

Comparison of Maternal Morbidity in Caesarean Delivery for Failed First and Second Stage of Labour

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Abstract

Objective: To compare, the short term maternal morbidity in caesarean sections, done for failed 1st and 2nd stage of labour.

Methodology: This study was conducted in department of obs / gyn unit I Holy Family Hospital Rawalpindi from 1st March 2008 till 28th February 2009, It was a Cross sectional comparative study. Sample Size was calculated by using formula $n = z^2 Pq / E^2$ (with prevalence of CS for failure to progress at 10%) as 138. Keeping in view the hospital turnover of patients (8-10/ month), 100 patients were included in this study.

Results: Compared with 1st stage failure, women undergoing LSCS for second stage failure were more likely to have intra operative complications, like extension of uterine incision, uterine atony, injury to adjacent organs, blood loss of more than 1000 ml and increased intra operative blood transfusion. In post operative period, these women had increased febrile morbidity, urinary complaints and Foleys catheter retention for a longer duration.

Conclusion: Maternal intra operative complications and post operative morbidity significantly increase in women undergoing caesarean delivery at full cervical dilatation compared with LSCS done at less than full cervical dilatation.

Keywords: Complications of caesarean section, First stage failure LSCS, Second stage failure LSCS, maternal morbidity.

Introduction

Delivery of the baby by an abdominal and uterine incision known as caesarean section (CS) is being increasingly used for safe foetal or maternal rea-

sons and is done either electively or as an emergency.¹

There is a steady increase in the rate of CS globally. In most of the developed countries incidence of CS being performed is 10-25 % of all deliver-

ies.² The incidence in tertiary care hospitals of Pakistan is much higher than this (30-35%) because a very high number of non-booked cases present in hospital “emergency”, after having been mismanaged outside the hospital.³ Four principle indications accounting for 70% of CS are cervical dystocia, fetal distress, mal-presentation and prior caesarean delivery.⁴

Since CS is a major surgical procedure, there is an increased risk of operative complications. CS during 1st stage of labour is less likely to have complications compared to CS during 2nd stage, Hamorrhage due to extension of incision (vertically or transversely) during delivery of deeply impacted head in 2nd stage is more likely than in 1st stage, so is the uterine atony and need for blood transfusion. Urinary tract injuries need prolong catheterization. Urinary and gastrointestinal injuries can give rise to post operative complications such as fever Urinary tract infections (UTI). Wound infections are more common in 2nd stage CS than 1st stage CS. Both general anaesthesia (GA) and regional anaesthesia (spinal, epidural or combined spinal and epidural) can be used for CS and complications related to anaesthesia are common in both group. Regional anaesthesia is preferred as it allows the mother to remain awake and interact immediately with her baby,⁵ as well as avoidance of typical risks of GA (pulmonary aspiration). GA may be necessary in certain situations like, heavy ante-partum haemorrhage where patient may not tolerate the haemodynamic effects of regional anaesthesia and in acute emergency such as severe

fetal distress, when there is no time to give regional anaesthesia.

Recent data suggest that CS in labour is associated with increased maternal morbidity compared with caesarean delivery without labour.⁶ CS at full cervical dilatation with an impacted foetal head can be technically difficult and is associated with increased trauma to the lower uterine segment and adjacent viscera, increased haemorrhage and higher post operative infections.⁷ Overall maternal morbidity rate can be lowered with CS performed by experienced obstetricians^{7,8}. This study was conducted to compare the maternal morbidity associated with 1st and 2nd stage failure caesarean delivery.

Methodology

This study was conducted in the department of obs / gyn unit I Holy Family Hospital, Rawalpindi from 1st March 2008 till 28th February 2009., Sample Size was calculated by using formula $n = z^2 Pq / E^2$ (with prevalence of CS for failure to progress at 10%) as 138. Keeping in view the hospital turnover of patients (8-10/ month), 100 patients were included in this study.

Study technique was Purposive. All patients admitted in labour ward and undergoing primary LSCS, regardless of their age and parity, at gestational age of 37-42 weeks were included in the study. While all women with previous LSCS, failed instrumental delivery before LSCS & complication after this (haemorrhage due to lacerations) or having antepartum haemorrhage were excluded from the study as it affects the variable (need for blood

transfusion) compared in both groups.

