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Original Article

MATERNAL AND NEONATAL OUTCOME IN SECOND STAGE CAESAREAN SECTION

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ABSTRACT

Background: Caesarean section is the most commonly performed surgery in women and the caesarean which are performed in second stage are technically difficult and has many implications on maternal and neonatal morbidity. **Objective-** To study the maternal and neonatal outcome in caesarean section performed in second stage of labour **Materials and method:** It is a Hospital based prospective study conducted at department of Obstetrics and Gynecology, Mahatma Gandhi Medical College and Hospital, Jaipur from July 2020 to June 2021 amongst women who had undergone caesarean section in the second stage of labour. **Results:** In our study there were 55 (4.3%) patients who had underwent a caesarean section during the second stage of labor Out of this 54.5% cases belonged to the age group of 20-25 years. 74.5% patients in our study were primigravidae. 43.63% patients in our study had gestational age between 38 weeks to 38 weeks and 6 days followedby 38.18% between 37 weeks to 37 weeks and 6 days. The most common indication of caesarean section in our study was second stage arrest due to malpositionaccounting for 74.5% cases. In our study 78.18 percent patients had PPH with 50.9percent of patients requiring blood transfusion. Most common neonatal complicationwas birth asphyxia seen in 54.5 percent cases followed by meconium aspiration syndrome in 29.09% cases. **Conclusion:** Women undergoing second stage caesarean section require specialcare as there is increased risk of maternal and neonatal morbidities in them andhence it should be performed by a skilled obstetrician and timely decision of caesarean should be made when there are risk factors for failure to progress.

Keywords: Caesarean, Second stage arrest, PPH, woundsepsis, Birth as phyxia

INTRODUCTION

Caesarean section is a globally recognized maternal health care indicator and commonly perceived as simple alternative to difficult vaginal birth. In Medical colleges and teaching hospitals in India overall rate of caesarean deliveries is 24.4% [1]. Second stage of labour begins when cervical dilatation is complete and ends with delivery of the fetus.. Mean duration for 2nd stage is 50 minutes for nullipara and 20 minutes in multipara. Prolonged 2nd stage is diagnosed when duration exceeds 2 hrs in nullipara and 1 hr in multipara. Arrest of descent is diagnosed when there is no change in station over a period of at-least 2 hrs. According to RCOG audit figures, 35 % of caesarean for singleton pregnancies are performed because of failure to progress of labour, of which quarter occur at full cervical dilatation [2]. Arrest may be due to one or combination of abnormalities like CPD, malposition (OP) , malpresentation and inadequate uterine contractions. Caesarean section in second stage of labour is challenging operation due to distortion of pelvic anatomy, thinned out oedematous lower uterine segment and deeply impacted fetal head in maternal pelvis. There is also higher risk of PPH and infection associated with caesarean during second stage of labour. Increased incidence of obstetrical hemorrhage, bladder injury, extended uterine tear leading to broad ligament hematoma and longer hospital stay are seen with caesarean in second stage of labour[3]. Fetal

complications encountered were birth asphyxia and meconium aspiration syndrome. This is due to intra operative fetal hypoxia caused by persistent strong uterine contractions and deeply impacted fetal head. Neonatal morbidity in terms of NICU admissions, fetal acaedemia, hpoxaemia , prolonged NICU stay is reportedly higher in second stage caesarean sections.

Major concern of modern obstetrics is increasing trend of caesarean section in second stage of labour[4] The greatest challenge being decision making surrounding caesarean section in second stage of labour. Hence this study is conducted to know the indications of second stage caesarean secrtion in Dept of Obstetrics and Gynaecology and to assess maternal and neonatal outcome for same.

SUBJECTS AND METHODS

It is a Hospital based prospective study conducted at department of Obstetrics and Gynecology, Mahatma Gandhi Medical College and Hospital, Jaipur from July 2020 to June 2021 amongst women who had undergone caesarean section in the second stage of labour. Study was conducted in single institution. The data were collected in perform and written and informed consent was taken. 55 caesarean section done in 2nd stage of labour were studied. 2nd stage of labour was defined as period of time from full cervical dilatation to deliver of baby. Institutional ethical committee approval was obtained for the study.

Selection Criteria

1) Age group – 20 years – 35 years
2) Singleton pregnancy – irrespective of parity
3) Period of gestation - > 37 weeks

Exclusion criteria

1) Pregnancies with fetal abnormalities and FGR
2) Multiple pregnancies
3) Mother with preexisting medical illness
4) Premature ruptures of membrane

Type of anesthesia and operative technique were same in all the patients. Surgical technique of caesarean section was standardized. Written and informed consent was secured and all the data was collected in preformed proforma.

RESULTS

In our study total of 55 caesarean sections were performed in second stage of labour. Out of which 41 patients were primigravida and 14 were multigravida. Maximum patients i.e. 54.5% patients were in age group of 20-25 years. The demographic data presented in table 1 and table 2.

