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Original Research Article

Maternal and perinatal outcome in placenta previa in atertiary care centre: a record based retrospective case series study

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ABSTRACT

Background: Placenta previa occurs when the placenta is situated wholly or partially in the lower uterine segment. It is one of the leading causes for maternal and perinatal morbidity and mortality. It occurs in 4 to 5 cases out of 1000 pregnancies and remains a significant cause for maternal and perinatal morbidity and mortality. Objective of this study is to know the maternal and perinatal outcome in placenta previa.
Methods: It is a retrospective case series study. Data of 51 pregnant women diagnosed with placenta previa managed at SNMC and HSK hospital between January 21 to December 22 were retrieved and analyzed.
Results: Incidence of placenta previa was found to be 1.6% of 3135 deliveries at the given time. Among 51 cases of placenta previa, 7.84% delivered vaginally, 92.16% underwent caesarean section. 45.10% were early preterm, 29.41% had late preterm delivery, 25.49% had term deliver, 49.02% had h/o previous LSCS, 7.8% had history of d and e, 17.65% had h/o abortion, 11.76 % still born. Blood transfusion was done for 27.45% of women, post-partum haemorrhage was documented in 21.56%, 7.84% needed ICU admission and there were no documented peri-partum hysterectomy upon any of these women.
Conclusions: The availability of advanced emergency obstetric care across greater number of referral hospitals has been responsible to decrease the morbidity and mortality associated with many complicated obstetric conditions. However the challenge is that as this condition is confirmed by ultrasound, women should take regular antenatal check-ups, should be counselled and made aware of the complications associated with this condition so that adequate and appropriate management can be planned and executed for better maternal and perinatal outcome also with on time referral to tertiary care centre where there is required multidisciplinary team, adequate availability of blood and blood products, NICU and ICU facilities where these high risk caesarean be managed efficiently the potential to limit maternal and perinatal mortality and morbidity caused due to placenta previa can be greatly reduced.

Keywords: Placenta previa, Maternal perinatal, Morbidity mortality

INTRODUCTION

Placenta previa occurs when the placenta is situated wholly or partially in the lower uterine segment. Incidence is 4-5% in 1000 pregnancies. Features of previa are sudden onset, painless bleeding, causeless and recurrent. Exact cause is unknown but can be associated with risk factors like advanced maternal age, multiparty, previous caesarean section or uterine surgeries, previous miscarriages, previous D and C, ART and smoking.[1] There is increasing incidence of placenta previa is c-section advanced age with and its complications like adherent placenta. Placenta previa can lead to maternal morbidities like haemorrhagic shock, increased operative

interventions, sepsis and poor perinatal outcomes like preterm delivery and its complications like low birth, weight birth asphyxia and neonatal sepsis. Incidence of atonic post-partum haemorrhage is high and thus the need for peri-partum hysterectomy.[1] As occurrence of placenta previa has risk adverse to maternal and perinatal outcome. After knowing the risks, my study efforts to encourage a care full evaluation with timely delivery to reduce the associated maternal and perinatal complications. Retrospectively this study intends to study the course management of this case and note down the maternal and perinatal outcome. So that after analysis and effective protocols can be framed to improve the maternal and perinatal outcome.[2]

Grading of placenta previa according to TAS[3]

Grade 1: Low lying placenta: when placenta is encroaches on the lower uterine segment but does not reach as far as from internal OS. Grade 2: Marginal placenta previa: when lower end of placenta reaches margins of internal OS but does not cover it. Grade 3: Partial previa: when it covers partially the internal OS. Grade 4: Cental previa: when placenta completely covers the OS. American classification: Normal; lower edge of placenta >20 mm from OS. Low lying: Placenta edge is <20 mm from OS. Placenta previa: Placenta lies directly over the OS.[1]

Aim and objectives

Aim was to study maternal and perinatal outcomes in women with placenta previa. Objectives were to study the Maternal outcome in cases with placenta previa and to know the perinatal outcome in cases with placenta previa.

