

Research Article

Indications and linked complications of Caesarean Delivery in Durame General Hospital: A Three Year Retrospective Study in Southern Ethiopia

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- Complication
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Abstract

Background: Cesarean section, the most frequent abdominal surgery among adults, is rapidly growing and currently occurs in 20 million of deliveries worldwide each year. The indications and complications of cesarean section are unevenly distributed and unpredictably change. Therefore, this study aims to identify the contemporary cesarean section indications and complications among mothers and their newborns in Durame General Hospital.

Methods: A three year retrospective cross-sectional study was conducted by reviewing maternity data at Durame General Hospital from July 1, 2015, to July 1, 2017. The data were obtained from records of mothers who underwent caesarian-section during the specified period. A total of 255 samples were estimated using a single proportion formula and randomly selected using a serial number of the registration log. Data were abstracted using a semi structured and pretested questionnaire. The collected data were entered into Epi info software and transported to SPSS software version 22 for analysis, and finally, the descriptive outcomes of the study were displayed by figures, tables & graphs.

Result: The study has enrolled a total of 255 study participants whose mean age was 26.87 (SD \pm 6.3) years. Cephalo-pelvic disproportion was the leading indication for cesarean-section (40.0%), followed by fetal distress (29.9%) and Mal-presentation (17.2%). After cesarean delivery, 16.1% of neonates and 6.7% of mothers were reported to suffer complications. The most complication of the neonates and mothers in the area were Birth Asphyxia (6.3%), and wound infection (2.7%), respectively.1.4. Conclusion and recommendations

The incidence of caesarian delivery was higher in this hospital particularly for CPD leading to either maternal or newborn complications. Therefore, health care service providers jointly with the community & government should work to recognize the status of pregnancy at the early stage of labor to anticipate problems early.

INTRODUCTION

Cesarean section (CS), is the most frequent abdominal surgery performed every year among adults, occurring currently in about 20 million deliveries worldwide [1]. Numerous women undergo this operation and the condition that exposes them to the procedure is rapidly growing in a continuous way in both developed and developing countries [2]. The procedure has started as a routine procedure following the growth of hospitals and increased urbanization though the concerns of women about the operation have been rising globally regardless of medical condition, age, race, or gestational age [3]. International concerns over such increases has prompted the World Health Organization (WHO) to suggest that CS rates should not exceed 15 % [4], as evidences from different sources indicate raising the rate of

CS above cut-off point would not reduce both maternal & child mortality and mortality [4,5].

Literatures report many factors to attribute to the increased cesarean-section rates across the world. Accordingly, Premature Rupture of the amniotic fluid Membrane (PROM), Cephalic Pelvic Disproportion (CPD), fetal distress, multiple pregnancy, and mal-presentation were identified as some of the factors [6]. CS has both short and long-term risk that range from mild to severe [7,8]. Furthermore, literatures showed that infants born with CS are more likely to develop respiratory distress compared to those born with normal delivery [9,10].

Even though CS was indicated to reduce pregnancy and related material and neonatal morbidity & mortality, it has some scientific proven indications. In this regard, reports from different

studies in different countries including karpagavineyaga and India showed the commonest indications to be repeat c/s (43%), CPD (15%), failed labor (10%), repeat C/S (32.4%), fetal distress (7%), and maternal morbidity (20%) [11-13], where the overall indication for maternal and neonatal fall to be 68 & 32 percent in respective order [14].

During the process of delivery of CS, the mother, newborns or both could experience risks that commonly named complications [13]. The commonest complications experienced as reported by different studies were primary hemorrhage, wound infection, intraoperative and postoperative maternal deaths [11,14-17]. The dynamics of CS indications and complications frequently changes based on several reasons. Therefore, the current study aimed to address the statuses of these factors in the specified area and time.

