



PAPER STUDY OF PLACENTAL LOCALIZATION & PERINATAL OUT COME WITH PREVIOUS CAESAREAN DELIVERY

Obstetrics & Gynaecology

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ABSTRACT

Introduction: Obstetric hemorrhage (APH) is a major cause of maternal-perinatal morbidity and mortality worldwide. The major causes of APH are placenta previa and abruptio placentae. The most common identifiable etiological factor for abnormal placenta is previous uterine damage predisposes to abnormal placentation. **Aims and Objective:** To study localization of placenta in previous vaginal and caesarean delivery and its impact on maternal and fetal outcome in subsequent pregnancies. **Methods:** We included total 400 patients with singleton pregnancy beyond 32 weeks of gestation and divided in to two groups, each have 200 patients; group-I: include patients with previous at least one vaginal delivery and group-II: include patients who underwent previous at least one caesarean section, and incidence of placenta previa, along with risk factor for development of placenta previa, maternal and fetal complications were compared in each groups. **Result and Conclusion:** Women with previous caesarean delivery have higher chance of having anteriorly placed as well as low lying placenta. The chances of morbid adhesion of placenta are higher in previous caesarean cases with placenta previa with its attendant high risk of massive hemorrhage (APH & PPH), obstetric Hysterectomy, bladder injuries as well as maternal mortality along with fetus and neonate is at the risk of prematurity, asphyxia, LBW, poor Apgar Score, NICU admission and mortality. More studies including greater number of patients are required to evaluate the incidence and risk involved.

KEYWORDS

APH, PPH, LBW, Placenta PREVIA, APGAR Score, NICU, Placenta Increta

INTRODUCTION

Obstetric hemorrhage (APH) is a major cause of maternal-perinatal morbidity and mortality worldwide. The major causes of ante partum hemorrhage are placenta previa and abruptio placentae. Placenta previa is one of the leading causes of vaginal bleeding in the second and third trimesters. It is associated with increased risks of maternal and infant morbidity and mortality (1). Maternal complications include antepartum and postpartum hemorrhages, hysterectomy, blood transfusions, septicemia and thrombophlebitis (2). Fetal complications are higher frequencies of congenital malformations, perinatal mortality, and Apgar score <7 at 5 minutes. Placenta previa would be defined as a placenta that on transvaginal ultrasound was located over or very near to internal os. Type I- distance of placenta from internal os >20 mm, Type II- distance of placenta from internal os 11-20 mm; Type III-distance of placenta previa from internal os 0-10 mm; Type IV-placenta overlapping os by any distance.

The most common identifiable etiological factor for abnormal placenta is previous uterine damage due to surgical procedures. This endometrial damage predisposes to abnormal placentation. [4,5,6]. i.e. increase among women with prior caesarean deliveries (7).

Aims and Objective

1. To study the placenta localization in previous vaginal delivery and previous caesarean delivery patient.
2. To compare maternal and fetal outcome in patients with previous vaginal delivery and previous caesarean section.

MATERIAL AND METHODS

Our study was hospital based prospective comparative randomized case control study conducted in department of Obstetrics & Gynecology, Government Medical College, Kota, Rajasthan.

We included total 400 patients with singleton pregnancy beyond 32 weeks of gestation and divided in to two groups, each have 200 patients; group-I: include patients/cases with previous at least one vaginal delivery and group-II: include patients/cases who underwent previous at least one caesarean section, and incidence of placenta previa, along with risk factor for development of placenta previa, maternal and fetal complications were compared in each groups.

Primigravidas should be subjected to a trial of labour and caesarean section avoided whenever possible.

