International Journal of Reproduction, Contraception, Obstetrics and Gynecology
*Bansiwal R et al. Int J Reprod Contracept Obstet Gynecol. 2016 May;5(5):1562-1565*
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20161325

**Research Article**

# Safety of patwardhan technique in deeply engaged head

**Reeta Bansiwal*, HP Anand, Meera Jindal**

Department of Obstetrics and Gynaecology, VMMC and Safdarjung Hospital, New Dehi, India

**Received:** 09 March 2016
**Revised:** 08 April 2016
**Accepted:** 12 April 2016

***Correspondence:**
Dr. Reeta Bansiwal,
E-mail: drreetabansiwal@gmail.com



## ABSTRACT

**Background:** Deeply engaged head in second stage caesarean section is not new, every obstetrician must have faced it and its associated problems many times in their career. Caesarean sections done at full cervical dilatation with impacted foetal heads are technically difficult as the lower segment is thinned out and oedematous and hence associated with an increased incidence of maternal and foetal morbidities. The objective of this study was to compare patwardhan technique with Push and pull technique of delivering deeply impacted head and to assess the safety of patwardhan technique by correlating them with maternal and fetal outcome.
**Methods:** It is a retrospective study including all caesarean sections done in second stage at Tertiary care centre, New Delhi, India in the years from 2011 to 2013. Patients were divided into two groups: group -1 where baby delivered by Patwardhan technique and group 2 where baby delivered by push or pull technique. Both groups were compared in terms of maternal outcomes as uterine incision extensions, PPH, blood transfusions and neonatal outcomes in terms of their weight, APGAR and NICU stay.
**Results:** There were total 135 patients who underwent caesarean section for obstructed labour during 2011-2013. Out of 135, 71 babies were delivered by push and pull method and 64 babies got delivered by Patwardhan technique. There was significant less uterine incision extensions in patwardhan group as compared to push and pull technique (3.1%, 23.9%: p=0.01). The traumatic PPH and blood transfusion was also significantly high in push and pull method as compared to patwardhan technique (1.5%, 22.5%: p=0.01). Baby outcome was almost similar in both the groups.
**Conclusions:** The patwardhan technique needs expertise but is safe and has minimal complications if anticipated and done skill fully. It is easy to learn and needs to be more widely publicized and utilized.

**Keywords:** Patwardhan technique, Push and pull technique, Caesarean section, Deeply engaged head

## INTRODUCTION

Deeply engaged head in second stage caesarean section is not new; every obstetrician must have faced it and its associated problems many times in their career. 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. Second stage caesarean section account for one-fourth of all primary caesarean sections.[1]

Caesarean sections done at full cervical dilatation with impacted foetal heads are technically difficult as the lower segment is thinned out and oedematous and hence associated with an increased incidence of maternal and foetal morbidities.

Obstetricians have tried many techniques to deliver the baby as by pushing the deeply engaged head through vagina (push method), as cephalic by putting the hand in lower segment or by pulling the legs of the baby and delivering as breech (pull method). All the above said

manoeuvres have their own maternal and fetal complications.

Patwardhan technique is a unique technique which was introduced by Dr. Patwardhan in 1957 to ease the delivery of deeply impacted head in second stage caesarean sections and having less maternal and fetal morbidities, but still not very popular among obstetricians.[2]

Our hospital is a teaching hospital with a vast referral area and has more than 25,000 deliveries annually. Many women are referred from periphery in advanced stages of obstructed labour. Sometimes, unfortunately, a few women even in our hospital do develop features of obstruction while waiting in a long queue for caesarean section due to heavy rush.

There are only few studies which actually compared all the above said techniques to deliver the deeply engaged head in second stage caesarean sections and the maternal and fetal outcomes. Hence this study was undertaken to compare the patwardhan technique with push and pull methods and also to evaluate the safety of patwardhan technique.

## METHODS

This is a retrospective analysis of all caesarean sections done in second stage at tertiary care centre, New Delhi, India in the years from 2011 to 2013. The reason for choosing these years were to evaluate the present status of the babies born to mothers underwent caesarean sections during the above said period. Patients were divided into two groups: group 1 where baby delivered by patwardhan technique and group 2 where baby delivered by push or pull technique.

Both groups were compared in terms of maternal outcomes as uterine incision extensions, PPH, blood transfusions and neonatal outcomes in terms of their weight, APGAR and NICU stay.

