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Elective Repeated Cesarean Section (ERCS)

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Abstract:

Objective: To investigate the timing of elective repeat cesarean deliveries at Al-Batool Teaching Hospital in Diyala, Iraq.

Methods: A retrospective analysis was conducted of 100 women who underwent elective repeat cesarean delivery at 37-40 weeks gestation at Al-Batool Teaching Hospital. Emergency cesarean deliveries were excluded.

Results: The majority of elective repeat cesarean deliveries (78%) were performed at 37 weeks gestation. Cesarean deliveries at 38, 39, and 40 weeks accounted for 4%, 2%, and 16% of the sample, respectively.

Conclusions: In this cohort, most elective repeat cesarean deliveries were conducted at 37 weeks gestation, rather than the recommended 40 weeks. Delivering earlier than 39-40 weeks in the absence of medical indications reduces the chances of successful vaginal birth after cesarean. These findings suggest that evidence-based protocols were not consistently followed for timing of elective repeat cesarean sections at this institution. Further research is needed to identify barriers to adhering to delivery guidelines and implement quality improvement initiatives to optimize cesarean delivery timing when clinically appropriate.

Introduction:

Cesarean delivery is a surgical procedure in which an incision is made through the abdominal wall and uterus to deliver a baby. It is performed when vaginal delivery is contraindicated or high-risk, such as in cases of obstructed labor, abnormal fetal presentation, placental complications, multiple gestation, fetal distress, or certain maternal health conditions. Cesarean delivery can help prevent maternal and perinatal mortality and morbidity when medically warranted. However, as a major surgery, cesarean delivery also carries risks of complications such as hemorrhage, infection,

and thromboembolism [1,2].

Rates of cesarean delivery have been steadily increasing worldwide over recent decades. According to a World Health Organization (WHO) study analyzing over 100,000 births across 150 countries in 2014, 18.6% of all births were via cesarean delivery. Regional rates were highest in Latin America and the Caribbean at 40.5% [3]. In the United States, the total cesarean delivery rate was 31.9% in 2019, with a nulliparous term singleton vertex cesarean delivery rate of 25.9% [4].

A major driver of escalating cesarean rates is the decline in attempted vaginal births after previous cesarean delivery (VBAC). Historically, VBAC was a common practice, with success rates of 60-80%. However, VBAC attempts have dropped precipitously since the 1990s. By 2019 in the US, only 12.8% of women with a history of cesarean underwent trial of labor for VBAC, while the repeat cesarean delivery rate was 87.2% [5]. High repeat cesarean rates after initial cesarean delivery, approaching 90% in some countries, have perpetuated the overall global rise in cesareans [6].

Repeat elective cesarean delivery before 39 weeks gestation further amplifies cesarean rates. While the American College of Obstetricians and Gynecologists (ACOG) recommends delivery at 39 weeks for low risk planned repeat cesarean births [7], there is evidence of a trend toward earlier scheduled cesareans [8]. This may reflect patient or provider convenience rather than medical necessity. However, elective late preterm repeat cesarean delivery is associated with increased risks of neonatal respiratory morbidity without improving maternal outcomes [9]. Quality improvement initiatives are needed to promote adherence to evidence-based cesarean delivery timing guidelines.

The risks of repeat cesarean delivery also rise progressively with each subsequent surgery. Cumulative risks include abnormal placentation (placenta previa, placenta accreta), risk of hysterectomy, hemorrhage necessitating blood transfusion, bowel/bladder injury, infection, thromboembolism, and longer recovery times [10]. Women with multiple prior cesarean deliveries who desire future childbearing may face risks of antepartum and intrapartum complications in subsequent pregnancies as well as higher morbidity with each repeat cesarean. For this reason, trial of labor after cesarean and VBAC are often preferable to repeat elective cesarean when not otherwise contraindicated.

