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Peripartum Management of Placenta Previa and Abruption Placenta in Rural Perspectives: A Real Test of Obstetrician's Clinical and Surgical Skills

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Abstract

Introduction: *Antepartum haemorrhage (APH) complicates 3-5% of all pregnancies. Abruption placenta and placenta previa contributes 60-70% of total causes of APH. It also predisposes a patient further for PPH and makes her condition more critical.*

Aim & Objectives: *to present our experience on peripartum management and handling of complications in patients of abruption placenta and placenta previa.*

Material & methods: this is a retrospective study in the department of obstetrics & gynecology in a rural medical college during its first three years of establishment. The data was collected from the medical records and statistically analyzed for presentation of patients, neonatal outcome and management of peripartum complications focusing on different methods of controlling postpartum haemorrhage in both the conditions.

Results: *The incidence of APH, abruption placenta and placenta previa in the present study was 3.65%, 2.54% & 1.11%. Majority of patients in the study group were 25.77±4.88yrs age and multiparous (2.8±1.64). Risk factors for placenta previa were present in 18.77% patients. Neonatal morbidity and mortality were more commonly associated with abruption placenta. The most common complication was postpartum haemorrhage secondary to uterine atony, morbidly adherent placenta and DIC. Other complications include on table cardiac arrest, long ICU stay.*

Conclusion: *Antepartum haemorrhage itself makes patient condition haemodynamically critical and further post partum haemorrhage narrows the window of survival for the patient. An obstetrician clinical and surgical skills plays a critical role in survival of such patients.*

Introduction

Maternal haemorrhage is the leading cause of preventable maternal mortality worldwide including antepartum, intrapartum, and postpartum bleeding. APH complicates 3-5% of pregnancies[1,2]. Abruption placenta and placenta previa causes 60-70% of total cases of antepartum haemorrhage. Incidence of abruption placenta is 4-5% in developing countries and 0.5-1% in developed countries while incidence of placenta previa is 0.5-1% all over the world.[1,3]. Bleeding per vaginum is most common presenting complaint[1,2,3], followed by incidental diagnosis on routine antenatal ultrasonography. Ultrasonography is investigation of choice for diagnosing cause of APH[1,2]. In limited resource settings and in unbooked cases double set up examination also helps to reach the diagnosis and management in emergency situations. Maternal condition and fetal gestational age are key factors for deciding timing and mode of delivery. Postpartum haemorrhage (PPH) is the most dreaded

complication of abruption placenta and placenta previa and sometimes even peripartum hysterectomy fails to prevent mortality. These two conditions themselves predisposes patient to a haemodynamically unstablecondition and further postpartum haemorrhage in these patients narrows the window of survival. Such patients presents an ultimate challenge for the clinical and surgical skills of an obstetrician. Besides the management of postpartum haemorrhage varies in abruption placenta and placenta previa as in abruption placenta it is the atonicty of uterus and in placenta previa it is the non retractile lower uterine segment and adherent placenta that causes bleeding. With the present study we aimed to present our experience in managing these patients in rural perspectives for critical appraisal. We also attempted to compare different methods of control of post partumhaemorrhage to which abruption placenta and placenta previa patients responded.

Material & Methods

It is a retrospective study conducted in the department of obstetrics & gynecology in rural government medical college during its initial three years of establishment. All the patients with a pregnancy of 28 week or more presented with bleeding per vaginum secondary to placenta previa or abruption placenta and delivered with us constituted the study group. Those patients in whom placenta previa was an incidental finding on ultrasonography and admiited for safe delivery were also included in the study. The medical records of these patients were analysed for patient profile, diagnosis, intranatal and postnatal management, complications and neonatal outcome. The data was statistically analyzed using SPSS 20 software and results tabulated.

Abruption placenta diagnosis was made on clinical signs and symptoms of vaginal bleeding, tense and tender abdomen, hypertonic uterus and confirmed by presence of haemorrhagic liquor or at delivery by the local examination of placenta for separation and presence of retroplacental (RP) clot. Retroplacental clot size was taken from the delivery notes, it was a clinical observation only.

Placenta previa was diagnosed and classified according to relation of placenta with lower uterine segment and internal oss as per ultrasonography reports.

Double set up examination is unconventional but still a useful method for confirmation of cause of antepartum haemorrhage in peripheral centres with limited diagnostic tools. In the present study it was done in patients of type1 and type 2 placenta previa patients after onset of labour pains to decide mode of delivery. It was also done in patients presented in emergency hours with bleeding per vaginum to confirm the diagnosis. It was performed in labour room operation table with simultaneous preparation for LSCS and immediate availability of blood. Postdelivery active management of third stage of labour was routine. For control of postpartum haemorrhage first line includes use of uterotonics (oxytocin, prostaglandins) and bimanual massages were done. The second line include uterine compression sutures, placental bed suturing, uterine devascularization, internal iliac artery ligation and uterine packing. Peripartum hysterectomy used to be the last option as life saving procedure.

