or extend beyond these serosa into the adjacent tissues^[10]. There is an increased risk of placental abnormalities increases in the presence of uterine scars due to cesarean delivery or gynecologic procedures such as curettage and myomectomy. Previous cesarean delivery increases this risk to 3%, 40%, and 67% after first third and fifth deliveries by Cesarean section^[11,12]. In order to combat this phenomenon, significant efforts have been made to improve antenatal diagnostic capabilities. The guideline from the French college of Gynecologists and obstetricians and

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French society of Anesthesiology and intensive care in 2016 suggests cesarean hysterectomy, adequate human and technical resources including a gynecological surgeon, anesthesiologist, availability of a urological and or gastro intentional surgeon, a blood bank, and an intensive care unit. Conservative treatment for maintaining fertility could be a concern if the patient insists and is well counseled about her option^[13].

Conservative management involves leaving placenta in situ; this may be complemented by bilateral embolization of uterine arteries, parenteral methotrexate or both. Balloon occlusive devices can be placed in both internal iliac arteries before surgery by an Interventional radiologist. The placenta left in situ decreases in size on 5th postoperative day and followed up by ultrasound, Doppler, no placental tissue left at 20 weeks as described by Edwin. Conservative management of placenta accrete is now an acceptable and reliable alternative to radicle surgery^[14]. The aim of this prospective study was to access the maternal outcome in cases of MAP which were managed by elective caesarean and or conservative approach in selected cases.

MATERIAL AND METHODS:

It was a descriptive study done from December 2014 to December 2017 at gynae unit III of Lahore General Hospital Lahore.

All pregnant women with history of previous caesarean section with placenta previa after 28 weeks whether booked or unbooked with no demarcation of age, irrespective to number of caesarean scars with or without bleeding per vagina were included. All cases of previous myomectomy, uterine repair were excluded.

All the information regarding age, parity, gestational age, social status, number of previous caesarean sections, history of previous bleeding per vagina, ultrasound and

Doppler flow studies and other relevant investigations were entered in a specially designed Performa.

The asymptomatic patients with low lying placenta were admitted at 32 weeks. The management included achievement of optimal health status by getting target hemoglobin between 12 – 13g/ dl. All the patients were counselled regarding the condition and its potential intra / post-operative complications including increased risk of hemorrhage, multiple blood transfusion, bladder/ ureteral damage relative likelihood of caesarean hysterectomy and subsequent infertility. Need for intubation prolonged hospitalization, reoperation, ICU care, thromboembolic events and death was also discussed.

A multidisciplinary approach involving senior obstetrician, senior surgeon, urologist anesthesiologist, hematology and blood transfusion services and pediatricians was adopted. Six units of blood, FFPS were arranged from the time of admission because of chances of unprovoked bleeding at any time. Elective delivery was planned at 37 weeks. Midline sub umbilical incision was made along with classical cesarean section incision. Caesarean hysterectomy either subtotal or total was carried out. In case with desired fertility and partial placental separation spontaneously conservative approach with trail of hemostasis after removal of placenta completely with multiple uterine compression sutures, internal iliac artery ligation, and abdominal packs were applied. All patients were kept in intensive care for first 24 hours after surgery. All data was analyzed using SPSS 23 software.

RESULTS:

Management of Morbidity adherent placenta (MAP)

Out of 60 patients 20 patients (33.3%) were booked and 40 (66.6%) patients were unbooked. 30 (50%) patients had gravidity between 2- 4 while 30 (50%) patients having gravidity more than 4.

5 (8.3%) patients delivered preterm infants at

28-30 weeks while 25(41.6%) were delivered between 32- 34 and 30 (50%) after 34 weeks. Regarding number of previous caesarean section 5 (8.3%) patients had previous one caesarean section and 10 (16.6%) had previous two caesarean section and rest of 45 (75%) patients had more than two previous caesarean section. In 20 (33.3%) patients placenta accreta was diagnosed antenally while 40 (66.6%) patients were being diagnosed placenta increta and peracreta. In 20 (33.3%) patients diagnosis was made peoperatively after the delivery of fetus. In all these cases there was association between the morbidly adherent placenta, placenta previa and previous caesarean section. In this study, peri partum caesarean hysterectomy was performed. 45 (75.5%) patients having total hysterectomy while subtotal hysterectomy was carried out in 10 (16.6%) patients. During the procedure some patients suffered hemorrhage there was oozing of blood so internal ilia artery ligation was done in 10 (16.6%) patients and abdominal packing was done In 5 (8.3%) cases of placenta accrete with application of hemostasis sutures at the site of placental beds. Associated maternal complications which had occurred were bladder injury in 6 (10%) patients. While DIC developed in 4 (6.6%) patients, relaparotomies were carried out in 2 patients septicemia and admission to ICU occurred in 25 (41.6%) cases. Estimated blood loss during surgery was between 2-5-3 liters in 54 (90%) patients while 6 (10%) patients this loss was more than 3 liters. Out of these 60 patients maternal death was recorded in 4 (6.6%) cases. Cause of death was DIC in all cases.

The hospital stays differed significantly. In 15 (25%) patients it was between 7-10 while rest of 45 (75%) patients it was more than 10 days.