METHODS AND MATERIALS

A three year retrospective cross-sectional study was conducted by reviewing maternity data at Durame General Hospital situated in Southern Ethiopia from July 1, 2015, to July 1, 2017. The study population comprised the records of all women who gave birth, and the data obtained from records of mothers who underwent caesarian-section during the specified period. A total of 255 sample sizes was calculated using a single proportion formula assuming 21% CS prevalence in the study area [18], that randomly selected using a serial number of records. The records of all mothers who had undergone caesarian section during the study period and fulfilled the inclusion criteria were collected from the card room, operation register log and new born registration books. During the data collection process, data with incomplete records, data related to miscarriage or termination of pregnancy before 28 weeks of gestations, regardless of their reasons, were excluded.

A semi-structured questionnaire was used for data abstraction that includes demographic data, gravidity, parity, and specific information on maternal or fetal pregnancy-related complications, gestational age at delivery, method of delivery, all primary indications for CS, newborn's birth weight and Apgar score; and the maternal and perinatal outcomes. Primary indications for CS were divided into maternal and fetal categorical indications. Maternal indications include previous caesarean delivery, elderly primigravida, cephalo-pelvic disproportion, prolonged labor (dystocia), and maternal infection. Fetal indications included malpresentation, fetal distress, macrosomia and multiple fetuses. The questionnaire was designed by experts from research and care providers and finalized after pretest at different Hospital of similar characteristics with the study area Hospital.

Data were collected by six clinical nurses and two supervisors who were deployed from the study area and received a two days training. During the data collection a full informed consent was taken from maternity ward and record room managers. To ensure data quality, all data were checked for completeness and consistency on daily base by data collectors at spot and finally reviewed for the same issue by supervisor. The collected data were entered into Epinfosoftware and transported to SPSS software version 22 for analysis. During analysis the researchers

continuously checked data for completeness & consistency, and finally the descriptive outcomes of the study was displayed by figures tables & graphs.

Ethical consideration

Before data collection an ethical clearance was obtained from Jimma university student research project office. Then formal letter of cooperation was written to Durame General Hospital maternity department and record room.

RESULTS

Socio-demographic Characteristics of Respondents

Table 1 presents the socio-demographic characteristics of 255 study participants. The mean age of the study participants was 26.87 (SD \pm 6.3). While teenagers age < 20 years contributed the least proportion of the study participants 73(29%), whereas age between 21 and 40 years accounted the highest percentage to have caesarian section. Residentially, majority of the study participants 149 (58%), were from rural. Regarding antenatal follow-up 148 (58%), of the study participants had followed ANC for at least once while the rest 107 (42%), did not get follow-up service during their pregnancy time.

During the process of delivery, Sixty four (25%), of the new born babies were reported to be term while 56(22%), preterm and 89 (35%), post-term. Majority of the mothers 132(52%), had given 1-4 births while prim gravid comprises 29(24%). A large proportion of the study participants had live birth outcome 242(95%), while those encountered still birth and neonatal death were 1.5 and 3% respectively. Regarding fetal weight, 97(37.93 %), have normal fetal weight of 2500-3999 gram. low birth weight accounts 116(47.77%) and 42 (16.3%), account macorsomic (>4000 gram) (Table 1).

According to the current study, the most common C/S indication was CPD (40%), followed by fetal distress (29.88%), Ma-presentations (17.23%), failed induction (6.35%), Previous C/S (4.64%) and others (1.46%), as indicated by Figure 1. After cesarean delivery, 16.1% of neonates and 6.7% of mothers were reported to suffer complications. From the reported proportion, the most complication of the neonate and maternal were Birth Asphyxia (6.3%), and wound infection (2.7%), in respective order (Table 2).

