International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Kandregula MS et al. Int J Reprod Contracept Obstet Gynecol. 2024 Sep;13(9):2483-2486
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20242503

Short Communication

Uterine scar dehiscence in previous caesarean section and their foetomaternal outcome at a tertiary care centre

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Received: 10 July 2024
Accepted: 08 August 2024

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ABSTRACT

The escalating rates of caesarean sections (CS) globally have intensified concerns regarding associated complications; including uterine scar dehiscence (USD) i.e., characterized by incomplete separation of the uterine scar from a prior CS, poses significant risks to maternal and foetal health. This retrospective study aimed to identify risk factors contributing to USD and assess its impact on foeto-maternal outcomes. A retrospective study was conducted on pregnant women diagnosed with USD who underwent repeat CS with a prior lower segment caesarean section (LSCS) at a tertiary obstetrics and gynaecology department from March 2022 to March 2024. Maternal demographic and clinical characteristics were scrutinized, with emergency LSCS performed on 83.33% of women, highlighting the urgency associated with USD. Notably, maternal age, shorter inter-pregnancy intervals (<18 months) and a history of multiple LSCS (68.3%) emerged as significant risk factors for USD. Additionally, certain maternal co-morbidities, including hypertensive disorders (11.6%), foetal growth restriction (11.6%), and previous preterm birth (16.6%), showed causal associations with USD. Foeto-maternal outcomes were adversely affected, with notable occurrences of preterm birth, low birth weight, and neonatal distress, necessitating NICU admission. This study contributes valuable insights into the complex interplay between maternal characteristics, clinical factors, and adverse outcomes associated with USD in women with prior CS. The findings emphasize the need of targeted interventions, including risk assessment, careful monitoring, and timely interventions, to mitigate the risks associated with USD and improve foeto-maternal outcomes.

Keywords: Cesarean section, Uterine scar dehiscence, Foeto-maternal outcomes, Risk factors, Maternal demographics

INTRODUCTION

Caesarean section (CS) rates have been steadily rising globally, with an increasing number of women undergoing this surgical procedure for childbirth. While CS can be a life-saving intervention in certain circumstances, it also carries inherent risks, including complications related to uterine incisions. Uterine scar dehiscence, characterized by the incomplete separation of the uterine scar from a previous CS, represents one such complication that can have significant implications for maternal and foetal health.

Uterine scar dehiscence (USD) poses a challenge to obstetricians due to its potential to lead to severe maternal morbidity and adverse foetal outcomes. Although relatively rare, with reported incidence rates ranging from 0.2% to 3.4%, the consequences of USD can be grave, necessitating timely detection and management to prevent further complications.[1-4]

This study aimed to determine the risk factors contributing to uterine scar dehiscence and evaluate its impact on foeto-maternal outcomes. Through this endeavour, we aimed to enhance our understanding of USD, inform clinical practice guidelines, and improve patient care by

identifying high-risk individuals and implementing timely interventions to mitigate associated risks.

METHODS

A retrospective study was conducted in a tertiary Obstetrics and Gynecology Department after obtaining internal Ethical Committee approval on 11 June 2024. It included all pregnant women diagnosed with USD having undergone repeat CS with previous LSCS from March 2022 to March 2024; following purposive sampling. Patients who had undergone classical CS, patients with placenta previa, with pre- or intraoperative uterine rupture, and patients with incomplete data were excluded. Operative data was collected from OT register and parturition book using a structured questionnaire consisting general details, co-morbidities, current pregnancy details or complications, risk factors and foeto-maternal outcomes. All the categorical study variables were summarized as frequency (%) and causal associations were tested by Chi square test. A p value of <0.01 was considered to be statistically significant.

RESULTS

In the study period, the maternal demographic and clinical characteristics of 60 women with USD were analysed. Emergency LSCS was performed on 50 women 83.3% with remaining elective. All were multi-gravida with 60% having >3 pregnancies and only 15% were booked cases that attended at least 3 antenatal checkups and one tetanus vaccine. Analysis revealed potential causal associations between certain factors and the occurrence of uterine scar dehiscence. Individuals with maternal age 21-30 years (65%) were more susceptible to USD. Shorter inter-pregnancy intervals (IPI) increased the risk of USD with majority of participants (65%) having IPI of less than 18 months. Furthermore, the number of previous LSCS appeared to influence the occurrence of uterine scar dehiscence, with a higher proportion of participants (68.30%) having undergone two LSCS compared to those with a history of one LSCS (31.60%). A uterine scar thickness of 2.1-2.5 mm was found be predictive of USD.