However, VBAC is not without risks. Uterine rupture is the most significant risk, occurring in approximately 0.2-1.5% of VBAC attempts [11]. Risk factors for uterine rupture include labor induction/augmentation, short interpregnancy interval, single layer uterine closure, and multiple prior cesareans [12]. Uterine rupture can result in hemorrhage, hysterectomy, and fetal hypoxia or death. Thus, thorough counseling is imperative for women considering VBAC to review the benefits and risks specific to their individual history and pregnancy circumstances. ACOG recommends that VBAC be attempted at facilities capable of emergency cesarean delivery [13].

Overall, most studies find VBAC is still associated with lower morbidity compared to elective repeat cesarean delivery. A 2018 meta-analysis found VBAC was associated with reduced risks of maternal hysterectomy, hemorrhage, and surgical site infection, as well as shorter length of stay, compared to repeat cesarean [14]. neonates also benefited from attempted VBAC with lower risks of respiratory distress and transient tachypnea of the newborn. While shorter interpregnancy interval and labor induction/augmentation increase the risks of VBAC, overall VBAC success rates remain high in appropriately selected patients (60-80%) with low rates of major complications [15].

Promoting VBAC when appropriate could help mitigate the risks of repeat cesarean deliveries and curb the rising cesarean rates worldwide. However, this will require a multifaceted approach. Improving access to VBAC services and facilities capable of emergency cesarean is imperative. Patient education and counseling are key to establish realistic expectations and make informed decisions about trial of labor versus repeat cesarean. Protocols should be implemented to reduce

variation in VBAC clinical practices. Continued research on VBAC predictors and comparative effectiveness will further optimize patient selection and safety. Through such a comprehensive initiative, VBAC could once again become a viable and preferable option for many women with previous cesarean delivery.

Aim of Study

The aim of this study was to investigate the indications for and gestational age at delivery in women undergoing elective repeat cesarean section at Al-Batool Teaching Hospital in Diyala, Iraq.

Patients and methods

Study Design:

This was a cross-sectional study conducted at Al-Batool Teaching Hospital in Diyala, Iraq from July 2022 to October 2023.

Participants:

The study population comprised women undergoing elective repeat cesarean delivery at Al-Batool Teaching Hospital during the study period. One hundred women with term repeat cesarean deliveries performed at 37-40 weeks gestation were included. Women with emergency repeat cesarean deliveries were excluded.

Data Collection:

Data was collected via structured face-to-face interviews and medical record review using a standardized questionnaire. The questionnaire elicited information on maternal demographics, obstetric history, and details of the current pregnancy including gestational age at repeat cesarean delivery and indication for surgery.

Ethical Considerations:

Participation was voluntary and written informed consent was obtained from all participants. Confidentiality was maintained by collecting data anonymously. The study protocol was approved by the Institutional Review Board at Al-Batool Teaching Hospital.

Statistical Analysis:

Descriptive statistics were used to summarize patient demographics and characterize the timing and indications for repeat cesarean delivery. Frequencies and percentages were calculated for categorical variables.

Results

100 pregnant women were included in this cross-sectional study, the gestational age is demonstrated in table no.1

We noticed that 78.0 % of women, elective repeated Cesarean section done for them at 37 weeks, 4 % done at 38 , 2 % done at 39 , and 16 % of them done at 40 weeks**.**

