

## DELIVERY OF BABY IN OBSTRUCTED LABOUR BY PATWARDHAN TECHNIQUE – AN OBSERVATIONAL STUDY

Dr.Radheshyam Bairwa<sup>\*1</sup>, Dr.Ganga Shankar Garg<sup>2</sup>, Dr.Manju Agrawal<sup>3</sup>, Dr.S.P.Chittora<sup>4</sup>

1. Assistant Professor, Department of Obstetrics and Gynaecology, Jhalawar Medical College And Hospital, Jhalawar

2. Associate Professor, Department of Anaesthesiology, Jhalawar Medical College And Hospital, Jhalawar

3. Professor and head, Department of Obstetrics and Gynaecology, Jhalawar Medical College And Hospital, Jhalawar

4. Professor and head, Department of Anaesthesiology, Jhalawar Medical College And Hospital, Jhalawar

\*Email id of corresponding author- [drrsmehrajwr@gmail.com](mailto:drrsmehrajwr@gmail.com)

Received: 25/10/2015

Revised: 29/03/2016

Accepted: 15/04/2016

### ABSTRACT:

**Background:** Obstructed labour accounts for a significant proportion of maternal morbidity and mortality in India. The study was conducted to compare the foeto-maternal outcome associated with Patwardhan technique and conventional method, to extract the deeply wedged head during caesarean section. The study also aimed to determine the complications of delivering the wedged foetal head during caesarean section by both techniques. **Methods:** Prospective study done on 100 cases with single fetus at term, admitted in labour room emergency of Obstetrics and Gynaecology at Jhalawar Medical College, Jhalawar from January to November 2015. Of these, 50 cases constituted study group on which Patwardhan technique was applied, and 50 comprised of control group, which were delivered by the conventional method. **Results:** Obstructed labour came across as the most common cause for performing Caesarean section in both groups. Only 12% of the patients in the study group suffered complications, as compared to 68% in the control group. Post-partum haemorrhage was the major complication in both the groups. The occurrence of lateral and vertical extension was higher in the control group as compared to study group. 24% of the patients in the study group required blood transfusion at the end of the procedure, as against 42% in the control group. The APGAR score at the end of 5 minutes was relatively similar in both the groups. **Conclusion:** Patwardhan technique is associated with less maternal and foetal morbidity as compared to the conventional method. It can be effectively applied to improve the foeto-maternal outcome in cases where the head is deeply impacted in the pelvis.

**Key Words:** Patwardhan technique Obstructed labour, Caesareans section.

### INTRODUCTION:

Obstructed labour is a clinical condition where in spite of good uterine contractions, the progr-

essive descent of the presenting part is arrested due to mechanical obstruction.(1) This leads to

undue prolongation of labour and associated morbidities, along with severe discomfort to the mother. Obstructed labour, although obsolete in the developing world, accounts for about 8% of all maternal deaths in developing countries like India.(2)

In a situation like this, the method of vaginal delivery is often abandoned for more progressive methods like the Caesarean section, as operative vaginal births are also associated with foetal trauma.(3, 4)

Caesarean section is an operative procedure where the foetus, after 28 weeks of gestation, is delivered through an incision on abdominal wall and uterine wall. (5)

Today, the Caesarean operation is one of the most commonly performed surgical procedures. It is, however, difficult to perform when the patient is already in labour. In the past three decades, the rate of caesarean births has raised dramatically.(6) Caesarean rates varied from 8% to 36% in a study in India in 1993.(7)

Caesarean deliveries done in the second stage of labour account for one-fourth of all primary caesarean sections.(8) In 1997, Revah et al suggested that the Caesarean delivery in labour is associated with increased maternal morbidity, compared with elective Caesarean section. Caesarean section at full dilatation is technically difficult and is associated with increased maternal and foetal morbidity. There is risk of trauma to the lower uterine segment and adjacent structures along with increase in haemorrhage and infection.(9)

A Caesarean section, sometimes, has to be done in labour, with the head deeply wedged in the pelvis.