Table 1
Demographic and clinical characteristics of MAP

Sr#				
1	Maternal Age	20-25 years 0	26-30 years 30	30-35 years 30
2	Antenatal Care Gravidity	Booked 20 2-3 10	4 20	Unbooked 40 >4 30
3	Gestational Age weeks	28-30 5	30-32 25	>34 30
4	Previous Caesarean scars	Previous One Caesarian Section 5	Previous Two Caesarian Section 10	>Two Previous Caesarian Section 45
5	Type of placental invasion	Placenta Accreta 20	Placenta Increta 15	Placenta Percreta 25
6	Management of morbidly adherent placenta	Total Hysterectomy 45	Subtotal Hysterectomy 10	Uterine Conservation 5
7	Associated Procedures	Internal iliac artery ligation 10	Abdominal packing 5	
8	a) Maternal Complications	Bladder injury 6	Acute tubular necrosis 8	Relaparotomy 2
	b) Maternal Complications	DIC 4	Septicemia and admission to ICU 25	Maternal deaths 4
9	Estimated blood loss	Between 2.5-3 liters 44	>3 liters 16	
10	Volume of transfused blood (in units)	4-6 40	>6 20	
11	Hospital stay	7-10 days 50	>10 days 10	

No of Percentage MAP

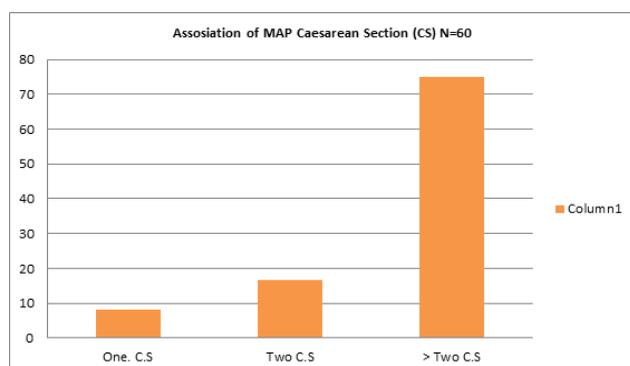


Figure 1

No of Previous CS
Association of MAP with previous caesarean section N=60

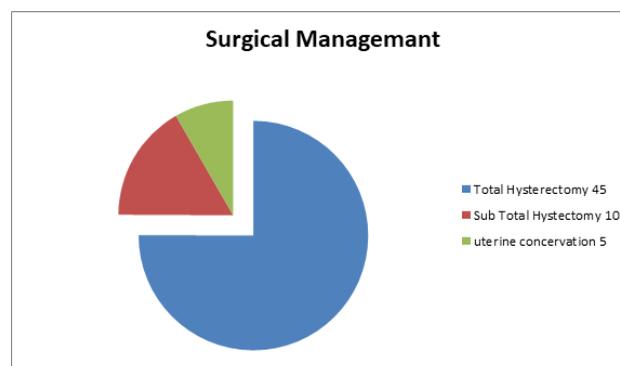


Figure 2

DISCUSSION:

Morbidly adherent placenta (MAP) is dreadful complication of pregnancy. The condition result in a placenta that may not separate, following the birth of the infant and is associated with a mortality rate of up to 7%^[15]. MAP is a condition of increasing clinical significance because of the increasing caesarean section rate worldwide^[16]. The incidence of MAP has increased worldwide, mainly due to sustained increase in caesarean section^[17].

Only 20 (33.3%)9 cases of our study were booked this is contrary to the study carried out by Tehreem et al^[18] which showed 96% booked cases. It means that we have to counsel the general public for the need of early booking and antenatal care with history of previous caesarean section. In our study most of the patients were of 28 years age which is consistent with the study carried out by Rabia Wajid and Aggarwal^[19,20] in which mean age of the subjects was 26.7 ± 3.17 years and 27.7 ± 4.2 years respectively.

Placenta previa and morbidly adherent placenta were diagnose at 32 weeks and surgery was done around 36 weeks gestations. A study carried out by Rabia Wajid & colleagues^[19] showed the gestational age at diagnosis and surgery was 34 and 36 week. Similar age distribution is reported by Aggrawal et al^[20] & Malhotra et al^[21].

In our study 90% of cases found to have gravidity between 1-5 which is consistent with study carried out by Hassan S, et al^[22]. The maximum patients (75%) in our study have more than previous two caesarean section. The patient with previous one and previous two were 8.3 and 16% respectively. A study carried out by Tehreem Yazdani et al^[18] showed an increasing number of previous caesarean section is associated with increase incident of placenta previa. The rate of caesarean section is increasing in most countries. A study carried out by Haider et al^[23] showed 64.7% caesarean section rate. However long term maternal out comes an obstetric future of women with previous caesarean section need further evaluation. There is a strong association of placenta previa with previous caesarean section which is well documented and its incident