METHODS

Study design, location and duration

Retrospective case series study conducted at medical record section and labour room S. N. Medical collage Bagalkot from January 2021 to December 2022. This is a hospital based retrospective case series study conducted at SNMC and HSK hospital, which analyses case records of selected cases in 2 years period.

Inclusion criteria

The patient is having antepartum haemorrhage because of low lying placenta after 28 weeks of gestation is known as placenta previa so I have taken included all pregnant women with gestational age more the 28 weeks of gestation with confirmed placenta previa by ultrasound or intra-operatively.

Exclusion criteria

Patient is having bleeding less than 28 weeks of gestation is known as abortion so excluded Pregnant women of gestational age less than 28 weeks.

All pregnant women with placenta previa >28 weeks of gestational age, confirmed by ultra sonograph irrespective of their parity, type of placenta previa were included in the study. Demographic characteristics of women included in this study with details of surgical procedures, the volume of blood transfusion, and complication like hypovolemic shock, DIC, renal failure and maternal mortality were added from records. The neonatal outcomes including gestational age at delivery, APGAR score, birth weight, NICU admission, still birth rate, neonatal mortality, presence of congenital anomalies was included. Additional procedures required like uterine packing, balloon tamponade, B-lynch sutures, internal iliac artery legations and peripartum hysterectomy can be included. Both mother and baby were followed till their discharge. Sample size estimation was done using open epi software version 2.3.1. At 95% confidence level, and 80% power of the study. According to the study conducted by Frontier journal the proportion of PPH in Placenta previa was 48%=p. At 15%, Absolute precision, sample size estimated is 43 which was taken as 51 and calculated using formula;

$$n = [DEFF * Np(1-p)]/[(d2/Z21-\alpha/2 * (N-1) + p * (1-p)]$$

It is a hospital-based Case series study, plan for statistical analysis of the study statistical analysis was done using SPSS software 19.0. Data obtained was tabulated in the Excel sheet and will be analysed. Quantitative data was expressed as mean standard deviation and nonparametric data will be expressed as median and min-max values. Percentage was used for qualitative data. Chi-square test for proportions in qualitative data was used. Student's t-test (unpaired t test) for Quantitative data was used. Other appropriate statistical test was applied, p=0.05 was considered statistically significant. Data was entered in excel sheet -percentages and proportions were calculated.

RESULTS

The (Table 1) shows that placenta previa is more common in multi-parous with age group 25-35 years, who had previous caesarean section and d and c. It is found that common in referred cases. The (Table 2) shows that type 4 that is central placenta previa is common as compare to other types that is around 62.75%. The (Table 3) shows that common in early pre term as compare to term gestation.45.10% had early preterm that is < 34 weeks of gestation, and 25.49% had >37 weeks of gestational age 92.16% underwent caesarean section only type 1 that is 7.84% had vaginal delivery and less blood loss because of early intervention. The (Table 4) shows maternal outcome where 33.33% are having APH and 21.56% were having pph. Many were managed conservatively with 19.60% with B/L uterine artery ligation. None of them undergone peripartum hysterectomy and 7.84% were admitted in ICU a no maternal mortality. Only 27.45% were received blood transfusion.

Table 1: Demographic variables (n=51).

Variables	N	%
Maternal age		
<25	24	47.06
25-35	25	49.02
>35	2	4.00
Parity		
Nulliparous	13	25.49
Multiparous	38	74.51
Booking status		
Referred	28	54.90
Booked	23	45.10
Previous history		
Previous CS	25	49.10
Previous D and C	4	7.8
Previous PP	0	0
Pr. abortion	9	17.65

Table 2: Types of placenta previa.

Type	N	%
Type 1	2	3.92
Type 2a and 2b	15	29.11
Type 3	2	3.92
Type 4	32	62.75

Table 3: Maternal variables and mode of deliveries.

