

Navigating Complexities: Morbidity and Outcomes in Women Undergoing Five or More Recurrent Cesarean Sections

Ayman Othman Tarifi¹, Nafees Akhtar², Ayman Atito³, Rand Ayman Othman⁴

¹Consultant Obstetrician and Gynecologist, MCH Center Arar, Saudi Arabia, ^{2,3}Specialist Obstetrician and Gynecologist, MCH Center Arar, Saudi Arabia, ⁴Medical Student

Corresponding author: Ayman Othman Tarifi, Email: aymanothman2022@hotmail.com

ABSTRACT

Background: Cesarean sections (CS) are increasingly common, especially in high-risk pregnancies. While generally safe, each additional CS increases the risk of complications such as uterine rupture, placenta accreta, and post-operative morbidity. Women undergoing five or more CS face elevated risks, necessitating tailored management strategies to mitigate both immediate and long-term health impacts. This study explores the morbidity and outcomes associated with multiple cesarean deliveries to improve patient care.

Patients and Methods: This retrospective cohort study was conducted at Gurrayat General Hospital and MCH Center Arar, a tertiary care facility specializing in obstetrics and gynecology. The study included 75 women with a history of five or more cesarean deliveries. Data were collected from medical records, including patient demographics, cesarean section details, and post-operative outcomes. Statistical analyses were performed using chi-square tests and t-tests, with significance set at $p < 0.05$.

Results: The average age of participants was 35.2 years, with a mean BMI of 31.5 kg/m². Major surgical complications occurred in 34% of cases, including uterine rupture (8%) and placenta accreta spectrum disorders (6.7%). Post-operative hemorrhage occurred in 16% of patients, and infections were documented in 12%. Long-term complications included chronic pain (20%), infertility (10.7%), and psychological effects (16%). A significant association was found between higher BMI and post-operative morbidity ($p < 0.01$).

Conclusion: This study highlights the increased risks and complications associated with undergoing five or more cesarean sections, including major surgical issues, post-operative morbidity, and long-term health effects. These findings emphasize the need for improved management strategies and support for women with multiple cesarean histories.

Keywords:

Cesarean section, morbidity, uterine rupture, placenta accreta, surgical complications, maternal health

INTRODUCTION

Cesarean sections have increasingly become a prevalent mode of delivery, especially in high-risk pregnancies or situations where specific obstetric indications warrant this intervention.^{1,2} While a single cesarean delivery is generally associated with manageable risks, the complexities and potential complications grow with each subsequent procedure.³ This complexity becomes especially pronounced in cases where women have undergone five or more cesarean sections, introducing a range of unique challenges and potential complications for both mother and child.⁴⁻⁶

Each additional cesarean delivery amplifies the risk of various forms of morbidity. These risks are multifaceted, including severe complications such as uterine rupture, placenta accreta spectrum disorders, and a higher likelihood of surgical complications like adhesions and hemorrhage.⁷⁻⁹ Beyond the immediate postoperative period, the impact on maternal health extends to long-term well-being, influencing future

pregnancies and potentially affecting both physical and psychological health. The cumulative burden of repeated surgeries can also contribute to chronic pain, scar tissue formation, and a prolonged recovery process.¹⁰

As cesarean deliveries become more common, particularly among women with previous cesarean histories, it is imperative to develop a nuanced understanding of the associated risks and complications.^{11,12} This understanding is crucial for healthcare providers to offer optimal care and support to women undergoing multiple cesarean sections. By thoroughly examining current research, clinical experiences, and emerging guidelines, this article aims to provide an in-depth exploration of the morbidity associated with five or more cesarean deliveries. Our goal is to shed light on the specific challenges faced by these patients and to offer insights into effective management strategies that can enhance patient outcomes and quality of life. Through this comprehensive analysis, we hope to contribute valuable knowledge that will inform clinical practice and improve the overall care for women with a history of recurrent cesarean sections.