Table 1: Distribution of study participants according to age

Age	Number	Percentage
<20	2	3.64
20-25	30	54.55
25-30	18	32.72
30-35	4	7.28
>35	1	1.81
Total	**55**	**100**

Table 2: Distribution of study participants according to parity

Parity	Number	Percentage
Primigravidae	41	74.55
Multigravidae	14	25.45
Total	**55**	**100**

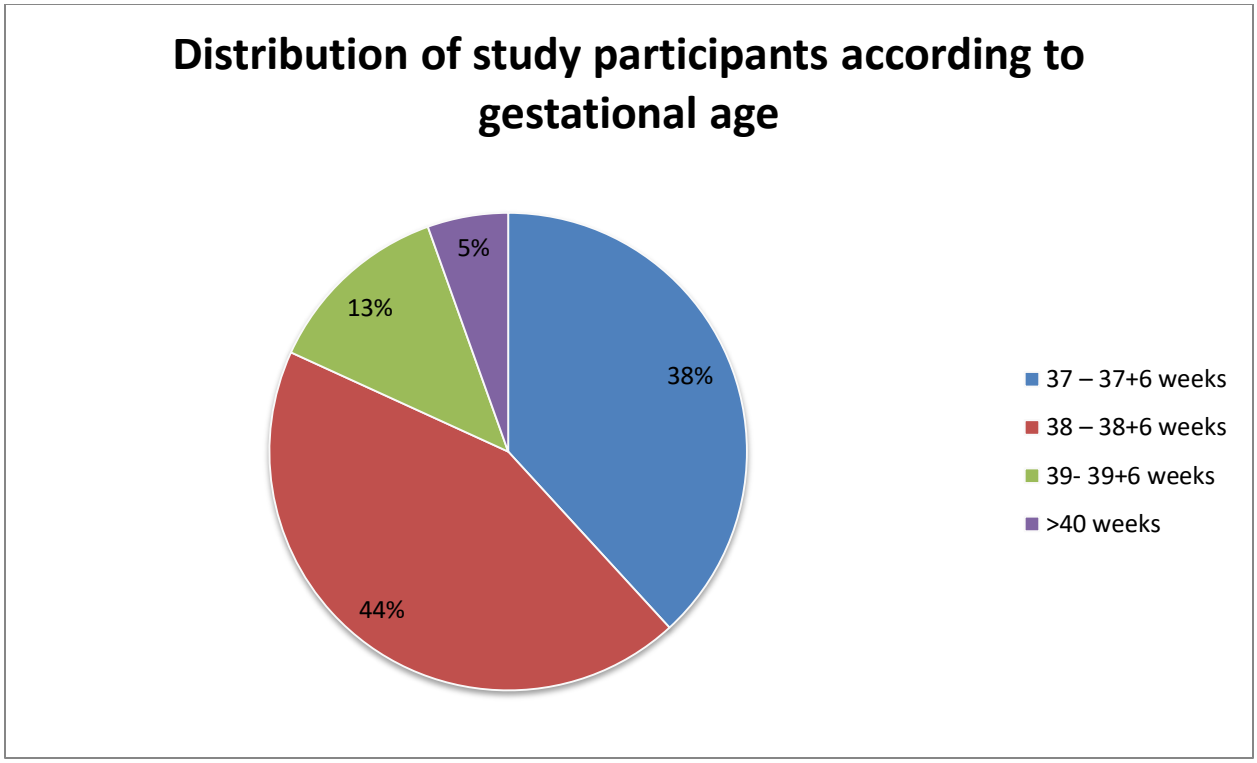

Table 3: Distribution of study participants according to gestational age

Gestational age	Number	Percentage
37 – 37+6 weeks	21	38.19
38 – 38+6 weeks	24	43.63
39- 39+6 weeks	7	12.72
>40 weeks	3	5.46
Total	**55**	**100**

Table 3 shows Gestational age was 38-38^{+6} in 24 deliveries (43.63%) and only 3 deliveries (5.46%) were above 40weeks.

Table 4: Distribution of study participants according to indication of caesarean section

Indication	Number	Percentage
Malposition	41	74.54
CPD	5	9.10
Failed vaccum	3	5.45
Fetal distress	4	7.28
Deep transverse arrest	2	3.63
Total	**55**	**100**

Table 4 depicts that arrest of descent due to malposition and CPD was seen in 41 cases (74.54%) and 5 cases (9.10%) respectively. Deep transverse arrest was seen in 2 cases (3.63%).

Table 5: Distribution of study participants according to intraoperative and post-operative complications

Complication	Number	Percentage
Extension of uterine incision	8	14.54
Bladder injury	4	7.27
PPH	43	78.18
Broad ligament haematoma	3	5.45
Blood transfusion	28	50.90
Sepsis	23	41.81
Prolonged hospital stay	4	7.27
Wound infection	10	18.18

Second stage caesarean was associated with technical difficulty and hence operative complications were more. In our study majority of the cases i.e. 78.18% experienced PPH. However all of them were successfully managed conservatively with blood transfusion and supportive measures. 28 patients (50.90%) required blood transfusion. Intraoperatively extension of uterine incision, broad ligament hematoma and bladder injury was seen in 8 cases (14.54%) , 3 cases (5.45%) and 4 cases (7.27%) respectively. In the post operative period we observed Sepsis and wound infection in 23 cases (41.81%) and 10 cases (18.18%) respectively. There were no cases of maternal deaths reported in our study. Operative and post operative maternal complications that occurred in second stage caesarean were documented in table 5.