Observations

During the present study period a total of 8482 deliveries were conducted in the department out of which 6567 were vaginal deliveries and 1915 were cesarean section. A total of 487 patients with 28 weeks or more presented with bleeding per vaginum during this period. After excluding other causes 310 (3.65%) patients diagnosed to have antepartum haemorrhage secondary to abruption placenta and placenta previa. The incidence of abruption placenta was 2.54% (216 cases) and of placenta previa was 1.11% (94 cases).The mean age of patients in the study group was 25.77 ± 4.88yrs and mean parity was 2.8±1.64, 11.61% patients had history of previous cesarean section and 13.22% patients had history of surgical curettage. The profile of patients of abruption placenta and placenta previa is given in table 1and 2.

Table 1: Spectrum of Abruption placenta in the study group

Characteristics of Abruption group	No of patients	% of patients(216)
Mean age of the patients	24.40±3.43	
Mean parity of the patients	2.9±1.22	
RP clot of 500-1.5 lit.	88	40.73
RP clot of 1.5lit or more	16	7.40
Revealed abruption	16	7.40
Indications of LSCS(60)		
Impending eclampsia	12	5.55
Fetal distress with poor bishop	08	3.70
Breech presentation	08	3.70
Previous 1 LSCS	12	5.55
Previous 2 LSCS	08	3.70
Shock	12	5.55
Associated medical problem		
Severe Preeclampsia	32	14.81
Severe anemia (Hb 6gm or less)	64	29.62

Table 2: Spectrum of patients of Placenta previa in the study group

Types of placenta previa	No of pts.(94)	%pts.(total 94)
Mean age of patients 23.34±1.22		
Mean parity of patients 2.66±0.83		
Type 1(Low lying placenta)	14	14.89
Type 2 anterior	32	34.04
Type 2 posterior	11	11.70
Type 3(partially covering oss)	13	13.83
Type4(central placenta previa)	24	25.53
Presentation of patients		
Bleeding per vaginum	53	56.38
Diagnosed on USG reported at term	25	26.60
Shock	05	5.32
Failure of Macfee regimen	11	11.70
Associated problems		
Malpresentation	12	12.77
Morbidly adherent placenta	04	04.25
H/O LSCS	16	17.02
H/O Surgical curettage	17	18.08

Morbidly adherent placenta was found in 4 patients of central placenta previa with history of previous cesarean section later on confirmed as placenta accreta in 1 case and placenta percreta in 3 cases by histopathological examination.

Table 3: Mode of delivery and details of double set up examination in the patients of abruption placenta and placenta previa

Mode of delivery	Abruptio placenta(216)	Placenta previa(94)	Total of 3 yrs(%)
Normal Vaginal delivery	156(50.32)	10(03.22)	166(53.54)
Em LSCS	60(19.35)	84(27.10)	144(46.45)
Total no. of patients took for double set up examination=93 Patients prediagnosed placenta previa=12 Patients diagnosed as placenta previa on double set up examination=05 Patients found to have excessive show with no other positive finding=20 Patients diagnosed as abruption placenta=56			
Double set up exam. NVD LSCS	56(18.06) 48 08	17(05.48) 10 07	73(23.54)

Double set up examination was done in 93 patients among these 12 patients were of type 1 & 2 placenta previa and taken to decide mode of delivery. Rest 81 patients presented with bleeding per vaginum in emergency hours. The results of examination and mode of delivery in all the study patient tabulated below in table 3

Table 4: Neonatal outcome

Period of gestation	No. of patients of abruption placenta	No. of patients of placenta previa	Total no. of patients
28-32 wk	48(15.98)	11(03.55)	19.03
33-36wk	72(23.23)	37(11.94)	35.17
37 or more	96(30.97)	46(14.84)	45.81
Neonatal weight			
Baby wt less than 1Kg	12(3.87)	1(0.32)	4.19
1-1.5kg	44(14.19)	9(2.90)	17.09
1.6-2kg	36(11.61)	19(6.13)	17.74
2.1-2.5kg	76(24.51)	31(10.11)	34.62
2.6-3.0kg	36(11.61)	24(07.74)	19.35
3.0 kg or more	12(03.87)	10(03.22)	07.09
NICU admission	40(12.90)	19(06.13)	19.03
Baby with mother	96(30.97)	66(21.30)	52.27
IUD	72(23.23)	08(02.58)	25.81

Table 4 shows that 54.20 % patients had preterm delivery and 40.02 % newborn weighed less than 2.0 kg. Out of total newborns 52.27% shifted with mother, 19.03% admitted to NICU, 25.81% were IUD and 2.90% were fresh still birth. On comparing the gestation age of presentation and neonatal outcome between abruption placenta and placenta previa, the p value was 0.079 and 0.086 respectively, not significant.