Type	N	%
Gestational age		
<34	23	45.10
34-37	15	29.41
>37	13	25.49
Mode of delivery		
Emergency CS	47	92.16
Vaginal	4	7.84
Blood loss (ml)		
<1000	15	29.41
>1000	11	21.56

Table 4: Maternal outcome (n=51).

Variables	N	%
APH	17	33.33
PPH	11	21.56
Hypovolemic shock	5	9.80
B/L UA ligation	10	19.60
IIA ligation	0	0
Hysterectomy	0	0
ICU admission	2	7.84
Maternal mortality	0	0
Hospital stay <14 days	17	33.33
Hospital stay >14 days	34	66.66
Blood transfusion	17	27.45

The (Table 5) shows the perinatal outcome regarding live births are 88.24% and still born are 11.76%. Female babies are more than male. 19.61% babies had <1500g birth weight, 47.06% had 1500-2500g and 33.33% had >2500g birth weight. There were no congenital anomalies were detected. 35.29% were admitted in NICU and only 5.88% very low birth weight was died.

Table 5: Perinatal outcomes (n=51).

Variables	N	%
Live	45	88.24
Dead	6	11.76
Male	25	49.02
Female	26	50.98
Birth weight (gm)		
<1500	10	19.61
1500 -2500	24	47.06
>2500	17	33.33
NICU admission	18	35.29
Congenital malformations	0	0
Neonatal mortality	3	5.88
APGAR at 1 and 5 min		
<7	2	3.92
>7	43	84.31

DISCUSSION

The present study was undertaken in tertiary care hospital in Bagalkot, predominantly catering to rural, socio economically challenged population. In our study we found that the prevalence of placenta previa in our study was 1.6% which was higher than those reported by Ramli et al. In our study placenta previa found more in multi-parous women with age ranging from 25-35 years. Out of 51 cases 25 cases are in age group of 25-35 years and 24cases were <25 years and 2 were>35 years. 38 out 0f 51 cases were multiparous. Referred cases were 54.90%. Most of the patients were with previous caesarean section that to more in previous 2 caesarean sections, out of 51 cases 16 cases were previous 2 caesarean section. And in history of D and C are 7.84%and abortion 17.65%. Type 4 that is central placenta previa is more common who presented with bleeding per vagina around 62.75% and second common in placenta previa is type 2 that is marginal previa about 29.11%. Type 1 and type 3 are less common. Except type 1 all other went for caesarean section. Out 0f 51 cases 47 has caesarean section that is around 92.16% and vaginal delivery is 7.84%. Early preterm45.10% and late preterm that is 29.41% as compared to term that is 25.49% placenta previa, because of early intervention less patient had blood loss and PPH.11 patients had PPH during surgery that is 21.56% managed conservatively and medically, only 10 patients out of 51 we did bilateral uterine ligation. There was no hysterectomy done. Only 2 patients were admitted in ICU and recover well. In our study there was no maternal mortality. Because early preterm deliveries are high patient stayed in hospital for baby shake >14 days are about 66.66% and <14 days are 33.33%. As we did early intervention and managed vigorously only 14 patients had

blood transfusion and 37 patients did not have any transfusion. Only 6 patients came with IUD and 45 patients had live births. Mean birth weight was between 1500-2500 gms was 47.06%. The 19.61%, had birth weight<1500 gms and 33.33% had >2500 gms. Females are more than males. 18 babies had admitted in NICU around 35.29% and only 5.88% had neonatal deaths because very early preterm. None of foetal had anomalies. In contrast Akram et al conducted a study which indicates that maternal morbidity is significantly increased, if PP is complicated by PA. Majority of women belonged to 25-35 years age group with 71.8% cases being parous women.