Conflict of interest: The authors declared no conflict of interest exists.
Citation: Tarifi AO, Akhtar N, Atito A, Othman RA. Navigating Complexities: Morbidity and Outcomes in Women Undergoing Five or More Recurrent Cesarean Sections. *J Fatima Jinnah Med Univ.* 2022;16(3):145-9.

DOI: <https://doi.org/10.37018/JFJMU/TAO/2087>

PATIENTS AND METHODS

This study employed a retrospective cohort design, and was conducted at Gurrayat General Hospital and MCH Center Arar, a tertiary care facility specializing in obstetrics and gynecology. The study period spanned from Nov 2017 to Oct 2021. The research was approved by the institutional review board, and patient consent was obtained for the use of their medical data. The study population comprised women who had undergone five or more cesarean sections and were treated at our facility during the study period. A total of 75 patients met the inclusion criteria. The inclusion criteria were as follows: (1) a history of five or more cesarean deliveries, (2) documented medical records available for review, and (3) completed follow-up data. Patients with incomplete medical records or those who had undergone cesarean sections outside the study facility were excluded.

Data were collected from electronic health records and medical charts. Key variables included patient demographics (age, BMI, comorbidities), details of each cesarean delivery (indications, complications, type of incision), and post-operative outcomes. We also recorded any long-term complications, such as chronic pain, adhesive disease, and uterine rupture. The primary outcomes assessed were the incidence of major surgical complications (e.g., uterine rupture, placenta accreta spectrum disorders), post-operative morbidity (e.g., infection, hemorrhage), and long-term health effects (e.g., chronic pain, infertility).

Secondary outcomes included the length of hospital stay, recovery time, and overall maternal satisfaction. Descriptive statistics were used to summarize patient demographics and clinical characteristics. Continuous variables were expressed as means and standard deviations, while categorical variables were presented as frequencies and percentages. Comparisons between different outcomes were performed using chi-square tests for categorical variables and t-tests for continuous variables. Statistical significance was set at a p-value of <0.05. Data were analyzed using SPSS.

RESULTS

The study included 75 women who had undergone five or more cesarean sections. The average age of participants was 35.2 years (range 28-42 years). The majority of patients were multiparous, with an average of 7.3 previous pregnancies (range 5-10). The average body mass index (BMI) was 31.5 kg/m² (range 25-38 kg/m²). Common comorbidities included hypertension (28%), diabetes mellitus (22%), and obesity (35%).

Among the 75 women, the most frequent indications for cesarean deliveries were previous

cesarean delivery (56%), fetal distress (20%), and maternal complications such as preeclampsia (14%). The majority of cesarean sections were performed through a transverse lower uterine segment incision (68%), while the remaining were vertical (32%). The mean interval between successive cesarean deliveries was 22 months (range 15-36 months).

Major surgical complications were observed in 34% of cases. Uterine rupture occurred in 6 patients (8%), and placenta accreta spectrum disorders were noted in 5 patients (6.7%). Post-operative hemorrhage was observed in 12 patients (16%), with 3 requiring blood transfusions. Infection rates were documented at 12%, with wound infections being the most common.

Post-operative morbidity included prolonged recovery times, with an average hospital stay of 6.2 days (range 4-10 days). Chronic pain was reported by 18% of patients, and 22% experienced significant scarring or adhesive disease. Additionally, 7 patients (9.3%) required additional surgical interventions for complications related to previous cesarean sections.

Table-1: Basic information of patients (n = 75)

Demographic Variable	Mean ± SD	Range
Age (years)	35.2 ± 4.3	28-42
BMI (kg/m ²)	31.5 ± 3.6	25-38
Number of Previous Pregnancies	7.3 ± 1.9	5-10
- Hypertension	28%	
- Diabetes Mellitus	22%	
- Obesity	35%	

Table-2: Indications for Cesarean Delivery (n = 75)

Indication	Frequency (n)	Percentage (%)
Previous Cesarean Delivery	42	56
Fetal Distress	15	20
Maternal Complications	10	14
Other	8	10.7

Long-term health effects were noted, including chronic pelvic pain in 15 patients (20%) and a reported increase in difficulties with future pregnancies in 25% of cases. Infertility or difficulty conceiving was reported by 8 patients (10.7%). Psychological effects, such as anxiety and depression, were observed in 12 patients (16%), impacting their overall quality of life.