Table 5: Complications & management of patient

Sr.no	Management	Abruptio placenta(216)	Placenta previa(94)	Total (310)
1	No special efforts during LSCS or Vaginal deliveries	140(45.16%)	74(23.87%)	214(69.03%)
2	Total cases ofPPH	76(24.51%){44 VD & 32 LSCS}	20(06.45%){1NVD& 18LSCS}	96(30.96%)
3	Medical management of PPH	76(24.51%)	20(06.45%)	96(30.96%)
4	B lynch stitch	20(6.45%)	06(01.93%)	26(8.39%)
5	Uterine devascularization	22(07.10%)	12(03.87%)	34(10.97%)
6	Placental bed suturing	--	06(01.94%)	06(1.94%)
7	Cervicoisthmic apposition	--	07(02.25%)	07(2.25%)
8	Uterine devascularization& packing	01(0.32%)	03(02.02%)	04(1.29%)
9	Internal iliac ligation	03(0.96%)	06(04.05%)	09(2.90%)
10	Hysterectomy.	02(0.64%)	03(02.02%)	05(1.61%)

Table 5 shows that postpartum haemorrhage developed in 96 (30.96%) patients of APH and rest 214 (69.03%) patients had an uneventful postpartum period. Among 76 patients of abruption placenta uterotonics followed by uterine devascularization and uterine compression sutures applied and 68 patients responded well. In 20 patients of placenta previa along with medical management conservative surgical management including uterine devascularization , placental bed sutures and cervicoisthmic apposition done to which 14 patients responded well. Internal iliac anterior division ligation along with uterine packing with roll gauze acted as uterine saving procedure in 07 patients (03 patients of placenta previa and 4 patient of abruption placenta). In 07 patients (04 patients of abruption placenta and 03 patients of placenta previa) peripartum hysterectomy with internal iliac anterior ligation was performed as a life saving measure.

Table 6: Peripartum management during LSCS

Sr no	Anaesthesia&complictions	Abruptio placenta(60)	Placenta previa(84)	Total 144 & %
1.	Regional anaesthesia	48	75	123(60.42)
2.	General anaesthesia	12	09	21(14.58)
3.	SA converted to GA(on table cardiac arrest)	02	03	05(03.47)
4.	Ionotropic support	18	16	34(23.61)
5.	Intraop BT	22	18	40(27.78)
6	ICU Shifts	10	08	18(12.50)
7.	DIC	03	02	05(03.47)
8.	Hospital stay >2wks	12	16	28(9.03%)

Table 6 shows that among 144 patients who underwent LSCS, 123 patients operated under regional anaesthesia, 21 patients were taken under general anaesthesia. In 05 patients of APH regional anaesthesia converted to general anaesthesia because of on table cardiac arrest. 34 patients required ionotropic support on table and intraoperative blood transfusion was done in 40 patients. DIC diagnosed in 05 patients on the basis of intraoperative excessive generalized oozing and clot retraction test clinically. Patients were managed with whole blood, fresh frozen plasma and platelet concenterate.

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Discussion

Obstetric haemorrhage including both antepartum and postpartum is still major cause of maternal mortality and morbidity. As per RCOG guidelines it is the cause of upto 50% of the estimated 5,00,000 maternal deaths that occur globally each year [1].In the current study the incidence of abruption placenta (2.54%) outnumbered placenta previa (1.11%). Siddique SA et. al. and Imran Sarvar et.al had reported abruption placenta in 6-7% and 7.18% cases in their studies.[4,5] The mean age and parity in the present study were 25.77±4.88 yrs and 2.8±1.64 respectively while Siddique et. al. and Mukherjee et.al[3,4] reported the mean age 27.81±5.29 & 34.5 yrs and parity 3.33±2.77. It might be due to early marriage and conception in our rural population. Majority (53.54%) of cases in the present study delivered vaginally which is similar to other studies [5,6]. Only 60.81% (98) newborn were shifted with mother while 39.19% had perinatal morbidity. The results were comparable with studies of Siddique IA, Shamara H, Iramsarvar Mukherjee S et.al also reported high fetal mortality in abruption placenta [3,4,5].

Postpartum haemorrhage is usually unpredictable and is a dreaded complication of APH[7]. Abruption placenta and placenta previa both are notorious to cause torrential haemorrhage secondary to atonic PPH, adherent placenta, disseminated intravas-cular coagulopathy (DIC) [8]. In the present study 30.96% (96) patients developed PPH means out of 100 patients of APH 31 cases landed in PPH. Literature reports abruption placenta and placenta previa as major causes of PPH [2,9].