Table no.1 Weeks of gestation

	frequency	***Percent %***
37 weeks	78	78
38 weeks	4	4

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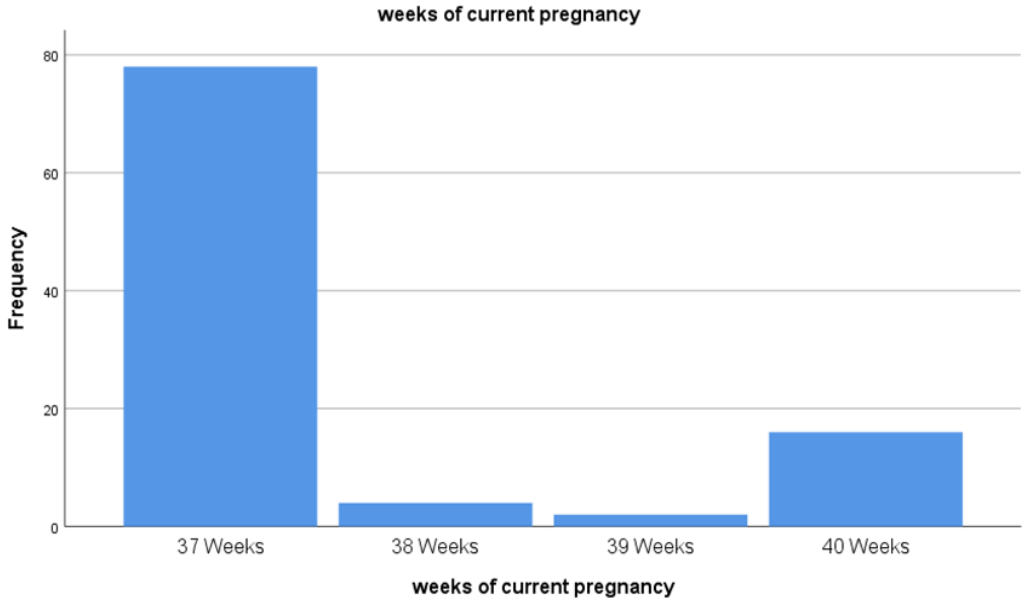
39 weeks	2	2
40 weeks	16	16
Total	100	100



Graph no 1: Weeks of gestation

Table no. 2: Causes of 2nd CS

	frequency	*Percent%*
Arrhythmia	*2*	2
No reason	*26*	26
Gestational hypertension	*6*	6
Fresh scar	*16*	16
Threatened abortion	*2*	2
Oligohydramnios	*8*	8
Infertility	*4*	4
Thromboembolic disease	*2*	2
Breech presentation	*4*	4
Gestational diabetes	*2*	2
CPD	*10*	10
OS closed	*2*	2
Tubal ligation	*2*	2
Post date	*14*	14
Total	*100*	100

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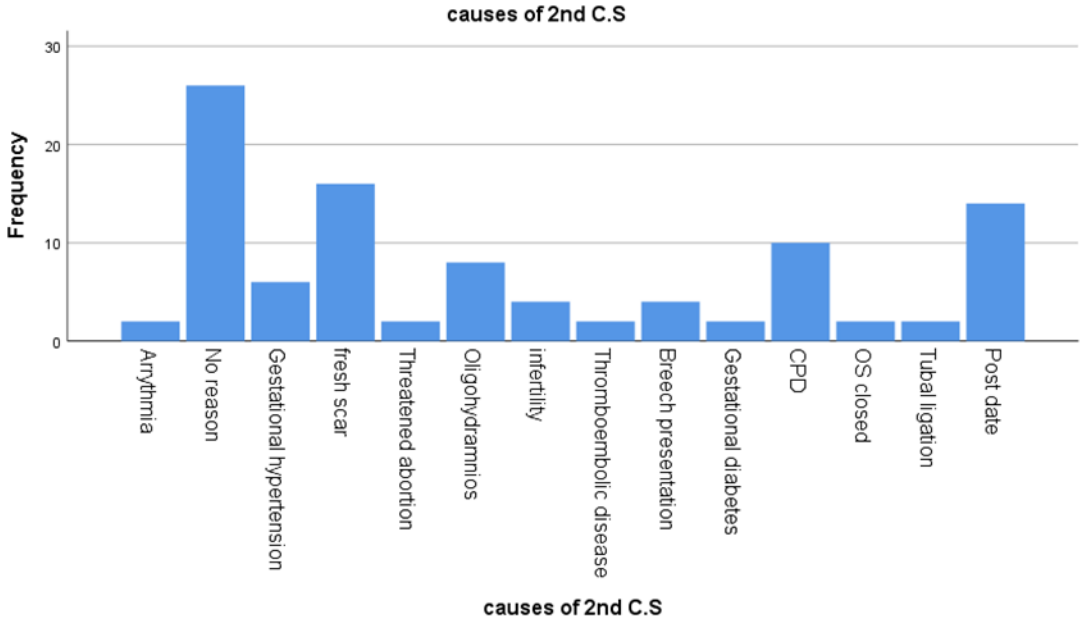

Graph no 2 : Causes of 2nd CS, 26 % were done for no reason , 16 % were done for fresh scar and only 14 % were done for postdate.

