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Original Research Article

INDICATIONS OF CAESAREAN SECTION IN WOMEN PRESENTING AT COMBINED MILITARY HOSPITAL KOHAT

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ABSTRACT

Background: *Caesarean section (C-section) is one of the most frequently performed surgical procedures in obstetrics and gynecology worldwide. While it can be life-saving for both mother and child, rising global rates have raised concerns regarding appropriate indications. Identifying the most common indications is essential for optimizing obstetric care and reducing unnecessary procedures.* ***Objective:*** *To determine the indications of caesarean section among women presenting at the Combined Military Hospital (CMH) Kohat.* ***Study Design:*** *Descriptive cross-sectional study.* ***Setting:*** *Department of Obstetrics and Gynecology, Combined Military Hospital (CMH), Kohat, Pakistan.* ***Duration of Study:*** *04-March-2024 to 04-September-2024.* ***Methods:*** *A total of 158 pregnant women aged 18–40 years undergoing caesarean section were included. Indications for C-section were assessed, including fetal distress (abnormal fetal heart rate >160 or <120 beats/minute), non-progress of labor (prolonged labor >20 hours), and breech presentation (fetal position with buttocks or feet down). Data were analyzed using descriptive statistics; categorical variables were expressed as frequencies and percentages, and mean ± SD was calculated for continuous variables.* ***Results:*** *The mean age of participants was 26.99 ± 6.81 years. Fetal distress was the most frequent indication for C-section (38.6%), followed by non-progress of labor (32.9%), and breech presentation (28.5%).* ***Conclusion:*** *Fetal distress emerged as the leading indication for caesarean section in this study, followed by non-progress of labor and breech presentation. These findings underscore the importance of timely intrapartum monitoring and effective labor management strategies to reduce avoidable caesarean deliveries.*

Keywords: Caesarean Section, Fetal Distress, Non-Progress of Labor, Breech Presentation, Obstetric Indications

INTRODUCTION

Caesarean section (C-section) is a crucial obstetric procedure that arose in the late nineteenth century to safeguard the lives of women as well as their newborns from serious health risks associated with pregnancy and delivery (1). The population-based C-section rate acts as an operational indicator in maternal health to track progress (2, 3). The WHO suggests that the population-based C-section rate should be between 5 and 15 percent to achieve optimal outcomes. Over the past decade, there has been a substantial increase in global all-caused C-section rates associated with increasing numbers of people. Statistics from developing as well as developed nations demonstrate an average C-section rate of 27% (4-6).

Unnecessary C-sections may adversely affect maternal and infant mortality and morbidity rates. Furthermore, the high cost of C-sections can lead to catastrophic medical costs for families, along with placing additional strain on already overburdened healthcare systems, particularly in nations with low or middle incomes (7). Non-medical indications make up one-third of the 18.5 million C-sections carried out annually, significantly contributing to the global excess of these procedures (8). The elevated rate of C-sections necessitates careful tracking of indications for all these procedures in public as well as private healthcare facilities (9). Factors contributing to increasing rates of C-sections include advancements in social variables of health, improvements in road transportation systems, as well as an increasing number of for-profit private organizations equipped to deliver thorough emergency obstetric care services (10, 11). Numerous global studies have looked into the inadequate quality of maternal health care (12, 13). A study recorded the indications of C-section among pregnant women were fetal distress (27 .5%), Non-progress of labor (22.5%), and Breech (18%) (14). The decision to perform a C-section in women is a complex one that should prioritize the safety and well-being of both the mother and the baby. Indications for C-section are based on clinical evaluation, medical evidence, and careful consideration of the specific circumstances of each pregnancy. However, there is no such study conducted on this topic at the local level. Therefore, the goal of this study is to determine the indications of caesarean section in women presenting at the Combined Military Hospital, Kohat. The results of this study will help understand and adhere to these indications, which will ensure that C-sections will be performed when medically necessary, optimizing the outcomes for mothers and their newborns. Moreover, the results of this study will shed light on the importance of clinical judgment and evidence-based decision-making in obstetric practice.