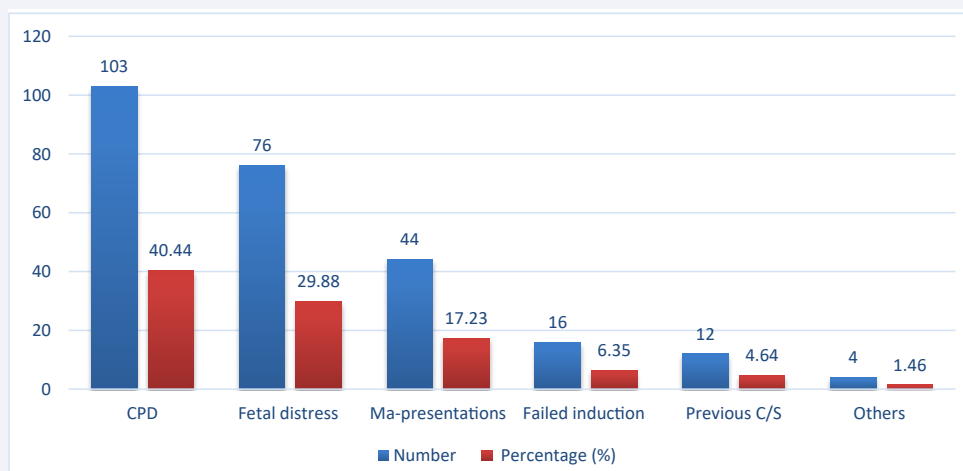
DISCUSSION

The study has simultaneously summarized the most reasons for mothers to undergo cesarean-section and the related post-operative health problems among newborns & mothers. The majority of the operation occurred for the indications soared from the maternal side. As of the result CPD (40.44%), fetal distress (29.88%), mal-presentation (17.23%), failed induction (6.4%), previous C/S (4.6%) was identified the most common indications in the area.

The current results are not consistently overlap with the studies conducted in different countries; when compared with the study conducted in India the percentage of all identified CS indicators were reported higher by thrice for CPD (15%), and fetal distress (7%). On the other hand the result of the current

Table 1: Characteristics of the study populations (N=255).

#	Variables	Categories	Number	%
1	Residence	Urban	106	42
		Rural	149	58
2	Age in years	≤20	73	29
		21-34	110	43
		≥35	72	28
3	ANC F/UP ≥ for current pregnancy	Yes	148	58
		No	107	42
4	Gestational age	Unknown	46	18
		<37	56	22
		37-42	64	25
		≥ 42	89	35
5	Parity	Primi	74	29.58
		1-4	132	52
		Above 4	49	18.3
6	Birth outcome	Live birth	242	95
		Stillbirth	3	1.5
		Neonatal death	10	3
7	Birth weight in grams	1000-1499	47	18.62
		1500-2499	69	27.15
		2500-3999	97	37.93
		Above 4000	42	16.3

**Figure 1** Indications of caesarean section at Durame General Hospital, Ethiopia (n=255).**Table 2:** Complications of C/S among woman at Durame General Hospital.

#	Complications	Number (%)	Percent (%)
Neonatal			
1	Birth asphyxia	16	6.3
2	Neonatal Sepsis	12	4.7
3	Respiratory distress	9	3.5
4	Hyperbilirubinemia	4	1.6
	Total	41	16.1
Maternal			
1	Wound infection	7	2.7
2	Wound dehiscence	6	2.4
3	Maternal death in Hospital	4	1.6
	Total	17	6.7

study revealed 3.6% lower reason of CS due to failed induction and 27.8% lower for repeat C/S when compared with the study in India with relatively similar comparability result in Karpaga Vineyaga [11-13]. The disparity among the result could rely on different factors where socio-economic, infrastructure, availability & skill of health care providers are the prominent factors.

Regarding complications, the current results showed that both mothers and newborns suffered comparable percentages of different problems. Accordingly, wound infection, wound dehiscence, and maternal death are the commonest maternal complications. This results consistent with the study conducted in Tigray region of Ethiopia for wound infection and wound dehiscence [16], but lower than the study result in Santhanalakshmi [12]. From the newborn side, from 16.1% of all cesarean section, 6.3%, 4.7%, 3.5% & 1.6 % were suffered Birth asphyxia, neonatal sepsis, respiratory distress and Hyperbilirubinemia in the respective order. The overall neonatal complication of the current result is higher by 6.1% from the study report of Rehana [13]. The possible explanation for this could be the simplicity of supplies and medication to manage newborn complications.

CONCLUSION

Cesarean-section in the study area was commonly conducted as a result of indications occurring from the maternal side with much less difference from the newborn side. Similarly, postoperative complications are also distributed with nearly equal percentages for both mothers and newborns. Therefore, health care service providers jointly with community & government should work to recognize the status of pregnancy at the early stage of labor to anticipate problems early.