Deeply wedged head may be a consequence of Cervical Dystocia, Deep transverse Arrest, and Arrest in occipito-posterior position, acute foetal distress in the late 1<sup>st</sup> stage of labour and unanticipated cephalo-pelvic disproportion late in labour.

For these cases of deeply wedged head, Patwardhan introduced a technique called 'Shoulder first method' in which the delivery of shoulder is done first, followed by trunk, feet & lastly head by lifting the baby by legs. This is now popular by name 'PATWARDHAN TECHNIQUE'.(10)

PATWARDHAN'S (Shoulder first technique) avoids several complications leading to decreased bleeding due to less chances of lateral and/or vertical extension of uterine incisions, bladder injury and new born asphyxia. The only disadvantage of this technique is minor chances of injury to brachial plexus (Erb's palsy) due to faulty technique.(11, 12, and 13)

The study was conducted with the following objectives-

1. To study the foeto-maternal outcome of Patwardhan's technique for delivery of deeply wedged head during caesarean section.
2. To study the foeto-maternal outcome of Conventional technique for delivery of deeply wedged head during caesarean section.
3. To study the complications of delivering the wedged foetal head during caesarean section by both technique i.e. Patwardhan's and the Conventional method.
4. To compare the foeto-maternal outcome associated with two methods, i.e. Patwardhan

technique and conventional method, to extract the deeply wedged head during caesarean section.

## MATERIAL & METHODS

This was a prospective study of 100 women, with single fetus at term, admitted to the labour room of Obstetrics and Gynaecology at Jhalawar Medical College, Jhalawar from January to November 2015, where caesarean section was performed late in labour, with the head deeply wedged in pelvis. The study group consisted of 50 cases of wedged foetal head that were delivered by Patwardhan technique, and the control group comprised of 50 cases delivered by the conventional method.

After institutional ethical committee approval and with parental consent, following criteria were followed for inclusion of patients into the study-

Women with single foetus, at term, in vertex position with deeply wedged foetal head due to:

- i. Deeply transverse arrest
- ii. Foetal distress in late first stage of labour
- iii. Persistent occipito-posterior with failed ventouse / forceps
- iv. Obstructed labour
- v. Mid pelvic & outlet contraction

Cases of intrauterine fetal death, multiple pregnancy, ruptured uterus, transverse lie, where the baby was extracted out as breech, were not included into our study.

After delivery of the fetus, similar procedure was adopted in both groups to complete the operation. The uterine muscle, peritoneum and

anterior abdominal wall were closed. All skin incisions were midline infra-umbilical incisions.

The case history with physical examination was done. Routine blood investigations like blood group, Hb, BT, CT, CBC, urea, creatinine; complete urine examination, HIV 1, 2 and RBS were done. Choice of the technique (whether conventional or Patwardhan), was left on the best clinical judgement of the operating surgeon.

Criteria to establish Safety of the Method:-

Maternal: Amount of bleeding <1000mL (Haemoglobin before and after caesarean section), no extension of incision in broad ligament & urinary bladder, no injury to urinary bladder.

Foetal: No injury to the baby in the form of shoulder dislocation or abdominal organ injury, no aspiration.

The data was encoded in the Microsoft excel sheet and subsequent statistical analysis was done by the SPSS software for windows.

## RESULTS

The majority of patients in the study were in the age group of 20 to 25 years (70% in the study group and 68% in the control group). The mean age for the study group was 22.54 years (range 17 to 35 years) and for the control group was 24.3 years (range 19 to 35 yrs).

Similarly, majority of the patients in both the groups were primigravida (68% in the study group and 72% in the control group). 10% in the study group and 4% in the control group were multipara.

50% patients in the study and 56% in the control group were mostly between 37 to 40 weeks of gestation. 33% of all subjects (18 in study group and 15 in control group) did not know their last menstrual period; hence they were placed in the 'not known' category. (Table 1)

Obstetric features like parity, duration of pregnancy, haemoglobin levels were comparable in both the groups.