OBSERVATIONS & RESULTS

Table 1: Incidence Of Placenta Previa In Both Groups

Type of delivery	No. of patients	Patient with placenta previa	Frequency

Group-I previous NVD	200	04	2%
Group -II previous LSCS	200	13	6.5%
Total delivery	400	17	4.25%

*chi square = 4.976; *p-value = 0.025(<0.05)

Out of total of 400 deliveries during the study period, 4.25% (17) had placenta previa 2% (4) in group I and 6.5% (13) in group II

Table 2: Incidence Of Placenta Previa In Patients With And Without Previous Caesarean Section

Age groups (Years)	Previous NVD group (group-I)	Previous LSCS group (group-II)	Total No. of patients (n = 17), no (%)
<20	0	0	0
21-25	0	1(7.69%)	1(5.88%)
26-30	2(50%)	4(30.76%)	6(35.29%)
>30	2(50%)	8(61.53%)	10(58.82%)

*r_s = 0.89443; p-value(2 tailed) = 0.10557

Table 3: Incidence Of Placenta Previa With Respect To Number Of Previous Caesarean Section

No. of previous caesarean deliveries	No. of patients	No. of placenta previa	Incidence
No previous LSCS (NVD group)	200	04	2%
1 previous LSCS	148	07	4.73%
2 previous LSCS	46	05	10.87%
≥ 3 previous LSCS	06	01	16.66%
Total	400	17	4.25%

*chi square = 7.238; *p-value = <0.026(<0.05)

Table 4: Location Of Placenta On Anterior /other Than Anterior Uterine Wall In The Study Group

Groups	Anterior located placenta	Location of placenta other than anterior
Previous VD (group-I) N = 200	96(48%)	104(52%)
Previous caesarean section (group-II) N = 200	127(61.5%)	73(36.5%)
Total	223(55.75%)	177(44.25%)

*chi square = 9.7388; *p-value = 0.001804.

Table 5: Maternal Complication Or Outcome In Abnormal Placentation In Study Group

Maternal complications	Previous NVD group (group-I) No (%) n= 200	Previous LSCS group (group-II) No (%) n=200	*p-value

Placenta previa	2% (4)	6.5% (13)	0.025
Severe anemia	18 (9%)	44 (22%)	0.0574
Emergency LSCS	9 (4.5%)	114 (57%)	0.00719
PPH	11 (5.5%)	30 (15%)	0.0276
BT > 3 unit	20 (10%)	45 (22.5%)	0.01284
Emergency hysterectomy	8 (4%)	14 (7%)	0.00001
Maternal mortality	2 (1%)	5 (2.5%)	0.01207
Hospital stay > 7 days	9 (4.5%)	35 (17.5%)	0.02825
Wound infection	5 (2.5%)	15 (7.5%)	0.007
Bowel/Bladder injury	0 (0%)	3 (1.5%)	0.01431

Table 6: Incidence Of Perinatal Complications In Both Groups

Perinatal complications	Previous NVD group (group-I) No (%) n= 200	Frequency of placenta previa No (%) n= 4	Previous LSCS group (group-II) No (%) n= 200	Frequency of placenta previa No (%) n= 13	*p-value
Prematurity	24(12%)	3(75%)	40(20%)	8(61.54%)	0.0478
Low birth weight	40(20%)	3(75%)	60(30%)	9(69.23%)	0.0291
Apgar score <7 at 5 minute	8(4%)	1(25%)	14(7%)	3(23.07%)	0.02703
Mal-presentation	18(9%)	1(25%)	23(11.5%)	4(30.77%)	0.03945
Perinatal mortality	10(5%)	1(25%)	15(7.5%)	2(15.38%)	0.01242
Still birth	5(2.5%)	0	7(3.5%)	0	0.02014

DISCUSSION

Incidence of placenta previa was 4.25% in total study population while incidence of placenta previa 2% in group I and 6.5% in group II (p value =0.025), which was higher than Nielsen j.p., Edmonds D.K. et al⁸ (0.25% in previous vaginal delivery group, and 1.22% in previous LSCS group) Kavitha B. & Hota B.M⁷ (2.75% in scarred uterus which was much higher than 1.4% in unscarred uterus) ,Katke R.D.(incidence of placenta previa 1.33% and 0.47% was also h in previous caesarean section and no previous uterine scar group respectively)

Zamani¹⁰ reported an increased incidence with age and advancing parity supporting our observations. They also found increased risk for placenta previa even with previous single caesarean section.

