



Retrospective Observational Study of Maternal and Fetal Outcome in Forceps Delivery and Caesarean Section in Second Stage of Labour at a Tertiary Care Hospital.

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ABSTRACT

Aim: To observe maternal and neonatal outcome of outlet forceps and second stage caesarean section deliveries at tertiary care centre over one year period.

Material and Methods: All the patients delivered with outlet forceps or second stage caesarean section at Smt kashibai Navale Medical College between Jan 2014 to Dec 2014; with adequate follow up were included in study. Data collected from labour room records and follow up opd registers.

Results: A total of 3764 patients delivered at our centre from Jan 2014 to Dec 2014; out of which Forceps were used in 122(3.24%) patients and Second stage Caesarean section in 58(1.55%) patients. Immediate complications like postpartum haemorrhage both atonic and traumatic requiring blood transfusion is more common in second stage caesarean section group. Contrary to popular belief neonatal injuries and NICU admission rate is more in patients who are delivered by second stage caesarean section.

Conclusion: There is an association between maternal and neonatal outcome and mode of delivery. In selected group of patients outlet forceps delivery is a safer option than second stage caesarean section regarding maternal and neonatal outcome.

KEYWORDS : outlet forceps delivery, second stage caesarean delivery, maternal outcome, neonatal outcome

INTRODUCTION

Obstetrical care providers frequently face dilemmas in the management of second stage of labour. The decision whether or not a particular birth requires assistance and first choice of timings of any intervention must involve consideration of risks of the potential techniques and skills of the operator as well as urgency of the need to expedite the birth process. There is a concern about the dramatically rising rates of caesarean delivery worldwide [1].

Forceps delivery is a part of operative vaginal delivery. It is an integral part of obstetrician's armamentarium. Since its introduction by CHAMBERLEIN family centuries ago it has gone through numerous modifications and has evolved in its present form. More than 700 types of obstetric forceps have been described. Each of the three main types (outlet, midcavity or rotational forceps) is appropriate to specific situations and requires differing levels of expertise. Typically, forceps are used when a singleton foetus in the cephalic position fails to progress or when delivery needs to be expedited in the second stage of labour because of foetal distress. In these instances there may be a real choice between forceps and alternative methods of delivery—namely, caesarean section and vacuum delivery.

Caesarean section is the surgical alternative for operative vaginal birth. The rates of Caesarean sections have risen in past two decades and it may be associated with disproportionate rise in second stage due to decline in use of instrumental delivery.

Unnecessary caesarean sections may be associated with increased maternal and perinatal morbidity [2]. Operative vaginal deliveries (forceps and vacuum-assisted delivery) whilst carrying their own attendant risk [3] can often facilitate child birth in the second stage of labour, thus avoiding caesarean section and its associated morbidities. Although several authors have reported the relative safety of operative vaginal delivery [4,5], many obstetricians have abandoned the use of these interventions. Use of forceps is also declining due to fear of maternal and foetal morbidity and mortality as shown in various clinical trials. Experts often provide conflicting evidence for and against the use of these procedures.

The complications associated with operative vaginal de- livery are

dependent on case selection and the level of the experience of the obstetrician [6]. There are many trials comparing forceps and vacuum as a mode of instrumental delivery; but there are no published randomized clinical trials on which to base a choice between Caesarean and operative vaginal delivery in managing complications in second stage of labour [7]. So we are observing outcome of these two modalities at our centre over last one year.

MATERIALS AND METHODS.

It is retrospective observational study conducted in Department of Obstetrics and Gynaecology Smt. Kashibai Navale Medical College and General Hospital Pune from Jan 2014 to December 2014 after ethical committee approval.

All the patients who have undergone outlet forceps delivery and second stage caesarean sections are included in the study. Out of a cohort of 170 patients delivered either by outlet forceps or second stage caesarean section; we could gather complete follow up record of only 114 patients due to lack of follow up of the patients. So we have selected 50 patients randomly in each group for the ease of assessment and comparison.

Inclusion Criteria:-

All the patients delivered by forceps and second stage caesarean section at our centre during study period.

Exclusion Criteria:-

Patients with inadequate follow up.

