



Original Article

Association of Previous LSCS Pregnancies with Placenta Previa

Authors

Dr T. Anusha¹, Dr Jalaludheen.S², Dr T. Savitri³, Dr Tejaswi^{4*}, Dr Babu Chevuri⁵

^{1,2,5}Post Graduate, Department of Radiodiagnosis AMC, Vishakhapatnam, AP.

³Associate Professor, Department of Radiodiagnosis AMC Visakhapatnam AP

⁴Assistant Professor, Department of Radiodiagnosis AMC Visakhapatnam AP

*Corresponding Author

Dr Tejaswi

Assistant Professor, Department of Radiodiagnosis AMC Visakhapatnam AP

Abstract

Background: *Obstetrical haemorrhage continues to be an important cause of maternal mortality, accounting for 15-20% of maternal deaths. Placenta previa is an important cause of both antepartum haemorrhage and post partum haemorrhage.*

Objectives

1.To observe Incidence of placenta previa among LSCS To analyse risk factors associated with development of placenta previa among study population

Material and Methods: *Type of study: Prospective Observational study done among 100 Previous LSCS cases and observed occurrence of placenta previa during 3 months of period.*

All the patients with previous history of LSCS, within 18-32 weeks of gestation period were included, after observing scar, were further observed for placenta previa.

Results: *The incidence of Abnormal Placentation among total deliveries with previous history of Lower Segment caesarean Section during this period in our hospital was 17%. The risk of abnormal placentation is around 4 times higher among the cases of placenta previa cases than normal placentation. This difference was statistically significant.*

Discussion: *The incidence of placenta accreta is as high as 67% in patients with placenta praevia and multiple previous CS. This association of previous CS, placenta praevia and placenta accrete is becoming increasingly acknowledged and is causing concern since it carries a significant risk of caesarean hysterectomy with its incumbent morbidity and mortality.*

Conclusion: *Women with previous LSCS scar are at high risk for developing placenta praevia in subsequent pregnancy. The nature of placenta previa can be unpredictable and harsh on the mother and baby. So, Careful monitoring of high risk pregnancies is of utmost importance.*

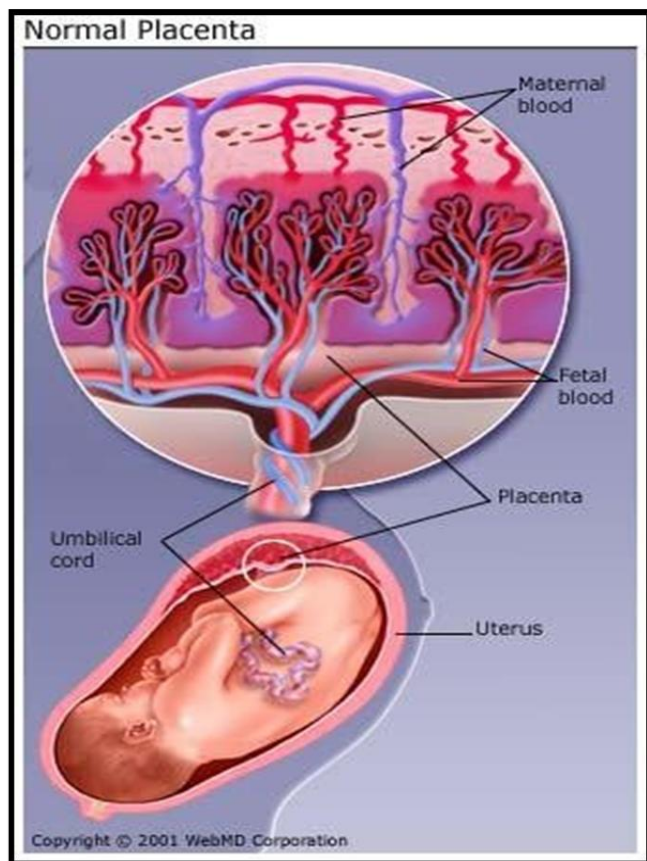
Introduction

The placenta is a highly specialized tissue that serves a number of crucial functions for survival of the foetus. It allows the foetus to receive oxygen and nutrition before it can breathe or

nourish itself. The placenta releases multiple hormones that initiate and maintain the essential changes of pregnancy in both the mother and the foetus. The placenta protects the baby from harmful chemicals; however it cannot filter out

alcohol, tobacco, and some drugs¹ thereby making the fetus vulnerable. At the same time, in the maternal uterus, the placenta helps bring about the myriad changes concerned with accommodating the fetus and successfully sustaining pregnancy.