### *Patwardhan technique*

In case of occipito-anterior and transverse positions with the head deeply impacted in the pelvis, incision is made in the lower uterine segment, shouders are present usually at incision level in deeply engaged head ,the anterior shoulder is delivered out by hooking the arm first by hooking the arm.

- With gentle traction on this shoulder, the posterior shoulder is also delivered out
- Next, the surgeon holds the trunk of baby gently with both thumbs parallel to spine and with fundal pressure given by assistant the buttocks are delivered followed by legs
- 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 by making an arc

### *Modified patwardhan technique*

- In case of occipito-posterior position with the head deeply impacted in the pelvis, incision is made in the lower uterine segment, shouders are present usually at incision level in deeply engaged head ,the anterior shoulder is delivered out by hooking the arm first by hooking the arm followed by delivering the same side leg
- The other side leg is then delivered gently followed by same side arm
- Buttocks and the trunk of baby and are delivered by gently pulling baby legs
- Lastly the baby head is delivered

### *Points for easy and safe delivery of baby*

- Always give a curvilinear (smiling) incision on lower uterine segment with concave side up
- Be gentle and patient throughout the procedure.

The mothers were also traced on phone to know the present status of the baby in terms of milestones achieved till date.

## RESULTS

There were total 135 patients who underwent caesarean section for obstructed labour during 2011-2013. Out of 135, 71 babies were delivered by push and pull method and 64 babies got delivered by Patwardhan technique (Figure 1).

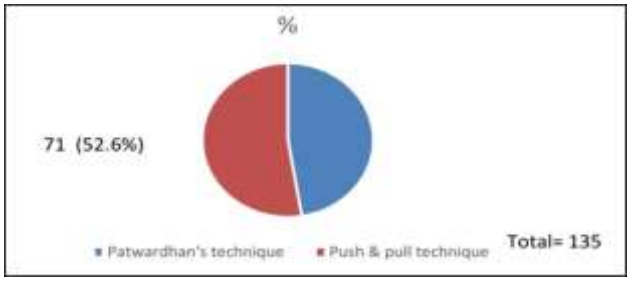


**Figure 1: Caesarean section for obstructed labour during 2011-2013.**

Both the Groups were comparable in terms of age and parity of patients (Figure 2).

Uterine incision extension was more in the push and pull method when compared to patwardhan technique (3.1%, 23.9%: p=0.01) (Table 1). Same was true for the traumatic PPH and blood transfusion which was significantly high in push and pull method as compared

to patwardhan technique (1.5%, 22.5%: p=0.01 ) (Table 2, 3).

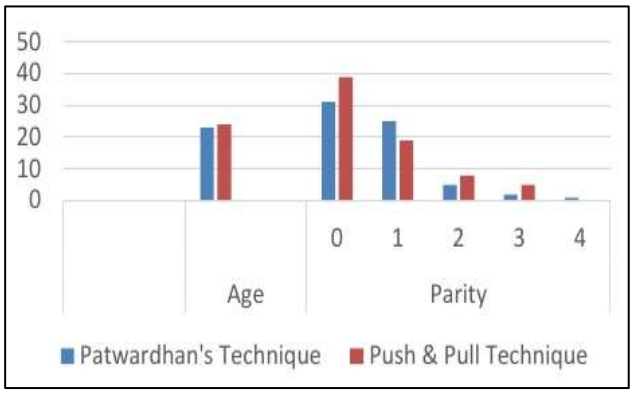


**Figure 2: Demographic data.**

**Table 1: Correlation of MOD with uterine incision extension.**

| Mode of delivery | Uterine incision extension | |
|---|---|---|
| Patwardhan technique | 2 (3.1%) | p=0.01 |
| Push and pull technique | 17 (23.9%) | |

**Table 2: Correlation of MOD with traumatic PPH.**

| Mode of delivery | Traumatic PPH | |
|---|---|---|
| Patwardhan technique | 1 (1.5%) | p=0.01 |
| Push and pull technique | 16 (22.5%) | |

**Table 3: Correlation of MOD with blood transfusions.**

| Mode of delivery | Blood transfusion | |
|---|---|---|
| Patwardhan technique | 1 (1.5%) | p=.01 |
| Push and pull technique | 16 (22.5%) | |

Baby outcome was almost similar in both the groups (Figure 3).

