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Original Article

Obstetrics and Gynaecology Section

Second Stage Caesarean Section: Evaluation of Patwardhan Technique

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ABSTRACT

Objective: To compare the maternal and neonatal morbidities between the Patwardhan technique and the routine "Push" and "Pull" method for extraction of the foetus in second stage caesarean sections.

Method: Retrospective analysis was done of all caesarean sections performed in full dilatation of cervix in 3 years between 2004 to 2006. All the cases were divided into two groups. Group 1 being the Patwardhan technique group and Group 2 where baby was delivered as cephalic or as breech. Maternal morbidity in terms of uterine extensions, need for blood transfusions, as well as, neonatal morbidity, was compared between the two techniques.

Results: Review of 79 patients revealed significantly less number of uterine extensions, as well as, need for blood transfusions with Patwardhan technique, which thus amounted to a decreased maternal morbidity. However, there were no differences in neonatal outcomes in both the groups.

Conclusion: Patwardhan technique is a superior and a safe technique for delivery of foetus in second stage caesarean sections as compared to "Push" and "Pull" methods. While foetal complications are comparable in both methods, maternal morbidities are lesser in Patwardhan technique.

Keywords: Second stage caesarean section, Patwardhan technique

INTRODUCTION

Caesarean deliveries done in second stage of labour account for one-fourth of all primary caesarean sections [1]. The incidence of second stage caesarean sections is more in developing countries, where babies are delivered at home by traditional birth attendants and where the mothers report to hospital late in labour, when the traditional birth attendants fail in their endeavours.

Caesarean sections done at full cervical dilatation with impacted foetal heads are technically difficult and they are associated with an increased incidence of maternal and foetal morbidities.

Extraction of the impacted foetal head may be done by 'push method', i.e., pushing through the vagina or by "pull" method, i.e., a reverse breech technique. Various studies [2,3] have compared both these methods. However, both these methods are associated with an increased rate of maternal morbidity in the form of uterine extensions, postpartum haemorrhage and fever [4,5]. Patwardhan technique is a unique technique which is used for delivering babies in second stage caesarean sections [6,7].

MATERIAL AND METHODS

This is a retrospective analysis of all second stage caesarean sections performed in Govt. Medical College Hospital, Sector-32, Chandigarh, India, in the years from 2004 to 2006. The reason for choosing these years was that Patwardhan technique had started to be practised in 2004, prior to which "Push" and "Pull" method was used for extraction of the foetus. All caesarean sections were performed by third year registrars or consultants. The aim of this study was to compare the Patwardhan technique with "Push" and "Pull" method in terms of maternal and neonatal morbidities.

The cases were divided into two groups; Group 1 was assigned to all cases in which deliveries of babies were done by Patwardhan technique and Group 2 was assigned to patients in whom deliveries of babies were either done by vertex or by breech extractions.

Patwardhan Technique [6,7]

1. In case of occipito-transverse or occipito-anterior positions with the head deeply impacted in the pelvis, incision is made in the lower uterine segment, at the level of the anterior shoulder, which is delivered out.
2. With gentle traction on this shoulder, the posterior shoulder is also delivered out.
3. Next, the surgeon hooks the fingers through both the axillae and with gentle traction, aided by fundal pressure applied by assistant, the body of the foetus is brought out of the uterus.
4. Now the baby's head which is the only part of the foetus which is still inside the uterus, is gently lifted out of the pelvis.

RESULTS

A total of 79 patients underwent second stage Caesarean sections from 2004 to 2006. A total of 35 patients belonged to Group 1 and 44 patients belonged to Group 2.

Both the groups were statistically comparable in terms of periods of gestation, as has been outlined in [Table/Fig-1] below.

POG (WKS)	Group 1	Group 2	Total	p-value
<37wks	4(11.4%)	2(4.5%)	6(7.6%)	.218
37-40wks	25(71.4%)	28(63.6%)	53(67.1%)	
>40wks	6(17.1%)	14(31.8%)	20(25.3%)	
Mean POG	38.6857	39.3182		

[Table/Fig-1]: Number of patient in different period of gestation in both techniques. POG-period of gestation

Labour characteristics of both the groups, including duration of labour and duration of rupture of membranes, were also found to be statistically comparable, as have been described in [Table/Fig-2].

DOL	Group 1	Group 2	Total	p-value
<12hrs	13(37.1%)	18(40.9%)	31(39.2%)	
12-24hrs	21(60.0%)	23(52.3%)	44(55.7%)	
>24hrs	1(2.9%)	3(6.8%)	4(5.1%)	
Mean DOL	12.67	13.30		.680
DROM	**Group 1**	**Group 2**	**Total**	**p-value**
<12hrs	17(48.6%)	20(45.5%)	37(46.8%)	
12-24hrs	16(45.7%)	19(43.2%)	35(44.3%)	
>24hrs	2(5.7%)	5(11.4%)	7(8.9%)	
Mean DROM	13.5	15.7		.643

[Table/Fig-2]: Labor Characteristics in both groups.
DOL- duration of labour: DROM- duration of rupture of membrane.

[Table/Fig-3] outlines the cases of foetal distress, including those with foetal bradycardia and meconium stained liquor.