The normal human placenta averages 22 cm (9 inch) in length and 2–2.5 cm (0.8–1 inch) in thickness, with the center being the thickest, and the edges being the thinnest. It typically weighs approximately 500 grams (1 lb). It has a dark reddish-blue or crimson color. It connects to the fetus by an umbilical cord of approximately 55–60 cm (22–24 inch) in length, which contains two umbilical arteries and one umbilical vein. The umbilical cord inserts into the chorionic plate (has an eccentric attachment). Vessels branch out over the surface of the placenta and further divide to form a network covered by a thin layer of cells. This results in the formation of villous tree-like structures. On the maternal side, these villous tree-like structures are grouped into lobules called cotyledons. In humans, the placenta usually has a disc shape



- Abnormalities in the placenta raise concerns not only for the healthy growth of the foetus but also the antenatal and perinatal health status of the mother. It has been observed that survival and growth of the fetus is affected by different aspects of the placental morphology, and its efficient functioning. Different factors affect the placental morphology and physiology. During pregnancy, complications like hypertension and gestational diabetes make changes in the placenta. A previous surgery makes the next pregnancy vulnerable to different complications due to the associated post-operative changes in the uterus. Careful examination of the placenta can give information which can be useful in the management of complications in the mother and the fetus.³ Hence sonography has a large role to play in the screening of the placenta to be able to preempt possible complications. Thereby the Radiologist can help the clinician to be better prepared to handle complications efficiently
- Placenta Previa is an obstetric complication that occurs in the second and third trimester of pregnancy. It may cause serious morbidity and mortality to the mother⁴⁻⁵ Obstetrical haemorrhage continues to be an important cause of maternal mortality, accounting for 15-20% of maternal deaths. Abnormal Trophoblastic invasion is an important cause of both antepartum and postpartum haemorrhage. Risk factors for Abnormal Trophoblastic invasion include those that increase the likelihood of uterine scar tissue (including, prior caesarean delivery or prior abortion & higher parity) or multiple gestations.⁶⁻⁸ Even though there are many predisposing factors for Abnormal Trophoblastic invasion, the association of Abnormal Trophoblastic invasion with previous LSCS is of particular importance in present day Obstetrics.⁹ The

abnormalities of trophoblastic invasion include

- 1) Placenta Accreta
- 2) Placenta Increta
- 3) Placenta Percreta.

It has been noted that Post LSCS pregnancies with Placenta Previa have relatively greater incidence of abnormal trophoblastic invasion. The incidence of Abnormal Trophoblastic invasion at term varies from 0.2% to 1.9%.¹⁰⁻¹¹

The risk of Abnormal Trophoblastic invasion in a pregnancy after a Caesarean section delivery has been reported to be between 1.5 and 6 times higher than after a normal vaginal delivery.¹²⁻¹³

Recent epidemiological studies have also found that the strongest risk factor for Abnormal Trophoblastic invasion is a previous LSCS where a failure of decidualisation in the area of a previous uterine scar can have an impact on both implantation and placentation.¹⁴

The absence of Decidua Basalis precludes to abnormal villous migration/adherence in this region. The incidence of LSCS has been rising in the past 3 decades. With the increased number of Caesarean sections, the number of pregnancies with previous LSCS rises as well.¹⁵

Trophotropism

*Proliferation of placenta in areas of better blood supply –corpus and fundus

*Atrophy and regression in areas of poor blood supply-lower segment

*Overtime placenta migrate by differential growth and atrophy

- According to NHS4, incidence of placenta previa at term varies from 0.2% to 1.9%. The risk of placenta previa in a pregnancy after a Caesarean section delivery has been reported to be between 1.5 and 6 times higher than after a vaginal delivery.
- Recent epidemiological studies have also found that the strongest risk factor for placenta previa is a previous LSCS suggesting that a failure of decidualisation in the area of a previous uterine scar can

have an impact on both implantation and placentation.