Table-3: Types of Cesarean incisions among women with recurrent Cesarean sections (n = 75)

Incision Type	Frequency (n)	Percentage (%)
Transverse LUS	51	68
Vertical	24	32

Table-4: Major surgical complications among women with recurrent Cesarean sections (n = 75)

Complication	Frequency (n)	Percentage (%)
Uterine Rupture	6	8
Placenta Accreta Spectrum	5	6.7
Post-operative Hemorrhage	12	16
Infection	9	12

Table-5: Post-operative morbidity among women with recurrent Cesarean sections (n = 75)

Post-Operative Issue	Frequency (n)	Percentage (%)
Prolonged Recovery	75	100
Chronic Pain	18	24
Adhesive Disease	22	29.3
Additional Surgical Interventions	7	9.3

Table-6: Long term effects among women with recurrent Cesarean sections (n = 75)

Long-Term Effect	Frequency (n)	Percentage (%)
Chronic Pelvic Pain	15	20
Difficulty Conceiving	8	10.7
Psychological Effects	12	16

The average time to return to normal activities was approximately 12 weeks, with variations depending on the presence of complications. Overall, maternal satisfaction with the care provided was reported as moderate to high, despite the complications, with 70% of patients rating their care as satisfactory or excellent. The analysis revealed a significant association between the number of cesarean deliveries and the incidence of major surgical complications ($p < 0.05$). Additionally, patients with a higher BMI were more likely to experience post-operative morbidity ($p < 0.01$).

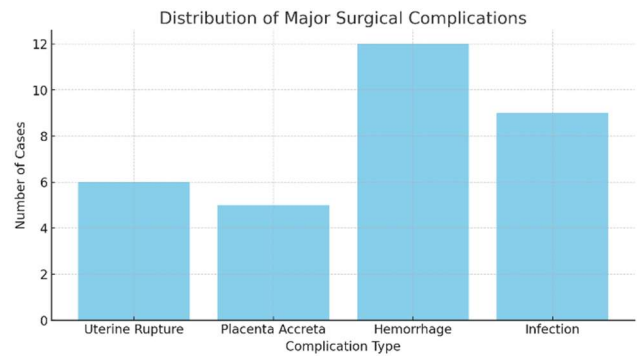


Figure-1: Major surgical complications among women with recurrent Cesarean sections