FINANCIAL DISCLOSURE

The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

REFERENCES

- Gutema H. Cesarean Section and Associated Factors at Mizan Aman General Hospital Southwest Ethiopia. *J Gynecol Obstet*. 2014; 2: 37.
- United Nations. The fourth domain for gender equality, decision-making and power. *Achieving Gender Equality, Women's Empowerment and Strengthening Development Cooperation*. 2010; 55-59.
- Gauld R, Blank R, Burgers J, Cohen AB, Dobrow MK, Ikegami NKI, et al. The World Health report 2008 - Primary healthcare: How wide is the gap between its agenda and implementation in 12 high-income health systems? *Healthc Policy*. 2012; 7: 38-58.
- Bailey P, Lobis S, Maine D, Fortney JA. *Monitoring Emergency Obstetric Care: a handbook*. World Health Organization. 2009; 30: 430.
- Abebe FE, Gebeyehu AW, Kidane AN, Eyassu GA. Factors leading to cesarean section delivery at Felegehiwot referral hospital, Northwest Ethiopia: A retrospective record review. *Reprod Health*. 2016; 13: 1-7.
- Yaya S, Uthman OA, Amouzou A, Bishwajit G. Disparities in cesarean section prevalence and determinants across sub-Saharan Africa countries. *Glob Heal Res Policy*. 2018; 3: 1-9.
- Deneux-Tharaux C, Carmona E, Bouvier-Colle M-H, Bréart G. Postpartum maternal mortality and cesarean delivery. *Obstet Gynecol*. 2006; 108: 541-548.
- SciELO - Public Health - Maternal complications and cesarean section without indication_ systematic review and meta-analysis Maternal complications and cesarean section without indication_ systematic review and meta-analysis.
- Khasawneh W, Obeidat N, Yusef D, Alsulaiman JW. The impact of cesarean section on neonatal outcomes at a university-based tertiary hospital in Jordan. *BMC Pregnancy Childbirth*. 2020; 20: 1-9.
- Tzaki M. Cronicon The Impact of Elective Cesarean Section on Neonatal Morbidity. 2019; 5: 387-391.
- Fesseha N, Getachew A, Hiluf M, Gebrehiwot Y, Bailey P. A national review of cesarean delivery in Ethiopia. *Int J Gynaecol Obstet*. 2011; 115: 106-111.
- Bala S. A Retrospective Analysis of Annual Cesarean Section Rate in a Tertiary Care Hospital, KOTA. *J Med Sci Clin Res*. 2017; 5: 2097-2099.
- CHANDNA H. Cesarean deliveries have become an 'epidemic' in India — record 300% jump in last decade – The Print.
- Halil HM, Abdo RA, Helill SE, Kedir RD. Predictors of Cesarean Section among Women Delivered at Durame General Hospital, Southern Ethiopia. 2020; 9: 1-5.
- Mekbebe T, Ketsela K. Pre-eclampsia/eclampsia at Yekatit 12 Hospital, Addis Ababa, Ethiopia (1987-1989). *East Afr Med J*. 1991; 68: 893-899.
- Mengesha MB, Adhanu HH, Weldegeorges DA, Assefa NE, Werid WM, Weldemariam MG, et al. Maternal and fetal outcomes of cesarean delivery and factors associated with its unfavorable management outcomes; In Ayder Specialized Comprehensive Hospital, Mekelle, Tigray, Ethiopia, 2017. *BMC Res Notes*. 2019; 12: 4-9.
- Tenaw Z, Yohannes Z, Siyoum M, Mekonnene S, Bekele G, Astatkie A, et al. Prevalence, indications and associated factors of cesarean section delivery at public hospitals in Wolayta Zone Southern, Ethiopia. 2020; 1-13.
- Shit S, Shifera A. Prevalence of cesarean section and associated factor among women who give birth in the last one year at Butajira General Hospital, Gurage Zone, SNNPR, Ethiopia, 2019. *Int J Pregnancy Child Birth*. 2020; 6: 16-21.

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