

Profile of Caesarean Section in Mid-Western Regional Hospital in Nepal

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ABSTRACT

Background: Rising rate of caesarean section since few decades has been a global public health issue. This study is aimed to determine the rate of caesarean section plus examine the indications and complications of caesarean section.

Methods: A retrospective cross-sectional study was conducted using secondary data sources at Mid-Western Regional Hospital in Surkhet, Nepal. Data were collected from patients' records of the hospital dating from 16 July 2016 to 15 July 2017. All patients who had delivered their baby by caesarean section were included in this study. Data were analyzed by help of SPSS version 21. Ethical approval was obtained from the hospital authority prior to the study.

Results: During the study, out of total 3,694 deliveries, 695 (18.8%) were caesarean section. Most of the caesarean section were emergency than elective (83.0% vs 17.0%). Among all women who underwent caesarean section, majority were from 37 to 42 weeks pregnancy (88.5%), age group between 20 and 24 (42.9%) and multiparous (53.5%). Fetal distress (20.1%) was most common among all major indications of caesarean section. Maternal complications due to caesarean section was low (3.7%). Among all complications, Post-partum hemorrhage (30.5%) was the major maternal complication of caesarean section. Most of newborn babies had APGAR score six or more at one minute (94.5%) and five minutes (97.9%).

Conclusions: In our study, caesarean section rate was 18.8%, which is higher than WHO recommendation (10 – 15%). Main indication for caesarean section was fetal distress. Maternal and fetal complications were low.

Keywords: Caesarean section(CS); CS complications; CS indication.

INTRODUCTION

Cesarean section (CS) is a life-saving surgical procedure. WHO recommended CS rate is 10 - 15%.¹ However, the rate of CS has been increased dramatically worldwide since few decades particularly in middle and high-income countries.²⁻⁵ Evidences have emphasized that CS should be performed only in medical indications.^{5,6} High rate of CS is positively associated with postpartum antibiotic treatment and severe maternal and child morbidity and mortality.^{2,5,6} In developing countries, like Nepal, local health system in remote areas is still facing major challenges to provide safe and timely CS procedure which can save life of both mother and fetus.⁷ Rate of CS is still low in rural areas of Nepal.^{8,9} However, rate of CS is high in urban areas of Nepal.¹⁰⁻¹² Private facilities and better education of women can be attributed for rising rate of CS in urban settings.¹³ This study has explored the rate, indications and complications of CS in Mid-Western Regional Hospital in Nepal.

METHODS

A retrospective cross-sectional study was carried out using secondary data at the referral level Mid-Western Regional Hospital, Surkhet, Nepal. Data were collected from hospital records dating from 16 July 2016 to 15 July 2017. Data were extracted from hospital medical record and case files. Data were coded and edited prior to its entry and analysis through Statistical Package for Social Sciences (SPSS) version 21.0.

All deliveries conducted during the study period were included in this study. Among them, specific profile was created for those who delivered their babies by CS. Modes of delivery, types and frequency of caesarean section, indications, and complications of caesarean section were recorded along with demographic data such as age, ethnicity, place of residence, parity, and gestational age. Proportion and percentages were calculated and compared.

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RESULTS

Table 1 represents the distribution of caesarean section rate. Total of 3,694 deliveries conducted during the study period. Among the total deliveries, 695 (18.8%) women had delivered their baby by caesarean section. It was found that majority of the women (83%) had emergency caesarean section. Likewise, majority of the women (84.5%) had primary caesarean section.

Table 1. Distribution of caesarean section rate. (n=695).

Modes of delivery	No. of Patients	%
Vaginal delivery	2999	81.5
Caesarean section	695	18.8
Types of caesarean section		
Emergency	577	83.0
Elective	118	17.0
Frequency of caesarean section		
Primary	597	84.5
Repeated	108	15.5

Table no. 2 depicts the distribution of demographic characteristics of the women who were conducted CS delivery. It was found that nearly half of the women were between the age group of 20 and 24 years (42.9%). Similarly, more than half women were multipara/gravida (53.5%) and most of them had gestational age of 37 or more weeks (94.4%) among total women who were conducted CS delivery respectively. Likewise, majority of the women were from Surkhet district (79.9%) and as per ethnicity of the women, nearly six out of ten were Brahmin/Chhetri (58.4%) among total women who were conducted CS delivery.

Table 2. Demographic characteristics of women who underwent caesarean section.