Patients age, Gravida history, examination noted. The parameter studied were maternal complications like haemorrhage, risk of anaesthesia, injury to bowel and bladder, post operative stay, analgesics, wound complications, lactations failure, required blood transfusion, post partum mortality. Foetal outcome in terms of APGAR score at 1 and 5 minutes, NICU admissions, injury, mortality. Follow up data of the patients included in the study was collected from post natal opd and paediatrics opd records.

RESULTS

A total of 3764 patients delivered at our center from Jan 2014 to Dec 2014; out of which Forceps were used in 122(3.24%) patients and Sec-

ond stage Caesarean section in 58(1.55%) patients (Table 1). Most of the patients who needed either forceps or second stage caesarean section were primigravida (Table 2). Maternal outcome was noted under immediate and late complications (Table 3); immediate complications like post-partum haemorrhage both atonic and traumatic requiring blood transfusion is more common in second stage caesarean section group (Table 4 & 5). Patients in forceps group needed less hospital stay and less top up analgesia.. Immediate postpartum complications like sepsis and wound dehiscence are almost similar in both groups. Late complications like fecal and urinary incontinence is noted only in patients deliver by outlet forceps.

Contrary to popular belief neonatal injuries and NICU admission rate is more in patients who are delivered by second stage caesarean section (Table 6). Postpartum haemorrhage is more common in patients delivered by caesarean section in second stage of labour (Table 7). Most of the patients delivered by outlet forceps were discharged within 2 days after delivery (Table 8). There was one case of maternal mortality in outlet forceps delivery group which was proved to be due to amniotic fluid embolism in post mortem study. Neonatal mortality is more in second stage caesarean group because many neonates already have hypoxemia and acidosis at the time of delivery.

DISCUSSION:

In this study 3764 deliveries were reviewed, specifically looking at maternal and neonatal morbidity and mortality. In our study we have found that instrumental (outlet forceps) delivery is safer when performed by experts or trainee under supervision than a caesarean section in second stage of labour. Other authors have also found higher morbidity rates in association with assisted vaginal delivery and caesarean delivery [8]. Caesarean section has been reported to increase the risk of severe acute maternal morbidity (SAMM) [9]. SAMM, also known as “near miss”, is defined as “A very ill pregnant or recently delivered woman who would have died had it not been that luck and good care was on her side”. The morbidity associated with caesarean sections may be a reflection of the maternal condition prior to the procedure being performed.

Caesarean section is associated with a higher rate of admission to NICU but there is no increase in the neonatal death when the risk is adjusted for confounding factors. Others have reported similar findings in their study [10]. There could be an argument stating that the already compromised condition of the foetus, leading to operative vaginal delivery and caesarean delivery, can contribute to the higher neonatal adverse outcomes associated with these interventions. It has been suggested that for anticipated difficult assisted vaginal births, it may be preferable to go straight to second stage caesarean section. The advantage of doing an immediate caesarean section would be a reduced risk of morbidity for both mother and baby from a failed attempted instrumental birth. However, the disadvantages of routinely doing a caesarean section in these circumstances are an increased risk of morbidity from caesarean section which often manifests itself at a subsequent birth. The review of trials looking at attempted instrumental delivery in theatre versus immediate caesarean section for anticipated difficult births identified no trials to help with making this decision. Further research is clearly needed.

Unnecessary Caesarean section and operative vaginal delivery may carry significant maternal and neonatal risk and therefore should be undertaken only when such deliveries are strictly indicated. Further randomised and multi-centred research study is required to compare the pregnancy outcomes on different policies of operative intervention.

CONCLUSIONS:

Forceps is a reasonable option for obstetrician to reduce the caesarean section rates and its complications. However caution, proper expertise and judicial use are required to prevent the undue risk to patients. However a large multicentric study should be conducted to study the effect.

Table 1: Proportion of Forceps & Second stage C Section during study period June 2012-June 2015

Sr. No.	Type of Delivery	Total Deliveries	Percentage
1	Total Deliveries	3764	100%
2	Outlet Forceps	122	3.24%
3	Second stage C Section	58	1.55%

Table 2: Parity wise division of study subjects

Type of Delivery	Primigravida	Multigravida	Total
Outlet Forceps	38	12	50
Second stage C Section	43	7	50
Total	81	19	100

