

Caesarean Delivery at the Federal Medical Centre Gombe: A 3- Year Experience

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Abstract

Background: Caesarean delivery carries a higher morbidity and mortality than vaginal delivery. This first audit of caesarean delivery in our centre will be compared with previous studies around the world. Our objective is to document the indications and outcome of caesarean delivery.

Method: This was a retrospective study of patients who had caesarean delivery in Federal Medical Centre Gombe, from January 2001 to December 2003. The bio-social characteristics, indication for surgery, booking status, number and type of caesarean deliveries, type of uterine incision, complications, and cadre of surgeon and duration of hospital stay were obtained for each patient.

Results: 264 caesarean deliveries were performed, 250 cases made the criteria for inclusion. There were 2,172 total deliveries during the study period giving a caesarean delivery rate of 12.2%. The majority, 181 (72.4%) of the patients had emergency caesarean delivery while 69 (27.6%) had elective caesarean delivery. The commonest indication for caesarean delivery was cephalopelvic disproportion (20.8%), followed by preeclampsia/eclampsia (18.8%) and ante partum haemorrhage (14.4%). Others were fetal distress (8.8%), and previous caesarean delivery (7.2%). Majority of the patients, 104 (41.6%) were booked with the Federal Medical Centre Gombe, 88 (35.2%) booked elsewhere and 58 (23.2%) were unbooked. Twenty one (8.4%) had complications of which wound infection 11 (5.2%) was the commonest morbidity encountered.

There were two maternal deaths and twenty one perinatal deaths giving a maternal and perinatal mortality rates of 800/100,000 and 82/1000 respectively.

Conclusion: The indications for caesarean delivery in our study are comparable to findings from other parts of the world. The high emergency caesarean delivery rate among those booked elsewhere is a cause for concern. Health education could reduce the number of emergency caesarean deliveries. Consequently this might reduce the high infectious morbidity associated with the procedure in this study.

Key Words: Caesarean delivery, Gombe

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Introduction

Caesarean delivery is an operation performed through the anterior abdominal wall for the delivery of the fetus. It involves two incisions, one through the abdominal wall and the other through the uterine wall.¹

Caesarean delivery is one of the oldest operations in surgery with its origin lost in antiquity and ancient mythology.^{1, 2} the operation has evolved from a postmortem procedure to a life saving procedure for both mother and baby because of advances in operative technique, availability of blood transfusion services, improved anaesthetic technique, potent antibiotics and improved neonatal services.³

Caesarean delivery is widely performed in both developing and developed countries.^{1,3} In spite of the fact that abdominal delivery is considered a reproductive failure by Nigerian women, the rate of caesarean delivery is on the increase.^{2, 4, 5} This is partly due to better education and increasing safety of caesarean delivery in most Nigerian hospitals.⁶ The maternal mortality following caesarean delivery is still high despite advances in anaesthesia and blood banking services. This may be related to the high prevalence of mass poverty with gross inequalities and illiteracy in developing countries.⁷

Caesarean delivery rates vary widely from country to country, and within a country varies from one hospital to another.⁸ The high caesarean delivery rate in most developed countries is due to the high repeat caesarean rate, high number of suspected fetal distress, the fear of litigation, economic incentives and the small family size.^{3,7} The high rate in the developing countries on the other hand, is due to cephalopelvic disproportion, obstructed labour, and failure to progress in labour.^{1,2} The benefits of the global rise in caesarean delivery rates are questionable but what is not in contention is the high maternal and perinatal complications associated with the procedure in developing countries⁹.