METHODOLOGY

This study employed a cross-sectional design, which was conducted at the Obstetrics and Gynecology department of Combined Military Hospital, Kohat. The research commenced after obtaining ethical approval from the institute. The study's time frame was from 04-March-2024 to 04-September-2024. Participants were selected using consecutive non-probability sampling; the sample of 158 cases was selected using an anticipated prevalence of breech presentation as an indication for caesarean section, 18% (14), 95% confidence level, and 6% margin of error. The inclusion standards were pregnant women aged 18 to 40 years who underwent caesarean delivery. Patients with twin pregnancies, bleeding disorders, or active vaginal infections were not included. Each patient provided consent to participate in the study. Demographic and clinical data, including age, gestational age, BMI, socioeconomic status, education, occupation, and medical history (such as hypertension and diabetes), were recorded. The primary indications for caesarean section such as fetal distress (heart rate > 160 beats per minute or falling below 120 beats per minute between uterine contractions with or without the presence of meconium-stained amniotic fluid), non-progress of labor (failure to progress occurred

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when labor lasted for approximately 20 hours or more) and breech presentation (clinical evaluation and ultrasound examination showing the fetus was positioned with the buttocks or feet downward in the maternal pelvis) were assessed. All clinical evaluations were conducted under the supervision of a consultant with at least five years of post-fellowship experience. SPSS 23 was used for analysis. Age, gestational age, and BMI were assessed using mean and SD. Frequencies and percentages were used for indications for caesarean section, socioeconomic status, education, occupation, hypertension, and diabetes. Post-stratification analysis was carried out using the chi-square test with statistical significance set at a p-value of ≤ 0.05.

RESULTS

We conducted this study on 158 women with a mean age of 26.99 ± 6.81 years. Mean BMI 24.13 ± 0.99 kg/m² and mean gestational age 39.35 ± 1.12 weeks. Ninety-three (58.9%) women had between 1 and 3 pregnancies, while 65 (41.1%) had more than three. Regarding medical history, 23 (14.6%) women had hypertension, and 34 women (21.5%) had diabetes (Table 1). The primary indications for cesarean section included fetal distress in 79 (50.0%) cases, non-progress of labor in 48 (30.4%) cases, and breech presentation in 31 (19.6%) (Figure 1). Association of indications with various variables can be seen in Table 2.

Table 1: Demographics and clinical features

Demographics and clinical features		n	%
Gravidity	1 to 3	93	58.9%
	> 3	65	41.1%
	Low	65	41.1%
Socioeconomic status	Middle	80	50.6%
	High	13	8.2%
Education status	Educated	71	44.9%
	Uneducated	87	55.1%
Occupation status	Employed	77	48.7%
	Unemployed	81	51.3%
Residence area	Rural	82	51.9%
	Urban	76	48.1%
Hypertension	Yes	23	14.6%
	No	135	85.4%
Diabetes	Yes	34	21.5%
	No	124	78.5%

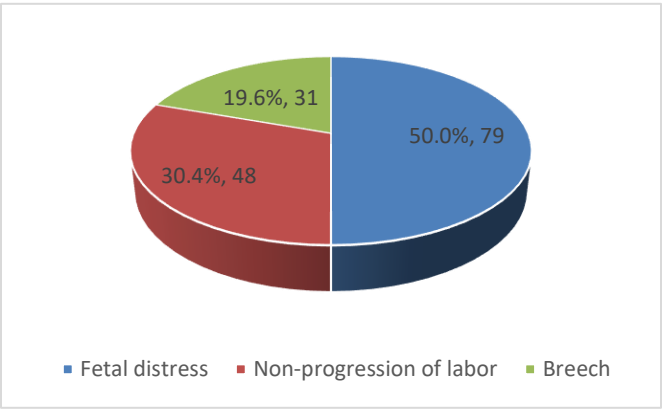

Figure 1: Indications for CS

Table 2: Association of indications for CS with demographic and clinical features

Demographics and clinical features		Indications						P value
		Fetal distress		Non-progress of labor		Breech		
		n	%	n	%	n	%	
Age distribution (Years)	18 to 30	57	72.2%	31	64.6%	18	58.1%	P > 0.05
	31 to 40	22	27.8%	17	35.4%	13	41.9%	
Gestational age (Weeks)	38 to 40	63	79.7%	36	75.0%	24	77.4%	P > 0.05
	> 40	16	20.3%	12	25.0%	7	22.6%	
BMI (Kg/m2)	18 to 24.9	61	77.2%	45	93.8%	26	83.9%	P = 0.05
	> 24.9	18	22.8%	3	6.2%	5	16.1%	
Socioeconomic status	Low	32	40.5%	24	50.0%	9	29.0%	P > 0.05
	Middle	40	50.6%	22	45.8%	18	58.1%	
	High	7	8.9%	2	4.2%	4	12.9%	
Education status	Educated	34	43.0%	21	43.8%	16	51.6%	P > 0.05
	Uneducated	45	57.0%	27	56.2%	15	48.4%	
Occupation status	Employed	38	48.1%	22	45.8%	17	54.8%	P > 0.05
	Unemployed	41	51.9%	26	54.2%	14	45.2%	
Residence area	Rural	43	54.4%	22	45.8%	17	54.8%	P > 0.05
	Urban	36	45.6%	26	54.2%	14	45.2%	
Hypertension	Yes	12	15.2%	7	14.6%	4	12.9%	P > 0.05
	No	67	84.8%	41	85.4%	27	87.1%	
Diabetes	Yes	14	17.7%	11	22.9%	9	29.0%	P > 0.05
	No	65	82.3%	37	77.1%	22	71.0%	
Gravidity	1 to 3	49	62.0%	30	62.5%	14	45.2%	P > 0.05
	> 3	30	38.0%	18	37.5%	17	54.8%	