Table 1: Association between risk factors and USD.

Risk factors		No. of patients	Percentage (%)
Maternal age (in years)	<20	3	5.00
	21-25	27	45.00
	26-30	12	20.00
	>31	18	30.00
Inter-pregnancy interval (in months)	<18	39	65.00
	18-24	17	28.33
	>24	4	6.66
No. of previous LSCS	1 LSCS	19	31.60
	2 LSCS	41	68.30
Maternal co-morbidities	Hypothyroidism	5	8.30
	Gestational diabetes mellitus	3	5.00
	Hypertensive disorders	7	11.60
	Epilepsy	1	1.60
	Anemia	3	5.00
	Obesity	5	8.30
	Foetal growth restriction	7	11.60
	Previous preterm birth	10	16.60
Scar thickness (mm)	<2	22	30.00
	2.1-2.5	20	36.60
	2.6-3.0	8	16.60
	3.1-3.5	4	6.66
	>3.5	6	10.00

Table 2: Foeto-maternal outcomes associated with USD.

Foeto-maternal outcomes		No. of patients	Percentage (%)
NICU admission		10	16.60
Preterm birth (<37 weeks)		15	25.00
APGAR<7 AT 5 min		10	16.60
Low birth weight (<2.5 kg)		20	33.30
Gestation period (in weeks)	<37	15	25.00

Continued.

Foeto-maternal outcomes		No. of patients	Percentage (%)
	37-40	45	75.00
Maternal Tachycardia	Yes	52	86.66
	No	8	13.33

Maternal co-morbidities also demonstrated potential causal associations with uterine scar dehiscence. Hypertensive disorders, foetal growth restriction, and previous preterm birth were among the most prevalent co-morbidities reported in the study population, showing a causal relationship with USD.

Significant associations were found between USD and foeto-maternal outcomes such as preterm birth (25%), Low birth weight (33.3%), neonates with APGAR <7 at 5 minutes and needing NICU admission (l6.6% each), prolonged gestation period of 37-40 weeks (75%) and maternal tachycardia (86.66%). No blood transfusions, caesarean hysterectomies, or ICU admissions were observed among women.

DISCUSSION

The rising prevalence of CS globally has led to increased scrutiny of associated complications, with USD being one such concern. This study aimed to investigate the risk factors contributing to USD and assess its impact on foeto-maternal outcomes. The findings shed light on the complex interplay between maternal demographics, clinical factors, and adverse outcomes associated with USD.

Maternal age emerged as a significant determinant of USD in this study, with individuals aged 21-30 years exhibiting a higher susceptibility. This finding aligns with previous research indicating a higher incidence of USD in women of reproductive age, possibly due to increased uterine contractility and vascular changes during this period.[1,5] Association of shorter IPI of less than 18 months with elevated risk of USD underscores the importance of adequate spacing between pregnancies to allow for uterine healing and reduce the risk of complications such as USD.[4] Furthermore, the correlation between USD and a higher number of previous LSCS highlights the cumulative effect of multiple caesarean deliveries on uterine integrity and the increased risk of USD with each subsequent surgery.[3]

Maternal co-morbidities also demonstrated significant associations with USD, with hypertensive disorders, foetal growth restriction, and previous preterm birth being among the most prevalent. These findings underscore the multifactorial nature of USD and the need for comprehensive risk assessment and management strategies in high-risk populations.[6,7]

Importantly, this study elucidated the foeto-maternal outcomes associated with USD, revealing significant implications for both maternal and neonatal health. Preterm birth, low birth weight, neonatal distress requiring NICU admission, and maternal tachycardia were among the adverse outcomes observed in this study population. These findings emphasize the importance of early detection and intervention to mitigate the adverse effects of USD on foeto-maternal health outcomes.[8,9]

CONCLUSION

In conclusion, this study provides valuable insights into the risk factors and adverse outcomes associated with USD in women with a history of previous CS. The findings underscore the importance of targeted interventions, including optimizing maternal health, spacing pregnancies, and careful monitoring of high-risk individuals, to mitigate the risks associated with USD and improve foeto-maternal outcomes.

ACKNOWLEDGEMENTS

We thank R. L. Jalapa Hospitals for allowing study conduct. We would also like to thank Sai Sreeharshita Malla for providing research assistance.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Kandregula MS, Munisamaih M. Uterine scar dehiscence in previous caesarean section and their foetomaternal outcome at a tertiary care centre. Int J Reprod Contracept Obstet Gynecol 2024;13:2483-6.