Subjects	No. of Patients	%
Age (n=695)		
<19 or 19	107	15.4
20 - 24	298	42.9
25 - 29	192	27.6
30 - 34	75	10.8
>35	23	3.3
Antenatal Care (n=675)		
Booked	330	48.9
Self	281	41.6
Referred	64	9.5

Parity/Gravida (n=695)		
Primi	323	46.5
Multi	372	53.5
Place of Residence (n=695)		
Surkhet District	555	79.9
Other Districts	140	20.1
Gestational age (n=695)		
Preterm (<37 weeks)	39	5.7
Term (37 - 42 weeks)	615	88.5
Post Term (>42 weeks)	41	5.9
Ethnicity		
Brahmin/Chhetri	406	58.4
Janajati	152	21.0
Minority/Dalit	137	19.7

Table 3 shows the distribution of indications of caesarean section. It was found that among total CS delivered women, major indication for CS delivery was fetal distress (20.1%) followed by previous CS (17.8%), meconium stained liquor (17.7%), non-progress of labor (17.1%) and breech/malpresentation (15.8%) respectively.

Table 3. Indications of caesarean section. (n=695).

Indications	No. of Patients	%
Fetal distress	140	20.1
Previous CS	124	17.8
Meconium stained liquor	123	17.7
Non-progress of labor	119	17.1
Breech/malpresentation	110	15.8
Failed vacuum/ instrumental	16	2.3
Obstructed labor	15	2.2
Eclampsia	14	2.0
APH/placenta previa	14	2.0
Failed induction	12	1.7
Oligohydramnios	1	.1
Other	7	1.0

Furthermore, the main indications of emergency caesarean section were fetal distress (24.3%, n=140), meconium stained liquor (21.3%, n=123), non-progress of labor (20.6%, n=119) and breech/malpresentation (13.3%, n=77). Similarly, the main indications of elective caesarean section were previous caesarean section (61.9%, n=73) and breech/malpresentation (28.0%, n=33).

Out of 695 caesarean section cases, only 26 (3.7%) mothers had complications in this study. The main complication was post-partum hemorrhage (Table 4).

Table 4 represents the distribution of maternal complications. Among total CS delivered women who had maternal complications, most of them had post-partum hemorrhage (30.8%) whereas only 3.8% had wound infection and its consequences.

Table 4. Distribution of maternal complications. (n=26).

Complications	No. of patients	%
Post-partum hemorrhage (PPH)	8	30.8
Shock	3	11.3
Injury to the surrounding structure	5	19.2
Wound infection and its consequences	1	3.8
Sepsis/systemic infection	4	15.3
Mastitis/breast infection	5	19.2

Table 5 reveals the distribution of APGAR score of newborn babies in one minute and five minutes respectively. It was found that most of the newborn babies had APGAR score of six or more both within one minute (94.5%) and within five minutes (97.9%).

Table 5. APGAR score of newborn babies in one minute and five minutes. (n=677).

APGAR score	One minute		Five minutes	
	n	%	n	%
0	9	1.3	9	1.3
<6	28	4.1	5	0.7
6 or more	640	94.5	663	97.9

DISCUSSION

Growing rate of CS is a matter of concern everywhere in the world. Although, CS is a safe obstetric surgical procedure, increasing trend of CS rate has been a worrying issue in Nepal.^{8,10,14,15} Some studies have shown a very high rate of CS in urban and private settings in Nepal.^{12,15,16} CS rate higher than the WHO recommendation (10 -15%) is not justified medically.¹ High rate of CS can cause significant adverse effects on maternal and child health. CS performed only in medically indicated situation can save lives and prevent maternal and perinatal mortality and morbidity.¹⁷

In our study, CS rate was 18.8% of total deliveries. CS rate of our study is same as the study finding (19.89%)

of Subedi S.¹¹ Likewise, our result is close to the study conducted by Suwal et al (22.30%) in Nepal Medical College Teaching Hospital¹⁸ and another study by Kumbo et al (21.8%) in India.¹⁹ CS rate of our study is higher than the study conducted by Samdal et al (9.5%) in rural Nepal.⁹ However, the CS rate in our study is lower than other studies conducted in Nepal, such as: CS rate 45.81% reported by Prasad et al in Kathmandu Medical College,¹² 41.9% by Pradhan et al in Patan hospital¹⁵ and 50.9% by Pradhan et al in Kirtipur hospital.¹⁶ Similarly, the CS rate in our study is lower than 31.46% reported by Gupta et al in Jaipur, India²⁰ and 36.6% in study by Sreevidya et al in Madras, India.²¹