The dictum of two previous caesarean delivery always a caesarean delivery still holds in Nigeria and most of the developing countries^{1,11} In the USA the dictum is once a caesarean delivery always a caesarean delivery, but the trend is changing and reports of 60%-80% successful vaginal birth after caesarean delivery have been documented.⁸

Maternal mortality following caesarean section could either be due to the complications of the condition that led to the surgery and/or complications of the surgery itself.^{3,7} The complications of caesarean delivery include haemorrhage, wound infection, shock, urinary tract injury, bowel injury, endometritis and deep vein thrombosis. Others are anaesthetic and psychological complications. Long term complication like rupture of the uterine scar can be catastrophic. This occurs in 0.5% and 2.2% of lower segment and classical incisions respectively.^{10,11}

The perinatal mortality associated with caesarean delivery often depends on the gestational age and the indication for the surgery. The perinatal mortality is higher after emergency than elective caesarean delivery.¹² In developed countries, caesarean deliveries are performed mostly electively, while in developing countries they are performed mostly as emergencies.¹³ This phenomenon is partly responsible for the poor outcome of caesarean deliveries in developing countries.

The aim of this study therefore was to determine the indications and outcome of caesarean delivery in a relatively new tertiary institution and compare our findings with reports around the globe.

Materials and Methods

This was a retrospective study of patients who had caesarean delivery in Federal Medical Centre Gombe, from January 2001 to December 2003. The records were obtained from the Medical records department, postnatal and labour ward registers and the theatre. The age, parity, indication for surgery, booking status, social class, marital status, place of domicile, height, number and type of caesarean deliveries, type of uterine incision, complications, cadre of surgeon and duration of hospital stay were obtained for each patient. Being a retrospective study some of the case notes were not retrieved and among those retrieved some had no complete data for analysis. The data were analyzed using the EPI-INFO version 6.0 statistical package.

Results

A total of 264 caesarean deliveries were performed out of 2,172 total deliveries for the period under review giving an incidence of 12.2%.

Table I. shows the demographic characteristics of patients who had caesarean delivery. The age ranged from 14 - 47 years with a mean of 26 years. The majority of the patients 163 (65.2%) were within the age group 20-34. The peak age specific caesarean section rate was in those aged 30-34 years. Eighty six (34.4%) patients were primigravidae, 114 (45.6%) were multiparae and 50 (20%) were grand multiparae.

Most of the patients, 192 (76.8%) were booked, while 58 (23.2%) were unbooked. Majority, 248 (99.2%) were lower segment caesarean section; only 2(0.8%) patients had classical caesarean section. The bulk of the operation, 181 (72.4%) were performed as emergencies while 69 (27.6%) were elective.

The indications for the caesarean deliveries are contained in Table II. Although some patients had more than one indication, the commonest indication was cephalopelvic disproportion 52(20.8%) followed by preeclampsia/eclampsia 47(18.8%) and ante partum haemorrhage 36 (14.4%). Two cases (0.8%) of caesarean deliveries were performed for carcinoma of the cervix.

Table III shows the morbidity and mortality associated with caesarean delivery.

Wound infection was the commonest maternal morbidity seen in 11 (5.2%) of cases

While birth asphyxia, 28(5.4%) was the commonest fetal morbidity. There were 2

maternal deaths giving a maternal mortality rate of 800/100,000. Twenty one perinatal

deaths occurred, giving a perinatal mortality rate of 82/1000. Fifteen (2.9%) were fresh

stillbirths and 4 (0.1%) were early neonatal deaths. Ten (4%) of those who had fresh

stillbirths were unbooked, while 5 (2%) were booked. The two who had macerated

stillbirths were both unbooked while two of those with early neonatal deaths were in

booked patients and the other two in unbooked mothers. The majority of the operations

215 (86%) were performed by registrars while 35 (14%) were performed by consultants.

All but one of those who developed wound infection was performed as emergencies.

The elective case was a known diabetic. The average period of hospital stay was 7 days.

The range was from 1-51 days. Most of the patients, 232 (92.8%) had primary caesarean delivery, 15 (6%) had secondary, 2 (0.8%) had three and 1(0.4%) had four previous caesarean deliveries.

