

# Comparative Study between Patwardan Technique of Delivery and Traditional Way of Delivering Babies by Pull or Push Method

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**Abstract:** *In this paper we discuss the after math of two different approaches of delivering the babies during caesarean section in advanced labour. The two techniques are “Patwardans Technique” and “Traditional way of delivering the babies by Pull or Push method”. The post-operative factors that were monitored include uterine extensions, broad ligament haematoma formation relaparotomy, uterine artery ligation and need for blood transfusions. It was concluded only after studying 200 patients that Patwardans technique is relatively a better technique.*

**Keywords:** Patwardans technique, Push and Pull, Cesarean Section (CS), Maternal Morbidity, Neonatal Morbidity

## 1. Aims and Objectives

To compare Patwardhan technique which is a unique technique used for delivering babies in second stage caesarean section with conventional push or pull method.

## 2. Introduction

The incidence of second stage caesarean sections is more in developing countries as most are delivered at home by traditional birth attendants (TBAs). Mothers in whom the TBAs are unable to perform a delivery are sent to the hospital in advanced stages of labour. In these women Cesarean section (CS) sometimes has to be done late in labour with the head deeply wedged in the pelvis. The causes for this are many like cervical dystocia with the head deep in the pelvis, deep transverse arrest, arrest in occipito posterior position, acute fetal distress late in first stage of labour with the head deep in the pelvis and unanticipated cephalopelvic disproportion late in labor. The fetal head in these cases may be extracted by „push method“, i.e., pushing through the vagina or by “pull” method, i.e., a reverse breech technique. However it is widely agreed that Caesarean sections done at full cervical dilatation with impacted fetal heads are technically difficult and they are associated with an increased incidence of maternal and neonatal morbidity [1].

Both the above techniques for extraction of the fetal head have been found to be associated with an increased rate of maternal morbidity in the form of uterine extensions, postpartum haemorrhage and fever [2,3]. Patwardhan technique is a unique technique which is used for delivering babies in second stage caesarean sections which has been found to be relatively better as far as the maternal and fetal complications are concerned [4,5].

## 3. Material and Methods

This is a retrospective analysis of second stage caesarean sections performed from Jan 2014 to Dec 2014 in Lalla Ded Hospital, an associated hospital of Government Medical College Srinagar which is the lone tertiary care Obstetrics and Gynaecological facility in the whole Kashmir valley. Among all women who underwent second stage Cesarean sections, 200 women with comparable age, parity, duration of pregnancy, Hb status, labour characteristics and weight of baby were selected for the study. In all these women the lower segment was thin and the fetal head deeply engaged at the time of caesarean section. The baby was delivered by the Patwardhan technique in 100 women (Group I) and by either the Pull or Push method in another 100 women (Group II). All caesarean sections were performed by third year registrars or consultants. The fetomaternal outcome was compared between the Patwardhan technique with “Push” and “Pull” method in terms of maternal and neonatal morbidities. In Patwardhan technique 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. With gentle traction on this shoulder, the posterior shoulder is also delivered out. Then 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. Results

During the study period 31107 was the total obstetric admission and 14211 caesarean sections were performed. Of these 1105 women underwent caesarean section during the second stage of labour. Among these 100 women in whom the Patwardhan method was used for the delivery of the baby were compared with 100 women in whom this method of delivery for the baby was not used after matching them for age, parity, gestational age, duration of labour and preoperative haemoglobin status.

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The mean age was 29.8yrs in Group I and 28.9 yrs in Group II. The mean parity was 2.4 and 2.8 in both the groups respectively. The mean birth weight of the newborns in group I was 3.1 kg (range 2.5 to 4.1 kg), while in group II it was 3.2 kg (range 2.6 to 4.3 kg). The difference in birth weight was not statistically significant ( p value < .034).

**Table 1:** Labour characteristics in the women who underwent caesarean during second stage of labour

| Period of gestation              | Group I (n= 100) | Group II (n= 100) | Total |
|----------------------------------|------------------|-------------------|-------|
| < 37 weeks                       | 12               | 12                | 24    |
| 37 -40 weeks                     | 70               | 62                | 132   |
| >40 week                         | 18               | 26                | 42    |
| Duration of labour               |                  |                   |       |
| <12hrs                           | 36               | 40                | 76    |
| 12 – 24 hrs                      | 60               | 54                | 114   |
| >24 hrs                          | 04               | 06                | 10    |
| Duration of rupture of membranes |                  |                   |       |
| <12hrs                           | 47               | 45                | 92    |
| 12 – 24 hrs                      | 48               | 44                | 92    |
| >24 hrs                          | 05               | 11                | 16    |

The majority of the women in both the groups underwent caesarean section at 37 to 40 weeks of gestation, with a labour duration of 12 -24 hours and the duration of rupture of membranes was 12 to 24 hours in most of the women in both the groups. There was no difference in the two groups with regards to the labour characteristics. (Table I)

**Table 2:** The indication for caesarean section during second stage of labour in the two groups

| Indication for caesarean | Group I (n= 100) |        | Group II (n= 100) |        |
|--------------------------|------------------|--------|-------------------|--------|
|                          | Present          | Absent | Present           | Absent |
| Foetal bradycardia       | 52               | 48     | 48                | 52     |
| Meconium stained liquor  | 24               | 76     | 28                | 72     |
| Protracted second stage  | 56               | 44     | 54                | 46     |

Foetal distress either in the form of foetal bradycardia (52%) or meconium staining of the liquor (24%) was the main reason for caesarean section in Group I. Prolongation of the second stage of labour was observed in 56% women in group I. In Group II also foetal distress was the main cause for caesarean section with foetal bradycardia documented in 48% women and meconium stained liquor observed in 28% women. Fifty four women (54%) underwent caesarean for prolonged second stage of labour in Group II. There was no statistical difference in the reasons for performing Caesarean section in the two groups.

