

Full Length Research Paper

Fetomaternal outcome in second stage Caesarean section - An audit

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Caesarean section (CS) at full dilatation of cervix has many implications for maternal & neonatal morbidity and mortality. The objective of the study was to analyse the indication for second stage CS & its associated fetomaternal outcome. This cohort study was carried out in the Department of Obstetrics & Gynaecology for a period of one year during which we analysed 42 women who underwent second stage CS. Data was obtained by reviewing medical records. During the study period total number of CS performed were 1951 (36.42%), of these 42 (2.15%) was performed at full dilatation of cervix. Majority were primigravidae (92.8%), mean age was 25.38 ± 3.72 years and mean gestational age was 38.8 ± 1.16 wks. Duration of second stage was <2hrs in 47.6% & >2hrs in 26.2%. Significant caput was present in 85.7%. The most common indication for second stage CS was secondary arrest of descent seen in 54.7%. Commonest maternal complications were haematuria 76.1%, atonic PPH 26.1% and extension of uterine incision in 14.3%. Fourteen babies (33.3%) required NICU care. There was no maternal or perinatal mortality in the present study. Involvement of skilled obstetrician in decision making and delivery is crucial to minimise the complications.

Keywords: Second stage caesarean section, Fetomaternal outcome, maternal complications, neonatal complications.

INTRODUCTION

A CS at second stage occurs when mother requires delivery at full dilatation of cervix, which poses a risk to herself and the foetus. The increasing trend of CS at second stage is of major concern in modern obstetrics. Incidence of second stage CS has increased from 0.9% to 2.2% (Vousden N, 2014). Second stage CS has been reported as a concerning increase trend within the increasing CS rate (Unterscheider J, 2011; Vousden N, 2014). Literature review suggests that this trend is multifactorial; probably a combination of lack of training for junior staff in second stage decision making, lack of expertise in assisted vaginal delivery (Unterscheider J, 2011). Increase in primary CS has a great impact on subsequent obstetric outcome & delivery. Royal College of Obstetricians and Gynaecologists (RCOG) reports that

6% of primary CS occurs at full dilatation and in 50% of these patients there was no attempt of instrumental vaginal delivery (Thomas J, 2001). CS at full dilatation is a technically more challenging procedure than CS in early labour (Mckelvey A, 2009). The maternal morbidity is higher in second stage CS (Unterscheider J, 2011; Loundon JA, 2010). Maternal morbidity in second stage CS is extension of uterine angles, postpartum haemorrhage & prolonged surgical time as reported by (Govender V, 2010; Sung JF, 2007). Bladder injury, postpartum pyrexia were among the common complications reported during second stage CS (Alexander JM, 2007; Selo-Ojeme D, 2008). Neonatal morbidity in terms of NICU admissions, foetal academia, hypoxemia, prolonged NICU stay is reportedly higher in second stage CS (Murphy DJ, 2001; Davis G, 2015). Decision making surrounding CS in the second stage of labour is one of the greatest challenges in current obstetric practice. Involvement of a skilled obstetrician in

the management of second stage CS aids in minimising the morbidity & mortality.

The aims of this audit were to determine

- (i) The indication for second stage CS
- (ii) The fetomaternal outcome in second stage CS, with a view to suggesting strategies for improvement in future.

METHODOLOGY

This retrospective audit was carried out in the department of Obstetrics and Gynaecology in a tertiary care Hospital for the period of one year from January 2015 to December 2016. Singleton cephalic pregnancies at term, who underwent second stage CS were included in the study. Twins, breech deliveries and preterm births were excluded from this audit. The data was obtained by reviewing patient's records. Forty two women who underwent second stage CS were analysed in terms of maternal demographic details, indications for second stage CS, duration of second stage, attempt of instrumental delivery, intraoperative and postoperative complications, as well as neonatal outcome. Data analysis was performed with the SPSS Statistical Package. Continuous variables were expressed as mean \pm SD and categorical variables as number and percentages. Institutional ethical committee approval was obtained for record review.

RESULTS

Total number of deliveries during the study period was 5356. Among these 1951(36.42%) delivered by CS out of this 42(2.15%) were performed in second stage. Average maternal age was 25.4 ± 3.72 years, mean gestational age was 38.8 ± 1.16 wks. Regarding parity majority (92.8%) were primigravidae. The gestational age ranged between 37- 40 weeks in nearly 81% with only 19% more than 40 weeks. Labour was induced in 64.2% of patients, while the rest 35.7% had spontaneous onset of labour. The duration of second stage was <2hrs in 47.6% and >2hrs in 26.2% (Table 1).

Arrest of descent and foetal distress were the most common indications for CS in second stage of labour accounting for 54.7% and 23.8% respectively (Table 2).

Maternal complications included haematuria 76.1%, atonic PPH 26.1%, extension of uterine angles 14.2%, postpartum pyrexia 33.3% and component transfusion in 7.1%. There was no maternal mortality in the present study (Table 3).

Majority of neonates (69%) weighed between 3-4 Kgs. Thirty three percent of neonates required NICU admissions. The mean APGAR at 1' and 5' was 7/10 and 9/10 respectively (Table 4).