Mainly four causes for performing the caesarean section were encountered during the course of the study. They were deep transverse arrest, distress in the first stage of labour, obstructed labour and mid-pelvic and pelvic outlet contraction. Obstructed labour came across as the most prominent cause. The relative distributions of these causes in the study and control group are shown in Figure 1.

The intra operative uterine features and complications of both the studies are shown in table 2 and 3. The study shows that only 12% of the patients in the study group and 68% in the control group suffered complications. In both the groups, post-partum haemorrhage was a major surgical complication (10% in study group and 68% in the control group). No vertical extension and only 2% lateral extension was seen in study group while in control group, 16% had vertical extension & 36% had lateral extension. One patient in control group had bladder injury while no case of bladder injury was seen in control group.

24% (12) of the patients in the study group required blood transfusion at the end of the procedure, as compared to 42% (21) of the patients in the control group. While extension of the incision was the most common cause of

transfusion in the control group (28%); pre-existing anaemia was the commonest cause in the study group (14%).

Majority of the babies (78% in study and 86% in the control group) born to mothers in both the groups had body weight in the range of 2.5 to 3.5 kg.

The APGAR score at the end of 5 minutes was relatively similar in both the groups. 60% babies in the study group and 52% in the control group had a normal score at the end of 5 minutes.

## DISCUSSION

The burden of obstetric and foetal complications during labor and delivery is high. Many of the serious types of complications are preventable. The study was performed to compare the foeto-maternal outcome & complications of the two methods i.e. Patwardhan Technique and Conventional method, for delivery of deeply wedged head during caesarean section.

68% patients in the study group and 72% patients in the control group were primi-gravida whereas 10% and 4% respectively were multi-gravida. This can be explained by the fact that most of the patients were in the younger age group.

The predominant duration of gestation in the present study was between 37 – 40 weeks (56% in the control group) which is consistent with the study conducted by Khosla et al (2003) where 86% in control group were between 37-40 weeks of gestation.(14)

The commonest indication for lower segment caesarean section (LSCS) in both the groups was obstructed labour (52% in the study group and

48% in the control group) which is consistent with the study of Mukhopadhyay et al in 2005.(12) This is in contrast with the studies of Desai et al (2001) and Khosla et al (2003) whose studies show contracted Pelvis as the commonest indication. (11, 14) In the present study, contracted pelvis was found to be the second most common indication. The high incidence of obstructed labour could be due to traditional beliefs and practices, neglected obstetric care, poor utilization of health services and poor transport facilities.(12)

On per-operative examination, the lower uterine segment was found to be stretched and distended in 84% of patients in study group and 80% in control group. This is comparable with the study conducted by Mukhopadhyay et al (2005) in which lower segment was stretched in 68% in study and 76% in control group patients. (12)

Features of impending rupture of uterus were found in 12% and 18% of study and control groups respectively. Lower segment was found normal in very few cases.

In this study, 88% patients of the study group and 32% of control group had no intra-operative complications. This is in comparison with various studies on Patwardhan's technique first by Patwardhan et al (1957), Desai et al (2001), Mukhopadhyay et al (2005), and Khosla et al (2003). (10,11,12,14)

Vertical extension was not seen in the study group while 16% patients had it in the control study. Lateral extension was found only in 2% patients of the study group and 36% patients in the control study. Hence, fewer complications seem to occur by the use of Patwardhan's technique. Results similar to these were seen by

different researchers viz Mukhopadhyay et al(12), Desai et al(11) and Khosla et al (14). The lateral extension of uterine incision in study group i.e. caesarean section by Patwardhan technique were 6%, 1.25% and nil respectively. On the other hand, the lateral extension of incision in control group was 36%, 63.6% and 24% respectively. There was no vertical extension of incision in study group in the three reference studies. However, in control group it was 24%, 18% and 4.54% respectively. (10,12,14) Extension of incision has long-term implications on the patients' future obstetrics and it is a contraindication to subsequent vaginal delivery. (15,16)

In the study group only 2% patients had traumatic post partum hemorrhage (PPH) while 8% had atonic PPH. In contrast, in the control group 60% of the patients had traumatic PPH due to extension of incisions and only 8% had atonic PPH. These findings correlate with the improved maternal prognosis after using Patwardhans technique. In the study conducted by Mukhopadhyay et al<sup>12</sup>, only 2% patients experienced a traumatic PPH in the study group, as compared to 42% in the control group.