Similar findings were noted in a study done by Prasad Usha et al that showed the highest number of cases with PP was in the age group 25-29 with 46 cases (54.76%) and the incidence was highest among multi-parous women (66 cases) with 78.57%.[9] The incidence of placenta accreta in our study was 20.5%. The high incidence of acreta in our study could be attributed to our hospital being a tertiary referral centre. Sarojini et al reported that 0.64% of the deliveries were complicated with placenta previa and that 4.7% had adherent placenta.[4,10]

Krupa et al the rate of caesarean sections the incidence of placenta previa and placenta accrete is gradually increasing. The key risk factors for placenta previa are multigravidas, previous caesarean section, history of previous miscarriage requiring evacuation, inadequate antenatal care. This study highlights that these risk factors may be useful for screening at-risk mothers. Placenta previa was found to indicate a significant risk of severe, adverse maternal and fetal outcomes. It also heralds the need for comprehensive obstetrics care to appropriately treat placenta previa and its complications.[5] Kassem et al showed median intra-operative blood loss in cases of placenta previa was 1 litre and in placenta acreta was 2,000 (mean 3,000) ml, with a loss of ≥2,000 ml occurring in 72%, and ≥5,000 ml in 20%. The median packed red blood cell transfusion requirement was 6 (mean 7.7) units, and 28% received ≥10 units. However, in our study, post-partum haemorrhage was noted in 43.6% cases and blood loss exceeded 1 later in all cases with placenta acreta accounting for 10.3% cases.

The blood transfusion requirement was seen in 43.6% cases with majority requiring only 1-2 units of blood transfusion. Ligation to control bleeding was done in 12.8% cases[6]. Hysterectomy was required in cases of Adherent placenta in 6 cases (15.4%). Duration of hospital stay of more than 2 weeks in our study was 28.2% as compared to 10.61% reported by Das et al.[9] We noted that there was a progressive decrease in neonatal morbidity in the form of improving Apgar scores and fewer admissions to the neonatal intensive care unit as gestation advanced. Similar findings were reported by Prashanth S et al. in which perinatal morbidity was studied as the percentage of babies requiring resuscitation and NICU admission which was 37.35% (N=65) and there were 1.72% (N=3) perinatal deaths.[7] Hebbar et al in a retrospective study reported mean birth weight to be lower than 2.5 kg. However, in our study majority babies had birth weight more than 2.5 kg. In our study neonatal morbidity in terms of NICU admission was seen in 33.3% of babies and neonatal death seen in 2.6% (N=1) cases.[8]

In our study out of 51 cases 16 cases were previous 2 caesarean section; in contrast Das et al has concluded that a previous caesarean section delivery is an important risk factor for the development of placenta previa in the subsequent pregnancy. The risk of placenta previa increases with escalation in the number of caesarean sections. A pregnancy which is being complicated by placenta previa poses increased risk to the mother and fetus. As caesarean section is an important risk factor for development of placenta previa, therefore efforts should be made to reduce the rate of caesarean section. Importance of advocating vaginal delivery should be reinforced as much as possible to reduce the incidence of caesarean section by proper counselling of the patient during the antenatal visits. Even with modern development in the field of obstetrics and neonatal care, placenta previa still continues to be a significant cause of maternal and perinatal morbidity and mortality in developing countries, therefore these cases should preferably be managed at tertiary care centres, where a team of expert obstetricians, anaesthetists, neonatologists and 24hr.[9]

Limitations

The limitation of the study is that it was retrospective and included a small number of participants from a single hospital. The findings cannot be generalized to the boarder population. As this is case series study there is no comparison group.

CONCLUSION

The availability of advanced emergency obstetric care across greater number of referral hospitals has been responsible to decrease the morbidity and mortality associated with many complicated obstetric conditions. However the challenge is that as this condition is confirmed by ultrasound, women should take regular antenatal check-ups, should be counselled and made aware of the complications associated with this condition so that adequate and appropriate management can be planned and executed for better maternal and perinatal outcome also with on time referral to tertiary care centre where there is required multidisciplinary team, adequate availability of blood and blood products, NICU and ICU facilities where these high risk cases can be managed efficiently the potential to limit maternal and perinatal mortality and morbidity caused due to placenta previa can be greatly reduced.

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