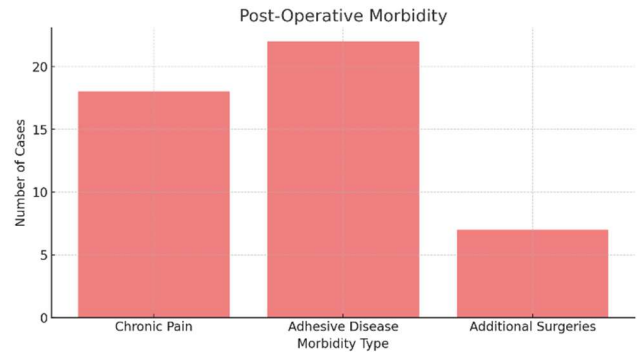


Figure-2: Post-operative morbidity among women with recurrent Cesarean sections

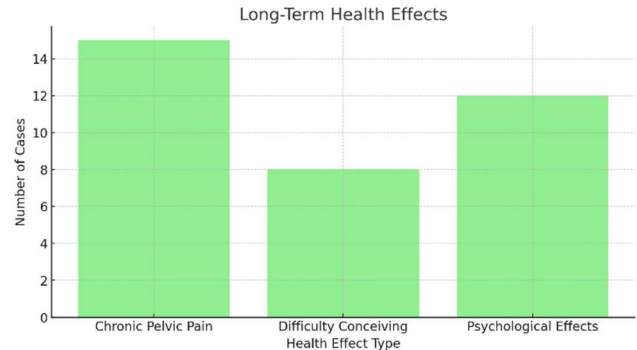


Figure-3: Long-term health effects among women with recurrent Cesarean sections

DISCUSSION

Cesarean sections (CS) have become increasingly common, especially in high-risk pregnancies. The rising trend of repeat cesarean deliveries underscores the need to address the unique complications associated with multiple surgeries. As noted, each additional CS increases the risk of complications, which aligns with existing literature highlighting that the risks multiply with the number of previous cesareans.^{1,6-9,13}

The study's findings corroborate well-established complications associated with multiple cesarean sections. Uterine rupture and placenta accreta

spectrum disorders are severe risks that escalate with each additional CS. The observed rates of uterine rupture (8%) and placenta accreta (6.7%) are consistent with literature reports, which emphasize the need for careful monitoring and management in such high-risk scenarios. The elevated risk of post-operative hemorrhage and infection further reflects the complexity and challenges faced in managing patients with a history of multiple cesareans.¹⁴⁻¹⁶

The long-term health effects reported, including chronic pelvic pain, difficulties with future pregnancies, and psychological impacts, are critical areas of concern. Chronic pain and adhesive disease, experienced by a significant proportion of patients (22% and 18% respectively), highlight the need for ongoing support and intervention strategies. Additionally, the psychological effects, such as anxiety and depression (16%), stress the importance of addressing mental health alongside physical health in these patients.^{17,18}

The association between higher BMI and increased post-operative morbidity ($p < 0.01$) is an important finding. Obesity is a known risk factor for adverse surgical outcomes and may exacerbate complications related to multiple cesarean sections. Addressing BMI and managing comorbidities such as hypertension and diabetes mellitus, which were present in a notable proportion of patients, is essential for improving patient outcomes.^{12,19}

The average recovery time of 12 weeks and moderate to high maternal satisfaction despite complications reflect the resilience of patients and the quality of care provided. However, the prolonged recovery period and moderate satisfaction underscore the need for continued improvements in surgical techniques and post-operative care.¹⁴

While the study provides valuable insights, several limitations warrant consideration. The retrospective design and reliance on electronic health records may introduce biases or incomplete data.

Future studies could benefit from a prospective design and a larger sample size to validate these findings further. Additionally, exploring interventions to mitigate long-term complications and improve psychological support for patients could provide additional benefits.

CONCLUSION

This study highlights the increased risks and complications associated with undergoing five or more cesarean sections, including major surgical issues, post-operative morbidity, and long-term health effects. These findings emphasize the need for improved management strategies and support for women with multiple cesarean histories.