Fetal asphyxia was not seen in 60% babies in study group and 52% in control group whereas mild to moderate form was seen in 32% of both control & study group. The difference is comparable to the study conducted by Desai et al in 2001. (10) Also, in the study conducted by Mukhopadhyay et al (12), 16% babies in the study group had no asphyxia, but only 8% in the control group were free of birth asphyxia.

In the present study, the babies that were delivered, mostly weighted between 2.5-3.5 kg

(78% in study group and 86% in control group). The difference is comparable to the studies conducted by Desai et al (10) and Khosla et al. (14) Foetal weight of 3-3.5 kg is predominantly seen in both the groups in the study conducted by Mukhopadhyay et al. (12)

In the present study, 12 patients (24%) in study group and 21 patients (42%) in the control group needed an intra operative blood transfusion. Lesser number of patients i.e. 8% patients in the study group, and 34% patients in the control group required blood transfusion in the study conducted by Mukhhopadhyay et al. (12) The increased requirement of blood transfusion by the control group clearly correlates with the improved maternal outcome by the Patwardhan technique.

## CONCLUSION

This study helps to choose the better method to deliver the impacted fetus in caesarean procedure. Patwardhan technique is safe, easy and an appropriate method of delivery during lower segment caesarean section, in patients with deeply impacted head, to reduce the maternal and foetal morbidity. This technique can be learnt easily by practice.

## REFERENCES

1. Dutta DC. Textbook of Obstetrics. Jaypee publishers . 7<sup>th</sup> edition : Nov 2013
2. Cron J. lessons from the developing world: obstructed labour and the vesicovaginal fistula obs. Gyne & women's health. Medscape general medicines. 2003;50:2003.
3. Chiswick M. L., James D. K. Kielland's forceps: association with neonatal morbidity and mortality. *British Medical Journal*. 1979; 1(6155):7-9.
4. O'Mahony F., Hofmeyer G. J., Menon V. Choice of instruments for assisted vaginal delivery. *Cochrane Database of Systematic Reviews*. 2010;(10)CD005455
5. Dutta DC. Textbook of Obstetrics. Jaypee publishers . 7<sup>th</sup> edition : Nov 2013
6. Notzon FC, Placek PJ, Taffel SM. Comparison of national caesarean section rates. *N Engl J Med* 1987;316:386- 389.
7. Rao KB. Global aspects of a rising caesarean section rate. *Women's Health Today*. London: Parthenon Publishers, 1994:65- 70
8. Evaluation of cesarean delivery, The American College of Obstetricians and Gynecologists Women's Health Care Physicians
9. Revah A, Erza Y, Farine D. Ritchie K. Failed trial of vacuum or forceps- maternal and fetal outcome. *AMJ Obstet Gynecol* 1997; 176:200-204.
10. Patwardhan BD, Motashaw ND. Caesarean section *J Obstet. Gynaecol Ind* 1957; 8: 1-15.
11. Desai P. Desai P. Shah N. Preventing complication by "Shoulder first" Method of delivery in cases of obstructed labour. *J Obstet Gynecol Ind* 2001; 51:91-4.
12. Mukhopadhyay P, Naskar T, Dalvi R, Hazra S, Bhattacharya D, Evaluation of Patwardhans technique: A four year study in rural teaching hospital. *J. Obstet gynacol Ind* 2005; 55(3) :244-6.

13. Murphy KW. Reducing the complications of caesarean section. In Bonnar J. Editor. Recent advances in obstetrics and Gynaecology, London Churchill Livingstone 1999: 144.