Our study has found high rate of emergency CS (83%) as found in other studies.^{9,12,19} However, the percentage of emergency CS in our study seems to be the highest than all those studies.^{9,12,15,16,19,20} Mid-Western Regional Hospital is a referral center in Mid-Western Region of Nepal which correlates to high emergency CS rate. Frequency of primary CS was high (84.5%) and it is higher than reported by other studies.^{11,20} Majority of multipara women, full term pregnancy and age group 20-24 were undergone CS in this study as described by Gupta et al.²⁰ About 15.4% of adolescent group had delivered baby by CS in this study which is higher than 3.23% reported by Gupta et al²⁰ and 4.7% by Pradhan et al.¹⁶ Antenatal booked cases were lower (48.9%) in our study as compared to Pradhan et al (85.3%)¹⁶ and Gupta et al (68.31%)²⁰. Brahmin/Chhetri ethnicity and women residing in Surkhet district had more access to CS. It may be due to high population of Brahmin/Chhetri ethnicity and the hospital is situated in Surkhet.

Fetal distress was the first leading indication for CS in our study accounting for 20.1% as found in other studies.^{11,16,18} However, it is lower as compared to 26.25% reported by Subedi¹¹ and 40.2% reported by Pradhan et al.¹⁶ Many other studies also described that fetal distress is a common cause of CS.^{9,12,15,19,20,22} In fact, fetal distress was found to be number one indication for emergency CS as defined by Suwal et al.¹⁸ However, the gold standard method of estimation of fetal distress - Fetal scalp PH estimation was not performed to identify fetal distress in our study.

In our study, previous CS (17.8%) was second common indication of CS as defined in other studies.^{10,11,15,18} However, Prasad et al (21.3%) and Gupta et al (36.52%) reported previous CS is the leading indication of CS.^{12,16,20} Some other studies also identified previous CS as a common cause of CS.^{10,22} Previous CS was the key indication of elective CS in our study as reported by Suwal et al.¹⁸ Due to lack of information about patients

and some other reasons, practice trial for vaginal birth after caesarean section (VBAC) is less in Mid-Western Regional Hospital. Evidence has shown that women with history of previous CS can refuse the trial due to the complications such as scar dehiscence and rupture. Sharma et al reported 48.38% (15 out of 31) was refusal of trial of scar.²³ Although, VBAC is safer than repeat CS but not doctor friendly.²⁴

Third leading cause of CS was meconium stained liquor (17.7%) in our study. It is higher than the study conducted in Patan hospital (12.3%)¹⁵ and Kathmandu Medical College (9.6%)¹² but lower than study conducted in Eastern Nepal (23.4%).¹⁰ Similarly, the fourth common reason of CS was non-progress. Many other studies have shown same reason for performing CS.^{10-12,15,16,18,23} The fifth common reason of performing CS was breech/malpresentation (15.8%) in our study. Many other studies also have recognized it as a significant cause of CS.^{9-12,15,16,18,22,23}

High rate of CS can be the cause of maternal morbidity and mortality. Evidences have shown an association between CS and maternal complications.^{2,5,6} In our study, no any maternal mortality observed, and overall maternal morbidity rate was 3.7%, which is lower than reported by Pradhan et al (7.2%)¹⁶ and Gupta et al (10.60%).²⁰ The main complication was post-partum hemorrhage (PPH) in our study, accounting 30.8%, which is higher than showed by 20.8% in Pradhan et al.¹⁶ PPH is identified significant maternal complication in elective CS.¹⁸ Another complication was injury to surrounding structure (19.2%) in this study. Gupta et al²⁰ also found minor bladder injury as a major complication of CS. Mastitis/breast (19.2%) infection also noticed as a common complication in our study as described in Pradhan et al.¹⁶ Sepsis and systemic infection (15.3%) also found a maternal problem of CS in our study.

Increase CS rate not only associated with maternal complications but also found to be associated with fetal mortality and morbidity.⁶ In our study, most of new born babies' APGAR score at one minute (92.1%) and five minutes (97.4%) was good. A study conducted by Pradhan et al¹⁶ had similar APGAR score (93.2%) in one minute and 99.2% in five minutes). However, there was 1.3% (n=9) newborn babies had APGAR score 0, which refers no signs of life. There were 4.1% (n=28) newborn babies had APGAR score <6 at one minute, which means poor health and require medical assistance and close observation.

The study was not able to cover large scale data due to lack of enough resources such as time, funding.

Unfortunately, some data were missing because of incomplete records. Therefore, the study findings may be limited.

CONCLUSIONS

Caesarean section rate was high in this study. The main indications of CS were fetal distress, previous CS, meconium stained liquor, non-progress of labor and breech/malpresentation. Maternal and neonatal complications of CS were low. Effective obstetric management by following standardized guidelines can reduce the rate of CS.

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