Procedure of Data Collection: Approval of study was sought from the hospital ethical committee and an informed written consent was taken from the concerned women. All patients were reviewed initially by taking complete history and performing examination. Confounding variables were controlled by excluding patients on the basis of history, examination, vital signs and progress of labour, (as seen on the partogram which) was maintained. Blood sample was taken for blood grouping and complete picture. The patients who required LSCS during 1st stage of labour were allocated to Group-I and those who required LSCS during 2nd stage of labour were allocated to Group-II. Data was collected on a specially designed proforma. Name of surgeon, date, indication and duration of operation were noted. Complications during surgery like excessive bleeding (>1000 ml), need for blood transfusion, lateral extension of uterine incision, vertical extension in lower segment, uterine atony and injury to adjacent organ were recorded. Similarly post operative hospital stay, pyrexia, duration of retained catheter (>5 days), wound infection were recorded. Haemoglobin level and urine RE were also recorded.

Operational Definitions were:-

First Stage Caesarean Section: CS performed on term pregnancy in labour, before full cervical dilatation.

Second Stage Caesarean Section: CS performed on term pregnancy in labour at full cervical dilatation.

Maternal Morbidity: It is defined as a condition that has an adverse impact on an expectant woman’s physical and mental health.

Data Analysis: All data was entered in SPSS version 11 for analysis. Mean and standard deviation were calculated for age, total hospital stay and duration of operation. Frequency and percentage were calculated for need for blood transfusion, uterine atony, injury to adjacent organs, extension of incisions, fever, wound infection and urinary complaints. A Chi Square test was used to compare complications between the two groups. A probability value of ≤ 0.05 was considered significant.

Results

During the study period 12,229 patients delivered in this hospital out of whom 5,686 delivered in unit I with 2103 (37%) patients delivered by LSCS (CS). In 171(8.13%) patients LSCS was done for failure of progress of labour. Among these 124(72.5%) were first stage CSs, while 47(27.5%) were second stage CSs. A total of 100 patients fulfilling our criteria were recruited in the study. Among these 100 patients, 1st stage CSs were in 67 and 33 were 2nd stage CSs were in 33 of them. Percentage of first and second stage LSCS is shown in figure 1.

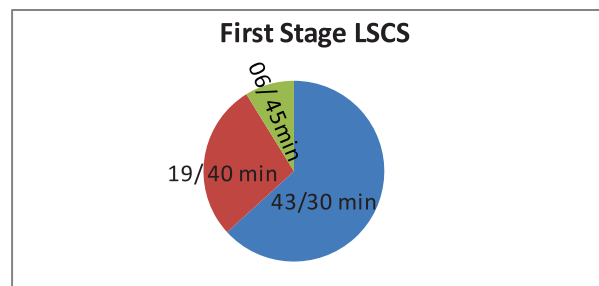


Figure1. Indications of LSCS

Operation time required is shown in figure 2 a and b.

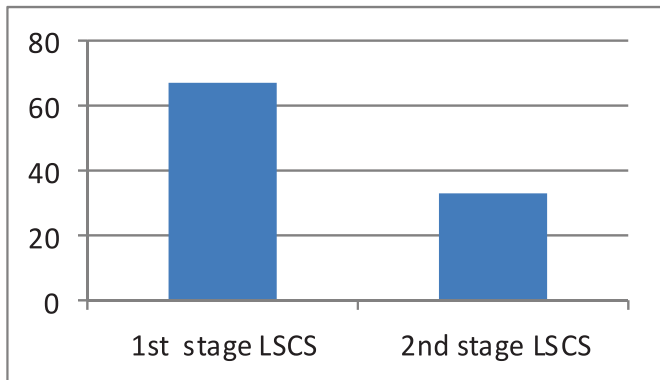


Figure 2a. Duration of Operation (First Stage LSCS)

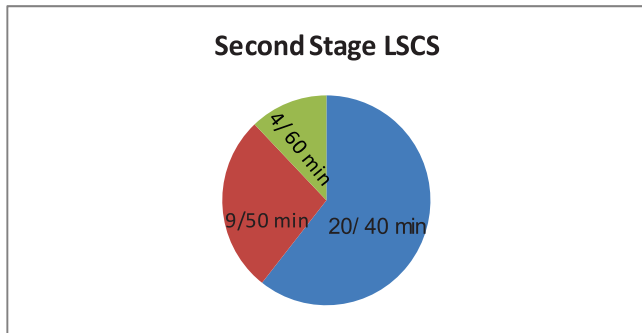


Figure 2b. Duration of Operation (Second Stage LSCS)

In group II patients i.e. second stage CS mean operation time was longer i.e. 50 minutes Vs 37.5 minutes as compared to group I patients. Women undergoing LSCS for second stage failure had more intra operative complications as shown in table I. Like wise post operative complications were also more common in Group II (table II). There was no difference in wound infection and need for blood transfusion in post operative period while intra operative blood transfusion was more in Group II.