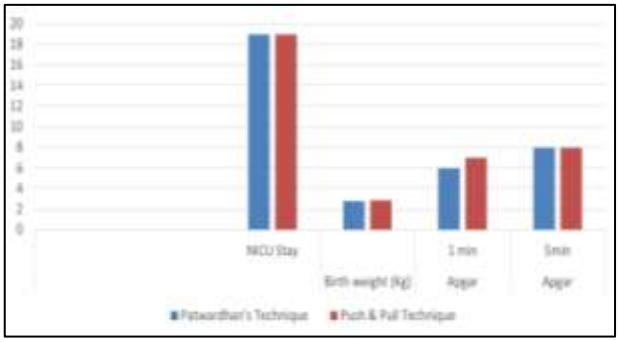

**Figure 3: Correlation of MODE with body outcome.**

Out of 135 babies delivered, 4 were IUD and 3 were early neonatal death as they had severe birth asphyxia due to prolonged second stage arrest.

Only 67 patient's phone number were present on the case sheets and of which only 43 could be traced in which 29 delivered by patwardhan technique and rest by push and pull technique and all were doing fine.

**Table 4: Correlation of MOD with baby outcome.**

| Mode of delivery | NICU Stay | | Birth weight (Kg) | | APGAR 1 min | APGAR 5 min |
|---|---|---|---|---|---|---|
| Patwardhan technique | 19 | p=0.34 | 2.8 | p=0.57 | 6 | 8 |
| Push and pull technique | 19 | | 2.9 | | 7 | 8 |

## DISCUSSION

Obstructed labor accounts for 9.5% of total maternal deaths in India.[3] This high incidence is mainly due to traditional beliefs and practices, neglected obstetric care, poor utilization of available health services, and poor transport facilities. 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. Our study got 23.9% extensions in the push and pull group as compared to patwardhan group where only 3.1% had extensions which was comparable to other studies of Mahapatra M et al, Mukhopadhyay P et al and Khosla et al.[4-6] As the extensions were less in patwardhan technique, the traumatic PPH and need for blood transfusions were also low in Patwardhan technique when compared to Push and Pull technique (1.5%, 22.5%: p=0.01). Other studies also find the same results.[4-6] Extension of incision also has long-term implications on the patients' future obstetric careers and it is a contraindication to allowing subsequent vaginal delivery.[4,7]

Post op complications like fever and wound infections were not taken into considerations as they have other contributing factors also like prolonged leaking, prolonged labour and less bearing on the mode of delivering the baby. There were no differences in the neonatal outcomes in both the groups, in our study which shows Patwardhan technique not only safe for mother but also for the baby. Our study has few limitations also like

caesarean sections were done by different senior residents and hence the skill of individual surgeon also matters which also explains few uterine incision extensions in patwardhan technique also. We could get information of only 32% babies as only those telephone numbers could be traced and hence the full evaluation of babies' present status could not be done. We need to do more prospective and randomized studies to evaluate better the safety of patwardhan technique, nevertheless patwardhan technique has been found to be more safe in terms of maternal and fetal safety when compared to push and pull techniques.

## CONCLUSIONS

The patwardhan maneuver needs expertise but is safe and has minimal complications if anticipated and done skill fully. It is easy to learn and needs to be more widely publicized and utilized.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Evaluation of cesarean delivery. The American College of Obstetricians and Gynecologists Women's Health Care Physicians. Washington, DC. ACOG; 2000.
2. Patwardhan BD, Motashaw ND. Caesarean Section. J Obstet Gynecol India. 1957;8:1-15.
3. Maternal mortality update-UNFPA assistance of maternal mortality prevention activities: an overview 1998-99.
4. Mahapatra M. Patwardhan's technique: it's impact on maternal and fetal outcome. YUVA Journal of Medical Sciences. 2015;1(2):26-7.
5. Mukhopadhyay P, Naskar T, Dalui R, Hazra S, Bhattacharya D. Evaluation of patwardhan's technic-a four year study in a rural teaching hospital. J Obstet Gynecol India. 2005;55:244-6.
6. Khosla AH, Dahiya K, Sangwan K. Caesarean section in a wedged head. Ind J Med Science. 2003;57(50):187-91.
7. Murphy DJ, Liebling RE, Verity L, Swingler R, Patel R. Early maternal and neonatal morbidity associated with operative delivery in second stage of labor: a cohort study. Lancet. 2001;358:1203-7.

**Cite this article as:** Bansiwal R, Anand HP, Jindal M. Safety of patwardhan technique in deeply engaged head. Int J Reprod Contracept Obstet Gynecol 2016;5:1562-5.