Fetal Bradycardia	Group1	Group 2	Total	Pvalue
YES	18(51.4%)	21(47.7%)	39(49.4%)	.504
NO	17(48.6%)	23(52.3%)	40(50.6%)	
Colour of Liquor	**Group1**	**Group 2**	**Total**	**Pvalue**
CLEAR	27(77.1%)	3(70.5%)1	58(73.4%)	.
MSL	8(22.9%)	13(29.5%)	21(26.6%)	.744
TOTAL	35(100%)	44(100%)	79(100%)	

[Table/Fig-3]: Fetal Distress in each group.
MSL -meconium stained liquor

Foetal distress was present in 51% of cases in-Group 1 and in 47% cases in Group 2, which were statistically similar.

Liquor was meconium stained in 22.9 % of patients in Group 1 and in 29.5% patients in Group 2, which was not statistically significant.

Extension	Group1	Group 2	Total	p-value
NO	35(100.0%)	34(77.3%)	69(87.3%)	.002
YES	0	10(22.7%)	10(12.7%)	
TOTAL	35(100.0%)	44(100.0%)	79(100.0%)	

[Table/Fig-4]: Compare the extension of uterine incision in both the groups.

The above table compares the extension of uterine incision in both the groups.

Extension of uterine incision during caesarean section occurred in 10 patients in Group 2 and in none in Group 1. This difference was statistically significant (p=0.002), indicating the superiority of this technique as compared to that of the conventional "Push" and "Pull" method [Table/Fig-4].

	Group 1	Group 2	Total	p-value
BT	3(8.6%)	12(27.3%)	15(19%)	.032

[Table/Fig-5]: Requirement for blood transfusion in both groups
Abbreviation used: BT Blood transfusion

Blood transfusions were required in 3 patients in Group 1 as compared to 12 patients in Group 2 and this difference was statistically significant [Table/Fig-5].

Mode Extraction	Mean	Number	Minimum	Maximum	P Value
GROUP1	3.1486	35	2.50	4.10	
GROUP 2	3.2023	44	2.60	4.30	0.362
Total patient		79			

[Table/Fig-6]: The mean birth weight (in KG) of the babies in two groups

Neonatal profiles of both the groups were also assessed. The mean birth weights of the babies in both the groups have been given in [Table/Fig-6].

Birth weights were comparable in both groups.

The Apgar scores of the babies in both the groups, were also compared and they were not statistically significant, as can be seen in [Table/Fig-7].

APGAR 1MIN	Group 1	Group 2	Total	p-value
>7	15(42.9%)	14(31.8%)	29(36.7%)	
<7	20(57.1%)	30(68.2%)	50(63.3%)	0.687
APGAR 5min	**Group1**	**Group2**	**Total**	
<7	4(11.4%)	6(13.6%)	10(12.7%)	0.732
>7	31(88.6%)	38(86.4%)	69(87.3%)	
TOTAL	35(100%)	44(100%)	79(100%)	

[Table/Fig-7]: Apgar scores of the babies in both the groups

	Group 1	Group 2	Total	p-value
NICU care	7	9	16	.594
	20.0%	20.5%	20.3%	

[Table/Fig-8]: NICU Care

Need for NICU care has been given in [Table/Fig-8] and it was not found to be statistically significant when both the groups were compared.

DISCUSSION

Caesarean sections done in second stage of labour with impacted foetal heads, are associated with increased trauma to lower uterine segment and associated structures, as well as, increased haemorrhage and infections [3]. A prolonged second stage of labour increases the attenuation of lower uterine segment and impaction of foetal head, which gives rise to a thin, easily lacerated lower uterine segment and cervix, which is predisposed to more extensions while delivering foetal head [4]. Extensions may also occur in cervix and broad ligament, thus increasing incidence of haemorrhage and need for blood transfusions and contributing to maternal morbidity. The incidence of extension of incision or intraoperative trauma in second stage caesarean sections seen in "Push" and "Pull" method used for extraction of foetus, has been found to be about 15% to 50% in various studies [2-4,8]. In our study, extension rate was 22% in "Push" and "Pull" mode of extraction of foetus. However, no extension was noted while Patwardhan technique was used as method of extraction of foetus, thus demonstrating the safety and efficacy of this technique. Less extensions led to decreased chances of traumatic haemorrhage and thus, they decreased need for blood transfusions. Our study shows the significant difference in need for transfusions between the two methods.

Extension of incision also has long-term implications on the patients' future obstetric careers and it is a contraindication to allowing subsequent vaginal delivery [4,8]. The results of our study were similar to those of a study done by Khosla et al., [7]. In this study too, no extensions occurred while Patwardhan technique was used.

Our results were also similar to those of the study conducted by Mukhopadhyay et al., in which they concluded that extension of the uterine incision and injury to the surrounding structures during LSCS is common in obstructed labour, when the hand is forcibly introduced into the pelvis to deliver the head which is impacted and jammed in the pelvis, since the lower uterine segment is oedematous and fragile. Patwardhan's shoulder first technique avoids this and it needs to be employed more widely [9].

There were no differences in the neonatal outcomes in both the groups, in our study. Babies born by second stage caesarean sections have increased incidences of birth asphyxia caused by prolonged second stage labour [8,10,11]. However, our study indicated that there was no increased risk of neonatal injuries or asphyxia with this technique, as was compared to that seen in vertex or breech extractions.

CONCLUSION

Extension of the uterine incision during lower segment caesarean sections is common in second stage of labour, when the hand is forcibly introduced into the pelvis to deliver the head which is impacted in the pelvis, since the lower uterine segment is oedematous and fragile. Use of Patwardhan's technique can prevent this maternal injury and it can thus reduce the need for blood transfusions. It also does not increase neonatal morbidity.

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