In present study incidence of placenta previa in age group 20-25 year, 26-30 year and more than 30 year was 5.88%, 35.29%, and 58.82% respectively, indicating increasing rate of placenta previa with increasing maternal age. (p value-0.10557)

Similar results were reported by Hossain G.M., Islam S.M. et al¹¹ . Cieminski A. & dlugolecki F. ,meta-analysis by Faiz AS., Ananth CV. et al¹², Zaman BS., Zubair A et al and Zamani N.

The mechanism by which advanced maternal age impairs normal placental development is still not well understood. One of the possible explanations could be that percentage of sclerotic changes on intra myometrial arteries increase with increasing age, thereby reducing blood supply to placenta.

The present study shows increasing incidence of placenta previa with increase in caesarean section number in subsequent pregnancies in a linear relationship. Incidence of placenta previa increased from 4.73% in previous one caesarean section to 10.87% in previous two LSCS, and 16.66% in patients who underwent more than two previous caesarean sections. (P-value = 0.026).

Swetha B¹⁵ , the rate of placenta previa increased with increase in number of previous caesarean sections, percentage of placenta previa with 1 prior caesarean section was 2.63% and with 2 prior caesarean section was 16.6% .; Shaikat A ; Tuzovic L., Djelmis J. et al; Ananth CV; Surraya H¹⁴ , found increasing risk of placenta previa with increasing number of caesarean sections.

Abnormal vascularization of endometrium caused by uterine scar, atrophy from previous trauma & surgery prevented migration of

placenta during the course of pregnancy toward the more vascularized uterine fundus

Data in present study reveal that following caesarean section (group-II) placenta is generally located on anterior wall of uterus with 61.5% (127) incidence while placenta was found on posterior/other sites in 36.5% (73), while in previous normal vaginal delivery group (group-I) placenta was located on anterior uterine wall in 48% (96) and on posterior/other site in 52% (104) cases. (P-value = 0.01804)

Kavitha B. & Hota M.B⁷, incidence of anterior placenta was seen in 63.8% in group-A (scarred uterus) and 47.7% in group-B (unscarred uterus); a study Purvi M Parikh, Shailesh Makwana et al¹⁶ where 60.7% of scarred uterus group had anterior placenta previa compared to 36.3% in unscarred group, which supports the theory of abnormal vascularization.; That difference of placental location sites might be due to presence of scar on anterior wall of uterus following caesarean section.

The present study recorded 4.25% (17) cases of placenta previa among total of 400 cases. Thus it is evident from this table that the rate of complication, maternal morbidity and maternal mortality were all found to be significantly more in the previous LSCS group (group II) as compared to previous NVD group (group I). The rate of placenta previa was significantly greater in LSCS group (group II) as compared to NVD group (group I). Hence the higher rate of placenta previa seems to affect the high rate of complication and maternal morbidity & mortality in group (II).

Nielsen T.F. , Hagberg H. et al¹⁹ in 1989 ; Mathuriya G., Lokhande P. et al in 2013 ; Kavitha B., & Hota B.M⁷ in 2018; Chattopadhyay S.K., Kharif H. et al found that incidence of placenta previa and its associated complications is definitely more in scarred group when compared to unscarred group.

The rate of perinatal morbidity (prematurity, LBW, low Apgar score at 5 minute , Malpresentation) as well as perinatal mortality and Still birth were significantly high in group (II) where frequency of placenta previa was more 6.5%(13) as comparable to group (I) where frequency of placenta previa was less 2%(4).

Above data suggest significantly higher Perinatal morbidity and mortality in group (II) may be due to higher frequency of placenta previa in group (II) as a result of which caesarean section was required before term as well as in the presence of significant haemorrhage.

Thera T, Teguite P., et al¹⁷: Ikechebelu JI, & Onwusulu DN; Nayama M, Sako-Moussa Y., et al also found neonatal morbidity, mortality rate were high in the presence of placenta previa.

Abbreviations:-

APH – Anti Partum Hemorrhage
PPH – Post Partum Hemorrhage
LBW – Low Birth Weight
NICU – Neonatal Intensive Care Unit
PP – Placenta Previa

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