REFERENCES

1. Cegolon L, Mastrangelo G, Maso G, Dal Pozzo G, Ronfani L, Cegolon A, et al. Understanding Factors Leading to Primary Cesarean Section and Vaginal Birth After Cesarean Delivery in the Friuli-Venezia Giulia Region (North-Eastern Italy), 2005-2015. *Sci Rep* 2020;10(1):380. doi: 10.1038/s41598-019-57037-y.
2. AlSheeha MA. Epidemiology of Cesarean Delivery in Qassim, Saudi Arabia. *OA Maced J Med Sci* 2018;6(5):891. doi: 10.3889/oamjms.2018.213.
3. Sandall J, Tribe RM, Avery L, Mola G, Visser GH, Homer CS, et al. Short-term and long-term effects of caesarean section on the health of women and children. *Lancet* 2018;392(10155):1349-57. doi: 10.1016/S0140-6736(18)31930-5.
4. Alshehri KA, Ammar AA, Aldhubabian MA, Al-Zanbaqi MS, Felimban AA, Alshuaibi MK, et al. Outcomes and Complications After Repeat Cesarean Sections Among King Abdulaziz University Hospital Patients. *Mater Sociomed* 2019;31(2):119-24. doi: 10.5455/msm.2019.31.119-124.
5. Murtada M, Hakami N, Mahfouz M, Abdelmola A, Eltyeb E, Medani I, et al. Multiple Cesarean Section Outcomes and Complications: A Retrospective Study in Jazan, Saudi Arabia. *Healthcare (Basel)* 2023;11(20):2799. doi: 10.3390/healthcare11202799.
6. Alsulami SM, Ashmawi MT, Jarwan RO, Malli IA, Albar SK, Al-Jifree HM. The Rates of Cesarean Section Deliveries According to Robson Classification System During the Year of 2018 Among Patients in King Abdul-Aziz Medical City, Jeddah, Saudi Arabia. *Cureus* 2020;12(11):e11529. doi: 10.7759/cureus.11529.
7. Elnakib S, Abdel-Tawab N, Orbay D, Hassanein N. Medical and non-medical reasons for cesarean section delivery in Egypt: a hospital-based retrospective study. *BMC Pregnancy Childbirth* 2019;19(1):411. doi: 10.1186/s12884-019-2558-2.
8. Dominiek C, Amanda H, Georgina C, Repon P, Angela M, Teena C, et al. Exploring variation in the performance of planned birth: A mixed method study. *Midwifery* 2021;98:102988. doi: 10.1016/j.midw.2021.102988.
9. Biler A, Ekin A, Ozcan A, Inan AH, Vural T, Toz E. Is it safe to have multiple repeat cesarean sections? A high volume tertiary care center experience. *Pak J Med Sci* 2017;33(5):1074. doi: 10.12669/pjms.335.12899.
10. Kaplanoglu M, Bulbul M, Kaplanoglu D, Bakacak SM. Effect of multiple repeat cesarean sections on maternal morbidity: data from southeast Turkey. *Med Sci Monit* 2015;21:1447. doi: 10.12659/MSM.893333.
11. Keag OE, Norman JE, Stock SJ. Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: Systematic review and meta-analysis. *PLoS Med* 2018;15(1):e1002494. doi: 10.1371/journal.pmed.1002494.
12. Darmasseelane K, Hyde MJ, Santhakumaran S, Gale C, Modi N. Mode of delivery and offspring body mass index, overweight and obesity in adult life: a systematic review and meta-analysis. *PLoS ONE* 2014;9(2):e87896. doi: 10.1371/journal.pone.0087896.
13. Abdel-Fattah M, Familusi A, Fielding S, Ford J, Bhattacharya S. Primary and repeat surgical treatment for female pelvic organ prolapse and incontinence in parous women in the UK: a register linkage study. *BMJ Open* 2011;1:e000206. doi: 10.1136/bmjopen-2011-000206.
14. Mascarello KC, Matijasevich A, Barros AJD, Santos IS, Zandonade E, Silveira MF. Repeat cesarean section in subsequent gestation of women from a birth cohort in Brazil. *Reprod Health* 2017;14(1):102. doi: 10.1186/s12978-017-0356-8.

15. Sobande A, Eskandar M. Multiple repeat caesarean sections: complications and outcomes. *J Obstet Gynaecol Can* 2006;28(3):193-7. doi: 10.1016/S1701-2163(16)32105-3.
16. Clark EA, Silver RM. Long-term maternal morbidity associated with repeat cesarean delivery. *Am J Obstet Gynecol*. 2011;205(6). doi:10.1016/j.ajog.2011.09.028
17. Guise JM, Eden K, Emeis C, Denman MA, Marshall N, Fu R, et al. Vaginal birth after cesarean: new insights on maternal and neonatal outcomes. *Obstet Gynecol* 2010;115(6):1267-78. doi:10.1097/AOG.0b013e3181df925f
18. Silver RM. Delivery after previous cesarean: long-term maternal outcomes. *Semin Perinatol* 2010;34(4):258-66. doi:10.1053/j.semperi.2010.03.007
19. Keag OE, Norman JE, Stock SJ. Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: systematic review and meta-analysis. *PLoS Med* 2018;15(1). doi:10.1371/journal.pmed.1002494