**Table 3:** Intraoperative complications observed among the two groups

| Intraoperative complications          | Group I (n=100) | Group II (n=100) | P value |
|---------------------------------------|-----------------|------------------|---------|
| Extension of uterine scar/tears       | 00              | 23               | <0.05   |
| Broad ligament /retrovesical hematoma | 03              | 18               | <0.05   |
| Uterine artery ligation               | 03              | 10               | <0.05   |
| Obstetric hysterectomy                | 00              | 04               | <0.05   |
| Need for blood transfusion            | 10              | 28               | <0.05   |

Extension of the uterine scar and tears especially in the lower segment of the uterus were observed in 23 % women in

Group II while this was not seen in any woman in Group I. In Group I, in 3 (3%) women formation of hematoma in the broad ligament was observed while it occurred in 18% women in Group II. Bilateral Uterine Artery ligation was performed in 3% women in Group I had to undergo obstetric hysterectomy while it was needed in 4% women in Group II. Ten women (10%) in Group I and twenty eight (28%) in Group II required blood transfusion during surgery.

**Table 4:** Postoperative complications observed in the two groups

| Postoperative complications | Group I (n=100) | Group II (n=100) | P value |
|-----------------------------|-----------------|------------------|---------|
| Fever                       | 11              | 19               |         |
| Paralytic ileus             | 09              | 14               |         |
| Wound infection             | 05              | 09               |         |
| Relook laparotomy           | 00              | 02               |         |

Fever in the post operative period was observed in 11% women in Group I and 19% women in Group II. Paralytic ileus and wound infection were noted in 9% and 4% women of Group I and 14% and 9% women in Group II. Relook laparotomy had to be performed in 2% women of Group II while none of the women in group I needed the procedure. The reason for relook in these women was post operative hypovolemic shock with formation of broad ligament hematoma and retrovesical hematoma.

**Table 5:** Neonatal outcome observed in the two groups

| Neonatal outcome         | Group I | Group II |
|--------------------------|---------|----------|
| APGAR <7 at 1 min        | 56      | 44       |
| APGAR <7 at 5 min        | 12      | 14       |
| Nicu admission           | 10      | 11       |
| Early neonatal mortality | 02      | 03       |

The neonatal outcome was similar in both the groups. The NICU admission in both the groups was due to birth asphyxia. Two (2%) neonates succumbed to birth asphyxia and sepsis in Group I while 3(3%) in Group II expired due to sepsis and severe birth asphyxia. No neonate was observed to have any birth injury in both the groups.

## 5. Discussion

Caesarean section when performed in second stage of labour with an impacted fetal head, is associated with increased trauma to lower uterine segment and associated structures, as well as, increased haemorrhage and infections [6]. This is because prolongation of the second stage of labour and impaction of foetal head increases the attenuation of lower uterine segment resulting in a thin, easily lacerated lower uterine segment and cervix. Thus there is increased tendency for extension of the incision while delivering foetal head [2]. Extensions or tears may also occur in cervix and broad ligament, thereby increasing incidence of haemorrhage and need for blood transfusions and thus contributing to increased maternal morbidity.

Extension of incision has long-term implications and is a contraindication to allowing subsequent vaginal delivery [2,7]. 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 [1,2,7]. In our study, extension rate was 23% in “Push” or “Pull” method of extraction of foetus. However, no extension or trauma was noted with the use of Patwardhan technique for extraction of the foetus. This indicates the safety and efficacy of this technique in second stage cesarean sections. Our observation is similar to Khosla et al., [5] who also reported that no extensions occurred when Patwardhan technique was used.

Lesser extensions or trauma lead to decreased chances of traumatic haemorrhage and reduce the need for blood transfusions. In our study 18% women in “Push” or “Pull” method of extraction of foetus needed blood transfusion as against only 10% in the group in whom Patwardhan technique was used.

Mukhopadhyay et al., also concluded that extension of the uterine incision and injury to the surrounding structures during LSCS is more 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 [8].

As more number of extensions and hematoma formations was observed in the women in “Push” or “Pull” method of extraction, they subsequently needed more intraoperative procedures like uterine artery ligation (10%) and peripartum hysterectomy (4%). While the rate of complications like fever, ileus and wound infection was almost similar in both the groups 2% women in “Push” or “Pull” method of extraction needed relook laparotomy. This is in agreement with previous studies which have concluded that maternal morbidity is less when the Patwardhan technique is used.

There was no difference in the neonatal outcomes in both the groups, in our study. Babies born by second stage caesarean sections do have increased incidence of birth asphyxia due to prolonged second stage of labour [7,9,10]. However, our study indicated that there was no increased risk of neonatal injuries with this technique, as was compared to that seen in “Push” or “Pull” method of extraction. Therefore the study of 200 patients revealed Patwardhan Technique having significantly less number of uterine extensions, broad ligament haematoma relaparotomy, uterine artery ligation, blood transfusions as well as post operative complications, which thus amounted to a decreased maternal morbidity. However, no differences were found in neonatal outcomes in both the groups.

## 6. Conclusion

Patwardhan technique is a better and safer technique in delivery of fetus in second stage caesarean sections as compared to “Push” and “Pull” methods. Maternal and fetal morbidities are lesser in Patwardhan technique.

Extension of the uterine incision during second stage lower segment caesarean sections is common because the hand is forcibly introduced into the pelvis to deliver an impacted head and can injure an oedematous and fragile lower uterine segment. This not only increases the need for more complex procedures and need for blood transfusion but also impacts the obstetric future of the woman. The use of Patwardhan technique can reduce the need for blood transfusions and prevent maternal injuries without increasing the neonatal morbidity.

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