increased with increasing number of caesarean Section- in Our study all the patients with MAP had previous caesarean section compared to unscarred uterus which is consistent. With the study carried out by Tehreem Yazdani et al which showed similar association of MAP 100% association of placenta accreta with previous caesarean section compared to unscarred uterus. Out of 60 patients in our study placenta accrete were found in 20 (33.3%) patients and placenta increata: percreta in 40 (66.6%) patients. Our study is not consistent by the study carried out by Rabia Wajid and colleagues^[19]. Which showed the percentage of placenta accreta increata and percreta 75.9%, 21.26% and 3.15% respectively. This difference is due to increasing number of previous two or more caesarean section in our study. Antenatal diagnosis of MAP is important because there is a favorable outcomes when delivery occurs at a level III or IV maternal care facility before the onset of per vaginal bleeding, onset of uterine contention and placental disruption^[24]. Prenatal diagnosis using Doppler ultrasound is important to reduce both fetomaternal morbidly and mortality^[25]. In our study only 20 patients had prior placental localization as most of the patients in our study were unbooked. This was contrary to the study carried out by Aggrawal et al^[20] which reported that 70% women had placental localization before delivery.

The use of multidisciplinary approach further more improve the experience gained by that same group and thus improve the maternal outcomes^[26]. Particular consideration should be given regarding management of massive hemorrhage along with availability of fresh frozen plasma and cryoprecipitate along with collaboration of hematologist, Interventional radiologist, and anesthetist and an experienced consultant obstetrician play crucial role^[27]. The management of condition comes with significant morbidity and account for 47% of all peripartum hysterectomies. Other morbidity include average blood loss 2000 to 5000 and transfusion up to 90% causes, acute transfusion reactions, renal failure, DIC, acute respiratory distress syndrome, peripartum hysterectomy, surgical morbidity ureters bladder, bowel or neurovascular injuries and

ICU admission. 50% psychological implication for patient and family^[28].

The management of choice in placenta accrete is hysterectomy in most of the cases. The complication associated with placenta accrete is loss of future fertility massive blood loss and damage to adjacent pelvic organ^[29]. The other alternative measure to treat placenta accrete are leaving the placenta in situ after caesarian section uterine devascularization, uterine compression sutures and /or over sewing the placental vascular bed^[30].

In our study only two patients (3.3%) had placenta left in situ this was followed by parenteral methotrexate and follow up by is done serum BHCG. The placenta left in situ decreases in size on 5th postoperative day and followed up by ultrasound Doppler. Placenta was completely involuted at 18 weeks. Conservative management of placenta accreta and increta is now an acceptable and reliable alternative to radical surgery^[31]. In our study 35 (58%) cases had total caesarean hysterectomy while subtotal hysterectomy was carried out in 15 (25%) patients. This was contrary to the study carried out by Anjum Ara and colleagues^[27] in which (87%) had subtotal hysterectomy and (13%) had total caesarean hysterectomy. In our study the rate of caesarean Hysterectomy was higher than the study carried out by Vora K et al^[32] and this was due to the fact that they did used conservative measure or internal artery ligation (IIAL). IIAL is use to control massive obstetric hemorrhage. In our study 10 (16.66%) Patient underwent internal iliac artery ligation adjacent to the other procedure. However, study carried out by Waleed Rafi^[33] showed early prophylactic intraoperative bilateral internal iliac artery ligation was performed before any attempt to remove the abnormally adherent placenta, which is the main source of severe blood loss that might occur in such a situation. In internal iliac artery ligation the pulse pressure distal to the site of ligation is reduce thus minimizing huge blood loss which occur in case of placenta accrete during caesarean delivering.

In our study regarding post-operative complications bladder injury occurred in 6 (10%) of patients that was due to involvement of bladder by placental resells. This was lower

than the study carried out by Rabia, Malhotra and Uzma^[19,22,34] in which bladder injuries ranged between 28.3-29.4%. In 54 (90%) patients blood loss was between 2.5 – 3 liters while 6(10%) it was more than 3 liters. The average blood units which were transfused ranged between 6-10 units which is consistent with the study carried out by Furuta K et al^[35] which showed massive blood loss in over 3 liters in (65%) and massive blood transfusion with > 10 units. In our study post operative complications observed were: acute tubular necrosis (13.3%) DIC (6.6%) relaparotomy (3.3%) and septicemia and admission to ICU observed in (41.6%) of patients. In a study carried out by Seema Dwivedi et al^[36] showed sepsis in 13%, DIC in 2% and admission to ICU in 21% of cases.

In 50 (83.3%) hospital stay was between 7-10 days while to (16%) remained admitted for more than 10 days.

Four (6.6%) maternal deaths occurred in our study and cause of maternal deaths was DIC secondary to haemorrhage in all cases. This was consistent with the study carried out by Seema Dwivedi et al^[36] in which 18% of patients died due to hemorrhagic shock.

CONCLUSION:

The percentage of placenta previa and morbidly adherent placenta rises with increasing number of caesarian sections. It is a life threatening haemorrhagic condition associated with high rate of maternal morbidity and mortality. Antenatal diagnosis by doppler ultrasound, multidisciplinary approach with involvement of senior Obstetrician, Anaesthetist and Haematologist is pivotal. In most of cases Caesarean hysterectomy with or without internal iliac artery ligation is standard management protocol. In less serious conditions conservative measures can be practiced.

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