Discussion

Cesarean section (CS) carries high risks of maternal and fetal morbidity and mortality. Therefore, CS should only be performed when the benefits outweigh the risks [1]. In this study, we analyzed the indications for elective repeat CS in 100 women to evaluate adherence to appropriate indications.

We found that the majority of elective repeat CS procedures were performed at 37 weeks gestation instead of the recommended 40 weeks to allow for increased chance of vaginal birth after cesarean (VBAC] [2]. Only 14% of cases were performed for postdate pregnancy, which is a very low percentage and likely a major contributor to the high CS rate. Another concerning finding was 16% of cases performed for "fresh scar" when in fact there was no contraindication to VBAC, as the period between the last pregnancy and current pregnancy was less than 1 year.

Several other non-evidence-based indications were identified including CS for tubal ligation, thromboembolic disease, threatened abortion, oligohydramnios, and arrhythmia. This indicates a concerning number of CS procedures being performed without appropriate scientific rationale.

To reduce the CS rate and associated complications, we recommend strict adherence to evidence-based indications for CS. Patients should be thoroughly counseled on the risks and benefits of repeat CS versus VBAC. If there are no maternal or fetal contraindications, CS should be delayed until at least 39-40 weeks gestation to allow the possibility of spontaneous labor and reduce neonatal respiratory issues [3-8].

Previous studies have also highlighted concerns with elective repeat CS. Kirby et al. found a significantly increased risk of persistent pulmonary hypertension in neonates delivered by elective repeat CS compared to vaginal delivery [16]. Parilla et al. demonstrated ongoing issues with iatrogenic respiratory distress syndrome due to elective repeat CS before 39 weeks [17].

Flamm reviewed outcomes of trial of labor after CS (TOLAC) versus repeat CS and found a 75% VBAC success rate with uterine rupture risk <1%. Neither repeat CS nor TOLAC is risk-free,

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but careful selection for TOLAC can avoid many unnecessary repeat CS procedures [11].

Hook et al. also found increased respiratory issues in infants born by elective repeat CS compared to TOLAC, with higher sepsis rates only after failed TOLAC [18]. Scheduled repeat CS has also been associated with other adverse neonatal outcomes compared to planned vaginal birth [19].

Recent studies continue to demonstrate high rates of elective repeat CS not aligned with guidelines [20], resulting in increased neonatal respiratory issues and NICU admissions with procedures before 39 weeks [21].

In summary, this study identified a high rate of elective repeat CS without clear medical indication. To reduce maternal and neonatal morbidity, strict adherence to guidelines is needed with CS delayed until ≥39 weeks when no contraindication to TOLAC exists. Additional research is warranted to understand drivers of non-evidence-based repeat CS utilization.

Conclusion

In conclusion, this study found concerning practices regarding elective repeat cesarean sections. A high percentage of procedures were performed at 37 weeks gestation instead of the recommended 39-40 weeks to allow potential for VBAC. Additionally, a significant proportion of elective repeat cesarean sections were conducted without evidence-based indication. Both the timing of delivery at 37 weeks and performance of procedures without clear medical rationale are contributing to rising rates of non-indicated cesarean sections. To reduce cesarean overuse and improve maternal and neonatal outcomes, strict adherence to clinical guidelines and appropriate timing of delivery are imperative. Elective repeat cesarean section should be avoided when VBAC is a safe option and delayed until at least 39 weeks if performed without medical contraindication. Further quality improvement initiatives are needed to align cesarean delivery practices with evidence-based recommendations.

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