Table I. Intra Operative Complications

Complications	First stage	Second stage	
	LSCS N=67	LSCS N=33	
Blood Loss > 1000 ml	4 (6%)	12 (36.4%)	
Uterine Atony	4 (6%)	12 (36.4%)	
Extension of Incision	1 / 0 (1.5% / 0%)	7 / 5 (21.2% / 36.4%)	
Injury to Adjacent Organ	1 (1.5%)	3 (9.1%)	
-Bladder	1	-Bladder 3	
-Gut	-Gut nil	-Gut nil	
Need for Blood Transfusion	3 (4.5%)	5 (15.2%)	

Table II. Post Operative Complications

Indication	Fever	Urinary Complaints	Need for Catheterization 5 days or >	Wound Infection	Need for Blood Transfusion
Group I	4 6%	8 11.9%	0	3 4.5%	3 4.5%
Group II	10 30.2%	11 33.3%	12 36.36%	3 9.1%	4 (12.1%)

Discussion

An increase in rate of primary CS is known to be a consequence of changes in maternal characteristics and obstetric practice such as increase in maternal age and weight, weight gain during pregnancy and labour induction rates and use of epidural anesthesia. In our hospital CS rate turned out to be 37% in the study period of one year which is quite high compared to the rate worldwide

e.g 25%. This rate is high because this hospital is a tertiary care centre with a wide catchment area of north Punjab.

Recent data suggests that CS in 2nd stage of labour is always associated with increased maternal morbidity compared with CS in early labour.⁶ Multiple studies⁸⁻⁹ have shown that CS at full cervical dilatation were more likely to have intra-operative trauma. Our study demonstrates significantly increased risk of maternal intra operative trauma, increased operation time and blood loss with CS at full cervical dilatation compared with CS at less than full cervical dilatation.

In our study, CS in second stage took longer 45-60 min (mean 50 min) while duration of all first stage CS remained between 30 -45 min (mean 37.5 min). This correlates with results of other recent studies on the same topic.^{10,11}

In this study group II needed urinary catheterization for a longer period especially if it was performed for obstructed or prolonged 2nd stage of labour as compared to group I cases. Out of 33 second stage CSs, eight were catheterized for 7 days and 3 for 10 days which is not a usual finding in previously conducted studies.^{8,11}

Blood transfusion rate was also higher in our study group (2nd stage CS 15.2% vs. 1st stage CS 4.5%). Another study¹² had shown that women undergoing CS at full cervical dilatation were 2.9 times more likely to have blood transfusion.

Difficulty in extracting the foetal head and the shoulders through the uterine incision could be one causal mechanism of increased intra operative laceration rates in second stage CS.¹³ Such

extension of incision was also high in our study group II.

In our study post operative febrile morbidity in group II and I respectively was 30.3% vs. 6% and urinary tract infection was 33.3% vs 11.9%, which are higher than those reported in another local study conducted in Lahore General Hospital,¹⁴ as well as in few international studies.^{8,11} However, wound infection rate (4.5 /9.1%) of our study was comparable with quite a few others.

Modification of CS technique is helpful to facilitate the delivery of the impacted head in the second stage of labour thereby reducing the injury to fetal head and the uterus. An assistant lifts the fetal head after disengagement with a cupped hand through the vagina. When the presenting part of the fetus has been lifted upto the level of uterine incision, the head would be delivered through the incision easily. This will help to decrease the rate of intra operative lacerations of uterus.

It is recommended that CS in second stage of labour should be performed by senior obstetrician or if it is performed by a resident it should be under supervision of senior obstetrician.⁷

Conclusion

Higher incidence of CS is a major contributory factor to an increased rate of maternal morbidity in caesarean deliveries. CS in second stage of labour is associated with increased incidence of maternal intra operative trauma, increased febrile morbidity, increased blood loss and prolonged need for catheterization as compared to caesarean delivery in first stage of labour. All such compli-

cations can be minimized with the help of a senior obstetrician.

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