Neonatal morbidity included Respiratory distress syndrome in 9(64.2%), Birth asphyxia 2(14.2%) and 1(7.1%) each with hyperbilirubinemia, hypoglycaemia and meconium aspiration syndrome (Table 5).

There was no neonatal mortality in the present study. The neonates with the diagnosis of birth asphyxia are under regular follow up with our neonatology team and no neonate is reported to have delayed milestone so far.

DISCUSSION

Despite many concerns raised over rising trend of caesarean section, there is only a little attention towards increasing trend in CS at second stage. Second stage CS has been reported as a concerning increase trend within the increasing CS rate (Unterscheider J, 2011; Vousden N, 2014). Studies suggests that this trend is multifactorial; probably less skill in operative vaginal delivery, strong medicolegal mind-set in current obstetric practice, concerns over maternal and neonatal morbidity associated with difficult or failed instrumental delivery (Stavrou EP, 2011; Vousden N, 2014; Loudon JA 2010; Unterscheider J, 2011, Davis G, 2015).

The CS rate of the present study (32.4%) is lower than the published data by Davis G, 2015. Our CS rates at second stage are lower than the data published 2.15% vs 4.85% & 5.63%, (Unterscheider J, 2011; Davis G, 2015). The incidence of second stage CS was more in primigravida (92.8%) than multigravida (7.14%) in the present study; this observation was similar to study by Babre VM, 2017. Failed instrumentation was seen only in 7.14% of cases in the present study which was much lesser compared to other studies. The indication for majority of these deliveries was failure to progress in second stage, most commonly due to secondary arrest of descent of foetal head (54.7%) followed by foetal distress (23.8%). This is consistent with published literature (Unterscheider J, 2011; Davis G, 2015, Thomas J 2001). The other indications for CS in the second stage in the present study were persistent occipitoposterior position (19%), DTA (14.2%), failed instrumentation (7.1%). Women delivered by CS at full dilatation of cervix have higher risk of operative morbidity, PPH, visceral injury, sepsis etc. (Alexander AM, 2007; Selo-Ojeme D, 2008). Haematuria (76.2%) was the most common maternal complication seen in the present study, due to bladder congestion, oedema and obstruction. However there was no bladder injury. Extension of uterine angles (14.3%) and atonic PPH (26.2%) were among the other intraoperative complications. Three women (7.1%) received component transfusion. Pyrexia was the commonest morbidity in the postpartum period accounting to 33.3%, which prolonged the hospital stay on an average of 4 days in these patients, as similar to other studies (Baloch S, 2008; Babre VM, 2017). Fourteen neonates (33.3%) required NICU admissions

Table 1. Maternal characteristics.

Maternal age (years)	25.4±3.72
Gestational age (weeks)	
✚ 37-40	34 (80.9)
✚ >40	8 (19)
Parity	
✚ Primigravida	39 (92.8)
✚ Multigravida	3 (7.14)
BMI (Kg/m²)	
✚ <18.5	2 (4.7)
✚ 18.5-24.9	24 (57.1)
✚ >24.9	16 (38)
Onset of labour	
✚ Spontaneous	15 (35.7)
✚ Induced	27 (64.2)

Table 2. Indication for second stage caesarean section.

Secondary arrest of descent	23 (54.7)
Foetal distress	10 (23.8)
Persistent occipito posterior position	8 (19)
Deep transverse arrest (DTA)	6 (14.2)
Failed instrumentation	3 (7.1)

*Number does not match with the total as the same patient had more than one indication.

Table 3. Maternal complications.

Haematuria	32 (76.1)
Postpartum pyrexia	14 (33.3)
Postpartum haemorrhage	11 (26.1)
Extension of uterine angles	6 (14.2)
Component transfusion	3 (7.1)

*Number does not match with the total as the same patient had more than one complication.

Table 4. Neonatal outcome.

Birth weight (Kgs)	
✚ <3	11 (26.1)
✚ 3-4	29 (69)
✚ >4	2 (4.7)
NICU admission	14 (33.3)
Mean APGAR	
✚ 1'	7/10
✚ 5'	9/10

for the following reasons: RDS (n=9), birth asphyxia (n=2), hyperbilirubinemia, hypoglycaemia, MAS (n=1). The mean APGAR score at birth was 1' 7/10 & 5' 9/10. The observations of the present study were similar to study by (Unterscheider J, 2011).

Our study further identified poor documentation: in particular, the results of abdominal palpation which is one of the most important tool of assessment in second stage of labour, presence of caput, moulding, asynclitism were documented inconsistently.

Table 5. Details of NICU admissions.

Respiratory distress syndrome (RDS)	9 (64.2)
Birth asphyxia	2 (14.2)
Hyperbilirubinemia	1 (7.1)
Hypoglycaemia	1 (7.1)
Meconium aspiration syndrome (MAS)	1 (7.1)

The limitations of the present study include its retrospective nature, poor documentation standards.

CONCLUSION

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. Periodic audits of the rate of second stage CS is a useful measure of clinical standards. Formulating an institutional protocol as well as training & supervision of trainees in the skill of operative vaginal delivery & second stage CS will certainly minimise the morbidity and mortality associated with second stage CS and improves fetomaternal outcome.

Conflict of interest: None

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