Table I: Demographic Characteristics of Patients Who Had Caesarean Delivery

Characteristics	Number	(%)
Age (years)		
< 15	1	0.4
15-19	43	17.2
20-24	51	20.4
25-29	50	20.0
30-34	62	24.8
35-39	32	12.8
≥40	11	4.4
Total	250	100
Parity		
1	86	34.4
2-4	114	45.6
≥5	50	20
Total	250	100
Booking status		
Booked	104	41.6
Booked elsewhere	88	35.2
Unbooked	58	23.2
Total	250	100
Literacy level		
Literate	99	39.6
Non-literate	120	48
Not stated	31	12.4
Total	250	100
Marital status		
Married	244	97.6
Single	6	2.4
Total	250	100
Place of domicile		
Urban	186	74.4
Rural	64	25.6
Total	250	100
Height (cm)		
<150	12	4.8
150-160	138	55.2
161-170	50	20
>170	2	0.8
Not stated	48	19.2
Total	250	100

Table II: Indications for Caesarean Delivery

Indications	Number	(%)
CPD/Obstructed labour	52	20.8
Pre-Eclampsia/Eclampsia	47	18.8
APH	36	14.4
Fetal distress	22	8.8
Previous Caesarean section	18	7.2
Failure to progress	14	5.6
Bad obstetric history	10	4
*Others	51	20.4

* Others---Failed induction of labour, abnormal lie, multiple pregnancies, IUGR, Cervical cancer, cord prolapse and previous VVF repair

Table III: Caesarean Morbidity and Mortality

Complications	Number	%
MATERNAL		
Wound infection	11	5.2
Anaemia	5	2.3
Postpartum pyrexia	4	1.9
Bowel injury	1	0.01
Maternal death	2	0.8
FETAL		
Fresh still birth	15	2.9
Early neonatal death	4	0.1
Birth asphyxia	28	5.4
Neonatal sepsis	5	0.1

✓ Some had more than one complication

Discussion

The caesarean delivery rate at the Federal Medical centre Gombe of 12.2% is comparable to the 10.1% and 14.6% reported from Benin and Calabar respectively.³ It is however lower than the 21-32% reported from other series.^{2,7,11,15}

Recent studies have shown a distinct rise in the caesarean delivery rates in most countries, although the rate of increase varies.¹⁶⁻²⁰ The institutional caesarean delivery rate for developing countries vary from 5-20%.^{1,13} In Nigeria, the rate ranged from 5.9% in Ilorin to 19.8% in Ibadan.^{2,4,13,21}

Cephalopelvic disproportion/Obstructed labour was the commonest indication for caesarean delivery in this study, accounting for 20.8%. This agrees with earlier reports^{12, 16, 23}. However, Adinma, in a secondary-level hospital, found fetal distress as the commonest indication for caesarean delivery.²⁴ The high incidence of cephalopelvic disproportion in the tropics has been attributed to the general pelvic contraction resulting from impairment of growth by malnutrition and ill-health.^{16, 25, 26}

This view needs to be revisited in the light of findings in this study of only 4.8% of the patients less than 150cm had caesarean delivery while 55.2% of those who had caesarean delivery had fallen within the height bracket of 150-160cm. Improved nutritional status of our women and childhood immunization against the diseases that cause ill-health in the 1980's might be responsible for the attainment of acceptable height in our women. It is possible that a greater involvement of Consultants in selecting cases for caesarean deliveries will reduce the frequency of diagnosing cephalopelvic disproportion. Other leading indications were pre-eclampsia/Eclampsia, ante partum haemorrhage, fetal

distress and previous caesarean delivery. This is comparable to other reports.^{27, 28, 29} Regrettably previous caesarean delivery was the fifth leading indication for caesarean delivery in this study and this means an increase in caesarean delivery rate in subsequent pregnancies. Attempts must therefore be made to reduce caesarean delivery in areas of loose indications like bad obstetric history, precious baby, prolonged infertility and clinical fetal distress so as to reduce the primary caesarean delivery rate.³⁰

The long held view that majority of our patients who underwent caesarean delivery were unbooked has not been supported by this study. This probably reflects better education and increased awareness among our women. Although majority of our patients were booked (76.8%), most of the emergencies were not booked in our hospital. This underscores the importance of continuing medical education for those in the primary and secondary level of care to identify high risk pregnancies and refer in good time. This will reduce the number of complicated pregnancies brought to our hospitals as emergencies.