Aims and Objectives

- To observe Incidence of placenta previa among pregnancies with previous LSCS
- To follow up and analyse complications after development of placenta previa among study population

Materials and Methods

Sample Size

$$N = z^2 PQ / L^2$$

N= sample size

Z=1.96 at 95% CI

P (prevalence) = 62.8% (LSCS prevalence rate in Urban Andhra Pradesh according to NFHS 4)

Q=100-62.8=37.2% L=10% (Precision)

N= $3.84 \times 62.8 \times 37.2 / 10 \times 10$ N=89.2

Making it to near value sample size considered is **100**.

- Prospective Observational study done among 100 pregnancies with Previous LSCS and observed for presence of placenta previa and followed up accordingly until term by transabdominal and transvaginal scan using Samsung and Ge ultrasound machines of our department

Inclusion Criteria: All the patients with previous history of LSCS, with in 18-32 weeks of gestation period

Exclusion Criteria

- 1) Those who lost to follow up
- 2) Regressed previa

Statistical Analysis: Done by using SPSS version 25.

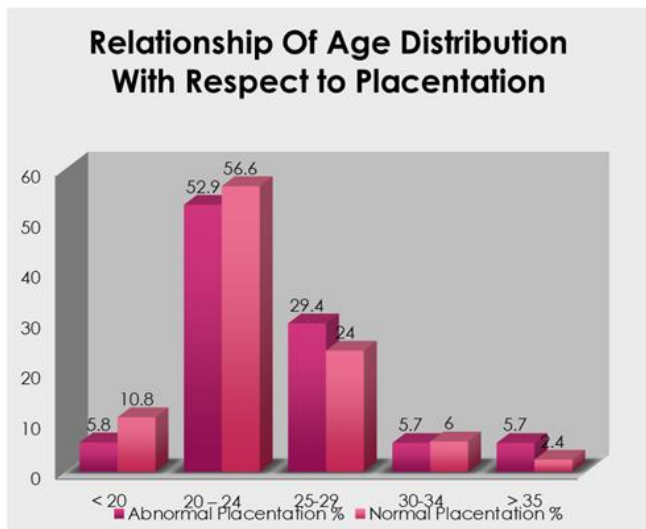
Parametric tests such as t-test categorical variables tested by chi square test.

P-value less than 0.05 considered to be statistically significant.

Results

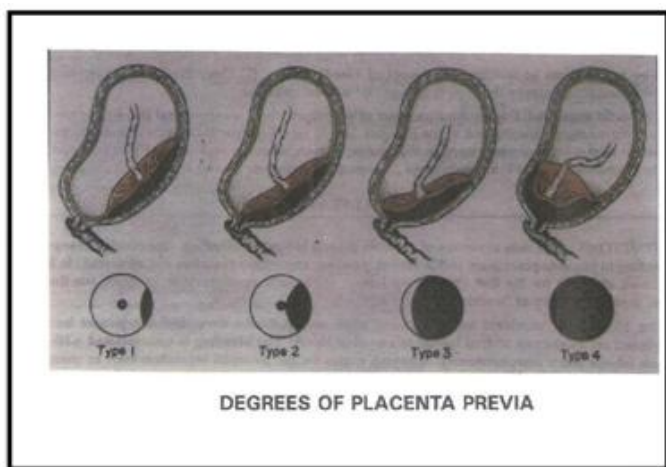
1. The **INCIDENCE** of Abnormal Placentation among total deliveries with previous history of Lower Segment caesarean Section was 17%.
2. Relationship of **AGE** Distribution With Respect to Placentation