Uterine atony is the most important and commonest cause of PPH and it can be controlled by stimulating myometrial contractility and thus occluding vessels by stimulating living ligatures [7]. So first step in management of postpartum haemorrhageis meticulous use of uterotonics and bimanual uterine massage. Conservative second line therapy for PPH control include compression sutures, uterine embolization or devascularisa-tion, balloon tamponade[10]. Along with uterotonics , bimanual uterine massage was done in patients during vaginal delivery. During LSCS along with medical management B lynch suture applied with an aim to exert continuous vertical compression on the vascular system[11]. Current level of application of the B Lynch suture worldwide includes over 13000 successful cases with 19 failures and Indian subcontinent has largest successful share. Worlmuth & colleagues published 91% success rate and worldwide accumulated success rate is 98% [12]. For abnormal placentation like placental accrete, percreta and increta B lynch suture may be beneficial, but

before applying potential efficiency must be checked by bimanual compression[11,12]. In the present study we applied B lynch in 26 patients.

Among conservative surgical interventions of PPH bilateral ligation of uterine and uteroovarian arteries is commonly performed procedure because of its readily accessibility and easy technique. As per refrence this procedure is successful in controlling haemorrhage in 90% patients[13]. O Leary [14] in his extensive study of 30 yrs advocated uterine artery ligation as an effective alternative to IIAL, AbdRabbo[14] reported 100% success in controlling PPH by uterine devascularization. Fahmy & O Leary reported its failure in patients of placenta previa and accrete but still it may decrease blood loss while other interventions are attempted [14,15]. In the present study out of 96 patients of PPH 82 patients responded well to medical management plus uterine devascularization and compression sutures like B Lynch and cervicoisthmic apposition individually or in combination.

Cervicoisthmic apposition is application of haemostatic compression suture approximating anterior and posterior walls of cervix maintaining utero- cervico- vaginal patency. It was advocated by Mukhopadhya & Arulkumaran in cases of persistent bleeding after LSCS due to placenta previa[16].Dutta et. al. reported a series of 8 cases where they avoided hysterectomy by using this technique with no untoward complication[17]. In the present study we attempted cervicoisthmic apposition in 07 patients and all responded well to technique.

Uterine packing is an another modality useful in controlling haemorrhage, atonicity of uterus and placental site bleeding caused by previa and accreta[18]. Although it has advantage of simplicity and non requirement of special equipment but disadvantages like infection and concealed haemorrhage limits its use. Bakri tamponade balloon, Belfort Dildy Tamponade Balloon, condom catheter in place of gauze roll are other tools in the armamentarium of obstetricians for tamponade[18,19]. In the present study uterine packing along with internal iliac anterior (IIAL) done in 07 patients to which they responded well. These 07 patients were kept in ICU with uterotonic support for first 24 hrs and packing removed in operation theatre with all preparations of laparotomy.

IIAL has been advocated as an effective means of controlling intractable PPH and preventing maternal death. Haemodynamic studies by Burschell showed that IIAL reduces pelvic blood flow by 49% and pulse pressure by 85% [20]. Studies reported success rate of IIAL from 40-100%, averts hysterectomy in 50% cases, failures are more commonly reported with atonic PPH cases[13]. In the patients of complete placenta previa, placenta receives its blood supply from descending cervical and vaginal arteries which remains unaffected by uterine arteries ligation. In adherent central placenta previa cases due to difficult uterine artery ligation (Fig 1) IIAL is recommended before placental separation to decrease the loss of blood and onset of catastrophic cycle of DIC[13]. In the present study it was done in 14 patients. We observed chances of recurrence of haemorrhage are high in patients of peripartum hysterectomy irrespective of indication as chances of slippage of ligatures are there once patients attains BP after surgery. So in our institute we prefer to do IIAL in all cases of peripartum hysterectomy.

Although Intraoperative selective pelvic arterial embolization, intraaortic balloon catheter placement are effective advanced technologies but are limited to higher centers.

Uncontrolled severe bleeding in PPH may leads to lethal cascade of hypothermia, coagulopathy, and metabolic acidosis. Criteria proposed for this in extrems state include pH 7.30, temp 35°C, combined resuscitation and procedure time >90min, non mechanical bleeding and transfusion required more than 10 units [9]. Urgent haemostasis is the key to break this vicious cycle and low threshold for hysterectomy is justified to save the life of patient in such cases. Peripartum hysterectomy is quite a challenging job due to enlarged uterus, engorged vessel and edematous tissue. Once a patient enters in downward spiral

morbidity increases. So a timely decision of hysterectomy is essential saving life of the patient. In the present study 8 patients underwent peripartum hysterectomy.

Conclusion

Antepartum haemorrhage leading to postpartum haemorrhage is a life threatening situation where the presence of coordinated team including skilled obststrician, anesthesist with trained operation staff and a dedicated blood bank is essential to avoid the catastrophe.

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