The ratio between elective caesarean delivery (27.6%) and emergency caesarean delivery (72.4%) in this study is comparable to the ratio (27.8% elective and 72.7% emergency caesarean delivery) at Havana specialist hospital Lagos.³⁰ However, Aisien reported a ratio of 10% elective and 90% emergency caesarean deliveries in a Teaching Hospital in Northern Nigeria.³¹ The ratio in the United Kingdom was 52% and 48% for elective and emergency caesarean deliveries respectively.^{14,22} This discrepancy may be due to differences in personal profile of our patients and lack of proper antenatal care in the primary and secondary levels of care. Late referral from other health centres 88 (35.2%) as shown in this study is also a significant contributing factor.^{12, 15, 30}

In spite of the fact that 72% of the procedures in this study were performed as emergencies, 48.8% of the skin incisions were Pfannenstiel. This probably reflects a changing trend in operative technique and the increased awareness of its cosmetic value in our centre. The Pfannenstiel incision is the method of choice in many hospitals.^{30, 32, 33} Nine (4.3%) of the eleven patients who had wound infection had midline incisions, while 2 (0.1%) had Pfannenstiel incision. The postoperative wound infection rate is similar among those operated by the consultants and the registrars ($P > 0.05$). This finding is similar to that of Makinde but contrary to that of Oronsaye et al^{10, 12} who found a high infectious morbidity in patients operated by registrars. Only 4 (1.6%) of the fresh stillbirths were operated by the consultants while

11(4.4%) were operated by the registrars. Both maternal deaths were operated by the registrars. This finding is similar to that reported by Megafu/Nweke.²³

The commonest cause of morbidity in this study like in earlier studies was wound infection.^{2, 8, 16, 30, 32} Emergency caesarean delivery accounted for all but one case of wound infection. This is despite the use of prophylactic antibiotics in all the patients. The problem is multifaceted but in emergency situations, detailed antiseptic ritual might have been abridged in order to save the fetus or the mother.^{2, 30, 34, 35} Our maternal morbidity rate of 8.4% is lower than the 13.7% and 15.6% reported from Pakistan and Lagos respectively.^{15, 30} The wound infection rate of 5.2% found in this study falls within the 1-9% reported for developed countries. Our hospital, being relatively new with little emergence of resistant organisms might explain the low infectious morbidity rate.

The Caesarean delivery maternal mortality of 0.8% found in this study was lower than reports from Maiduguri, Calabar and Enugu^{3, 16, 23} but higher than 0.51% reported from a private Hospital in Lagos.³⁰ Our caesarean maternal mortality was also much higher than the caesarean mortality of 0.01-0.04% in developed countries.¹⁶ There were 2 maternal deaths and the causes of death were eclampsia and haemorrhage. Both women were of advanced age, unbooked and of high parity. However autopsy was not done and hence the causes of death were based on clinical grounds.

The perinatal mortality of 82/1000 was lower than the 118/1000 and 128.3/1000 reported by Makinde¹² and Okonta²¹ respectively but higher than the 65.1/1000 reported by Adeleye.² The high perinatal mortality could be due to the leading indications for the caesarean delivery in this study which could predispose to placental insufficiency/asphyxia and prematurity.

In conclusion, regrettably, a large number of women who booked elsewhere presented late to our centre and subsequently ended up with emergency caesarean deliveries. The high infectious morbidity rate could be a result of the delay in referral and the emergency nature of the surgery. Against the backdrop that majority of the patients in this study were booked; continuing medical education for health care personnel will go along way in reversing the trend of delay in referrals thereby reducing the morbidity associated with caesarean delivery. Periodic audit is the key to reducing the morbidity and mortality associated with caesarean section.

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