Table 6: Distribution of study participants according to neonatal complications

Complication	Number	Percentage
Still birth	1	1.81
Birth asphyxia	30	54.54
Meconium aspiration syndrome	16	29.09
Neonatal sepsis	5	9.09
Neonatal death	3	5.45

Neonatal outcomes such as Birth asphyxia and meconium aspiration syndrome and neonatal sepsis was seen in 30 cases (54.54%) , 16 cases (29.09%) and 5 cases (9.09%) respectively. 1 neonate (1.81%) was still born and in 3 cases (5.45%) neonatal death was observed.

DISCUSSION

Concerns over neonatal and maternal morbidity associated with difficult or failed instrumental delivery have caused a steady rise in caesarean section with disproportionate rise in second stage caesarean sections. In our study the incidence of second stage caesarean section was more in primigravida (54.5 %) than in multigravida (45.5 %) in present study. The increased incidence of second stage caesarean section in primigravidas could be due to cephalopelvic disproportion, rigid perineum and lack of experience of previous labour. In our study the most common cause of second stage arrest was malposition (74.5 %). A previously done study suggests that there is 2.6 times chance of intra operavtive complications with caesarean section done in second stage arrest [5]. Difficulties were due to edematous lower segment over stretched and thinned out lower segment, more impaction of presenting part in pelvis as duration of second stage increases. The incidence of uterine incision extension in second stage caesarean section is as high as 30%[9]. In our study the incidence of uterine artery extension was (14.54 %). The most common intraoperative complication in our study which we encountered was PPH (78.18 %). whereas study conducted by Shahla Baloch, et al observed PPH in only 12.5% [6]. Maternal hemorrhage (>1000 ml) was reported to occur in between 4.7% and 10% of caesarean sections at full dilatation which increases the need of blood transfusion[7] . As compared to Asicioglu et al [8] which

revealed a significant increase in mean blood loss in second stage cesarean sections, in our study 58% cases required blood transfusion. Development of uterine atonia and requirement of uterine or hypogastric artery ligation in the case of severe hemorrhage were also found to be more frequent in caesarean section performed in the second stage of labor and can be due to the longer labor resulting in uterine fatigue. Studies have reported pelvic floor trauma, particularly bladder and bowel problems, in 50% of women at the five-year follow-up after Caesarean sections late in labour, in our study bladder injury was seen in only 7.27% cases.

Cebekulu and Buchmann from Johannesburg, South Africa, reporting on 39 cases and 39 controls, found that second-stage caesarean section was associated with more postoperative fever [9] . In the study by Shahla Baloch et al [10] wound infection was present in 8.33% cases. In our study we observed post operative wound infection and post operative sepsis in 18.18% and 41.8% respectively. There were no incidences of maternal deaths in our study. In various studies it has been quoted that duration of hospital stay for patients in second stage caesarean section is increased. In the study Seal et al [11] , the mean length of stay in the hospital after delivery was higher in second stage caesarean section i.e. Avg 6.4day. . In our study mean length of hospital stay was 6.9 day.

Neonatal morbidity in terms of NICU admissions, foetal acidemia, hypoxemia, prolonged NICU stay is reportedly higher in second stage caesarean sections. This is likely to be a result of increasing fetal compromise with prolonged duration of delivery, not a result of the procedure. A recent study by Das S [12] demonstrated a statistically significant increase in admission to NICU, septicaemia, low 5 min Apgar (<3) and neonatal trauma. In our study Birth asphyxia and meconium aspiration syndrome and neonatal sepsis was seen in 30 cases (54.54%) , 16 cases (29.09%) and 5 cases (9.09%) respectively. 1 neonate (1.81%) was still born and in 3 cases (5.45%) neonatal death was observed.

CONCLUSION

Caesarean sections during the second stage are increasing in prevalence. Maternal risks of second stage caesareans include major haemorrhage, longer hospital stay, greater risk of PPH, and extension tears of the uterine angle. We believe that caesarean delivery performed during the second stage of labour increases the incidence of fetal respiratory distress, admission to the neonatal intensive care unit and fetal death due to fetal head impaction into the maternal pelvis and prolonged second stage labour. Decision making surrounding second stage CS is often challenging. Involvement of senior obstetrician is desired regarding suitability and safety for trial of operative vaginal delivery or CS. Alarming the neonatologist beforehand are recommended in all difficult second stage deliveries. The modern management of the second stage of labor will have to balance the risks and benefits of the obstetric interventions, such as episiotomy, instrumental vaginal delivery and caesarean section which are used when the second stage labor is prolonged.

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