- *low lying placenta; if distance is <2cm
- *marginal placenta previa: if it is present just immediately at the cervical os
- *partial previa:placenta partially covers the internal os
- *central /complete placenta previa: if placenta covers the entire internal os



Grade 1 and 2 considered minor and grade 3 and 4 considered major

- In our study we found 11 minor and 6 major placenta previa



Complications

Combination of placenta previa, prior lscs leads to significant synergistic effect on development of placenta accreta

This is because, due to defect in the normal decidua basal is due to prior lscs scar leads to abnormal adherence or in growth of chorionic villi into the uterine wall

On ultrasound placenta accreta appears as loss of normal retroplacental hypoechoic space

- In our study we found 1 placenta increta

Spectrum of Placental Position

Normal placenta: distance of the caudal tip of placenta from the cervical os is more than 2cm

The Distribution of Patients based on Abnormal Placentation Radiologically and Intra- Operatively

PLACENTATION	RADIOLOGICALLY number	DIAGNOSED percentage	INTRAOPERATIVELY Number	DIAGNOSED percentage
1.normal placentation	83	83	83	83
2.placenta previa without adherent placenta	12	12	10	10
3.placenta accreta	4	4	4	4
4.placenta increta	1	1	1	1
5.placenta percreta	0	0	0	0

Malpresentations

Malpresentations observed among who had abnormal placentation compared with normal placentation this was statistically significant

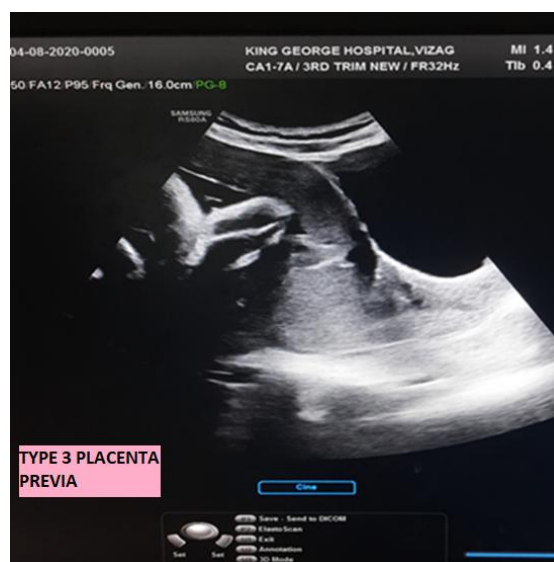
Malpresentation	Abnormal placenta		Normal placenta		Chi square test	p value
yes	2	66.6%	3	33.3%		
no	15	15.7%	80	84.2%		
total	17	17	83	83	9.46	0.042

Placenta Previa and Previous LSCS

No. of Previous LSCS	Abnormal placental placentation		Normal placentation		Chisquare test	P value
1	3	5.2%	54	94.7%		
2	10	32.5%	21	67.77%		
3	4	33.3%	8	66.6%		
total	17	17%	83	83%	12.55	0.0015

- As the number of Previous LSCS increases abnormal placentation chance increasing this was statistically significant.

Spectrum of Placenta Previa



Discussion

- Incidence of placenta praevia was 17% which is much higher than that in a study of Clark and colleagues which showed 0.67% and Z Parvin et al 10%.

- The median age of the abnormal placenta was 20-24 years. It is dissimilar with Z Parvin et al study where they found 25-29 years median age as common presenting age
- There was an increase in risk of placenta praevia with increasing number of caesarean section that is 3.5% with previous I, 22.5% with previous II, 28% with previous III, and 50% with previous IV c-sections . Usta et al and Ghourab S et al study is very much similar to present study

Conclusion

- Women with previous LSCS scar are at high risk for developing placenta praevia in subsequent pregnancy.
- The nature of placenta previa can be unpredictable and harsh on the mother and baby.
- Careful monitoring of high risk pregnancies is of utmost importance.

Source of Support and Conflicts: Nil

Ethical Clearance: Taken From Ethics Committee

Abbreviations Used

LSCS: Lower Segment Caesarian Section

TAS: Trans Abdominal Sonography

TVS: Transvaginal Sonography

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