Table 3: Maternal outcome

COMPLICATIONS		Outlet FORCEPS	2 nd Stage C Section
Immediate Complications			
Risk of anaesthesia		0(0%)	1 (2 %)
Post-partum Haemorrhage			
Atonic		2 (4%)	4 (8%)
Traumatic		1 (2%)	3 (6 %)
Injury to Bowel and Bladder		0(0%)	2 (4%)
Blood transfusions		2 (4%)	5(10%)
Post operative stay	< 2 days	44 (88%)	0(0%)
	> 4 days	6(12%)	50 (100%)
Top up Analgesia		5 (10%)	11 (22 %)
Post Op sepsis		1 (2%)	1 (2%)
Wound complications		1 (2%)	2 (4%)
Mortality		1(2%)	0(0%)
Late Complications			
Faecal incontinence		1(2%)	0(0%)
Urinary incontinence		1(2%)	0(0%)

Table 4: Relationship between Post-partum haemorrhage and Type of Delivery

(for convenience, Atonic and traumatic type of PPH are combined)

	Post-Partum Haemorrhage		Total
	Yes	No	
Outlet Forceps Delivery	3	47	50
2 nd Stage C Section	7	43	50
	10	90	100

Table 5: Relationship of Requirement of Blood Transfusion and Type of Delivery

	Requirement of Blood Transfusion		Total
	Yes	No	
Outlet Forceps Delivery	2	48	50
2 nd Stage C Section	5	45	50
	7	93	100

Table 6: Foetal Outcome

Parameter		Outlet FORCEPS	2 nd Stage C Section
APGAR	@ 1 min <5	7	12
	@ 5 min <8	4	8
NICU admission		5	8
Injury		2	1
Mortality		1	3

Table 7: Relationship between Post-partum haemorrhage and Type of Delivery

(for convenience, Atonic and traumatic type of PPH are combined)

	Post-Partum Haemorrhage		Total
	Yes	No	
Outlet Forceps Delivery	3	47	50
2 nd Stage C Section	7	43	50
	10	90	100

Table 8 : Relationship between Post Procedure Hospital stay and Type of Delivery

	Hospital Stay		Total
	≤ 2 days	> 2 days	
Outlet Forceps Delivery	44	6	50
2 nd Stage C Section	0	50	50
	44	56	100

REFERENCES

- 1)Villar, J., Carroli, G. and Zavaleta, N. (2007) Maternal and neonatal individual risks and benefits associated with caesarean delivery: Multicentre prospective study. *BMJ*, 335, 1025. | 2) Lumbiganon, P., Laopaiboon, M., Gülmezoglu, A.M., Souza, J.P., et al. (2010) Method of delivery and pre- gnancy outcomes in Asia: The WHO global survey on maternal and perinatal health 2007-08. *The Lancet*, 375, 490-500. | 3) Belfort, M. (2000) Operative vaginal delivery. *ACOG Practice Bulletin*, 17. | 4)Al-suhel, R., Gill, S., Robson, S. and Shadbolt, B. (2009) Kjelland's forceps in the new millennium. Maternal and neonatal outcomes of attempted rotational forceps deli- very. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 49, 510-514. | 5)Vacca, A. (2002) Vacuum-assisted delivery. *Best Prac- tice & Research Clinical Obstetrics & Gynaecology*, 16, 17-30. | 6) Ebulue, V., Vadalkar, J., Cely, S., Dopwell, F. and Yoong, W. (2008) Fear of failure: Are we doing too many trials of instrumental delivery in theatre? *Acta Obstetrica et Gynecologica Scandinavica*, 87, 1234-1238 | 7) Yeomans, E.R. (2010) Operative vaginal delivery. *Ob- stetrics & Gynecology*, 115, 645-653. | 8) Allen, V.M., O'Connell, C.M. and Baskett, T.F. (2006) Maternal morbidity associated with cesarean delivery without labor compared with induction of labor at term. *Obstetrics & Gynecology*, 108, 286-294. | 9) van Dillen, J., Zwart, J.J., Schutte, J., Bloemenkamp, K.W. and van Roosmalen, J. (2010) Severe acute mater- nal morbidity and mode of delivery in the Netherlands. *Acta Obstetrica et Gynecologica Scandinavica*, 89, 1460- 1465. | | 10) Contag, S.A., Clifton, R.G., Bloom, S.L., et al. (2010) Neonatal outcomes and operative vaginal delivery versus cesarean delivery. *American Journal of Perinatology*, 27, 493-499. |