DISCUSSION

The mean age of women in our study was 26.99 ± 6.81 years, with a mean gestational age of 39.35 ± 1.12 weeks. These demographics align closely with those reported in other studies, such as the research conducted by Baig et al, where the mean age was 27.08 ± 4.59 years and the gestational age was 36.31 ± 4.18 weeks (15). Khan et al's study had a mean age of 27.08 ± 4.59 years and 36.31 ± 4.18 weeks of gestation (16). Tahir et al. reported a mean age of 26.7 years in their cohort (17).

Fetal distress emerged as the leading indication for cesarean section in our study (50.0%), a finding that requires careful interpretation. Tahir et al reported fetal distress in around 60.8% of patients who

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underwent primary CS (17). Saraya et al documented that fetal distress was the leading indication of CS in their cohort (14). In contrast, Kanji et al. observed a relatively lower rate of fetal distress, 8.2%, in their study (18). This variation may reflect differences in fetal monitoring protocols or diagnostic thresholds for fetal distress. The particularly high rate in our study warrants review of fetal heart rate interpretation standards and consideration of adjunctive tests like fetal scalp, pH sampling, before proceeding to surgery. The lower rates in some studies may indicate more conservative use of the fetal distress diagnosis or better management of labor abnormalities before they progress to concerning fetal status.

Non-progress of labor was the second most common indication in our study (30.4%), showing interesting variations across facilities. This rate is slightly higher than the 22.5% documented by Saraya et al and 19% by Baig et al (14, 15). Tahir et al. in their study found a 32.2% rate of non-progress of labor, which closely corroborates our findings (17). These differences likely reflect variations in labor management protocols, with some institutions possibly having more patience with prolonged labor or using different criteria for diagnosing arrest disorders. The high rate in our study suggests potential opportunities to optimize labor management through standardized protocols, along with careful assessment of labor progress and appropriate use of oxytocin augmentation before resorting to cesarean delivery.

Breech presentation accounted for around 19.6% of cesarean indications in our study, a rate that stands out compared to other facilities. This is substantially higher than the 7.7% reported by Tahir et al and the 9.3% rate of breech presentation reported by Kanji et al (17, 118). Saraya et al. reported an 18% rate of breech presentation, which is similar to our findings (14). The particularly high rate at our institution may reflect a lower utilization of external cephalic version or a higher threshold for attempting vaginal breech delivery. Given that breech presentation is a clear indication for cesarean section in many protocols, this variation may represent genuine differences in the prevalence of breech presentation at term rather than practice pattern differences. However, it would be valuable to assess whether opportunities exist to safely reduce this rate through external cephalic version programs or selective vaginal breech delivery in appropriate cases.

A previous cesarean section is a major indication for CS. Tahir et al. documented a 59.4% rate of previous CS in their study, which was the leading indication for CS (17). Kanji et al also reported repeat CS to be the primary cause of CS in their study (18). The high rates of repeat cesareans highlight the importance of careful decision-making regarding the primary cesarean as each one creates a legacy of future surgical deliveries. Our finding that 41.1% of women had gravidity >3 suggests that many patients faced multiple pregnancies after an initial cesarean, compounding this effect. Implementing robust VBAC programs with careful patient selection and monitoring could help reduce these repeat procedures and their associated risks.

CONCLUSION

We conclude that fetal distress was the leading indication of caesarean section in our study, which was followed by non-progression to labor and breech presentation. Future research should focus on longitudinal studies to assess the impact of these interventions on CS rates and maternal and neonatal outcomes.

DECLARATIONS

Data Availability Statement
All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate
Approved by the department Concerned. (IRB)

Consent for publication
Approved

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

SAIMA KHAN (Postgraduate Trainee)
Data Collection, Data Entry, Data Analysis,Manuscript drafting, Review of manuscript, and.
SYEDA SURRAYA JABEEN (Professor)
Critical input, and final approval of manuscript
MEHWISH MUNIR (Classified Gynaecologist)
Critical Input
SANA FEROZ (Postgraduate Trainee)
Literature Review
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Literature Review

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