14. Khosla AH, Dahiya K, Sangwan K. Caesarean section in wedged head. Ind J Med Sci 2003; 57: 187-91.

15. Mahapatra M. Patwardhan's technique: it's impact on maternal and fetal outcome. YUVA Journal of Medical Sciences. 2015;1(2):26-7.

16. 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.

## TABLES

TABLE I- PERIOD OF GESTATION

Gestation (in weeks)	Study Group (n=50)	Control Group (n=50)
<37	3(6%)	01
37 – 40	25(50%)	28(56%)
> 40	4	6
Not known	18(36%)	15(30%)
<b>TOTAL</b>	<b>50</b>	<b>50</b>

TABLE 2- INTRA OPERATIVE UTERINE FEATURES

Lower Segment	Study Group	Control Group
Normal	02 (4%)	01 (2%)
Lower Segment Stretched	42 (84%)	40 (80%)
Impending Rupture	6 (12%)	9 (18%)
<b>Total</b>	<b>50</b>	<b>50</b>

TABLE 3- INTRA OPERATIVE COMPLICATIONS

Complications	Study group	Control Group
None	44 (88%)	16 (32%)
PPH-Atonia	4 (8%)	4 (8%)
PPH-Traumatic	1 (2%)	30 (60%)
Vertical Extension	0	8 (36%)
Lateral Extension	01 (2%)	18 (36%)
Bladder Injury	0	1 (2%)

**FIGURES**

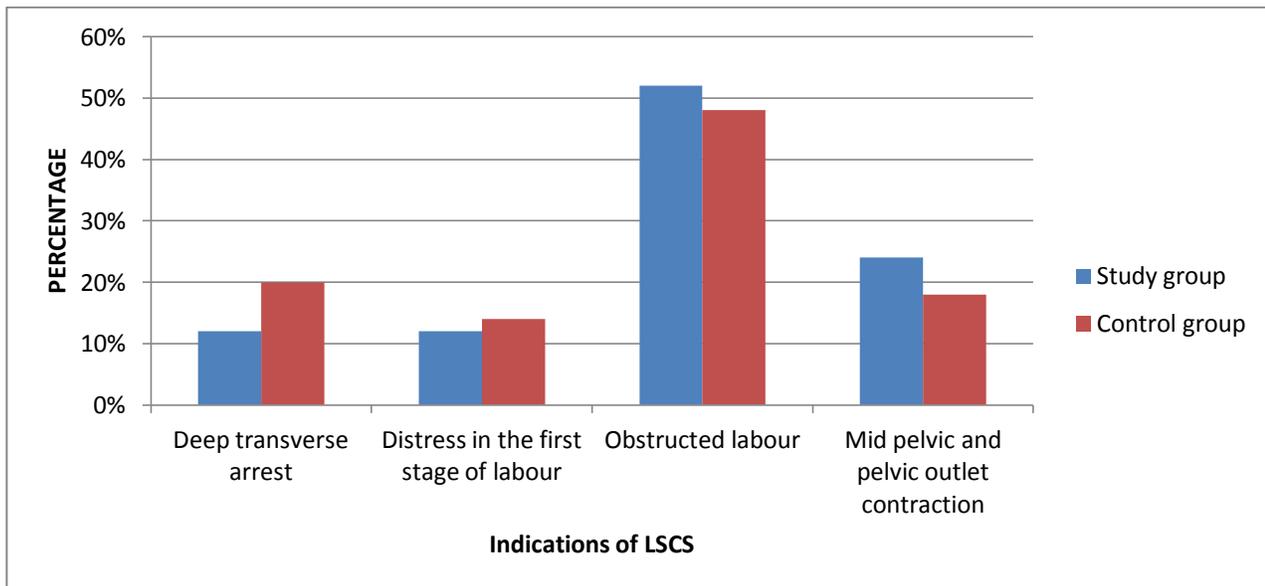


FIGURE 1- INDICATIONS FOR PERFORMING LOWER SEGMENT CAESAREAN SECTION (LSCS) IN BOTH GROUPS

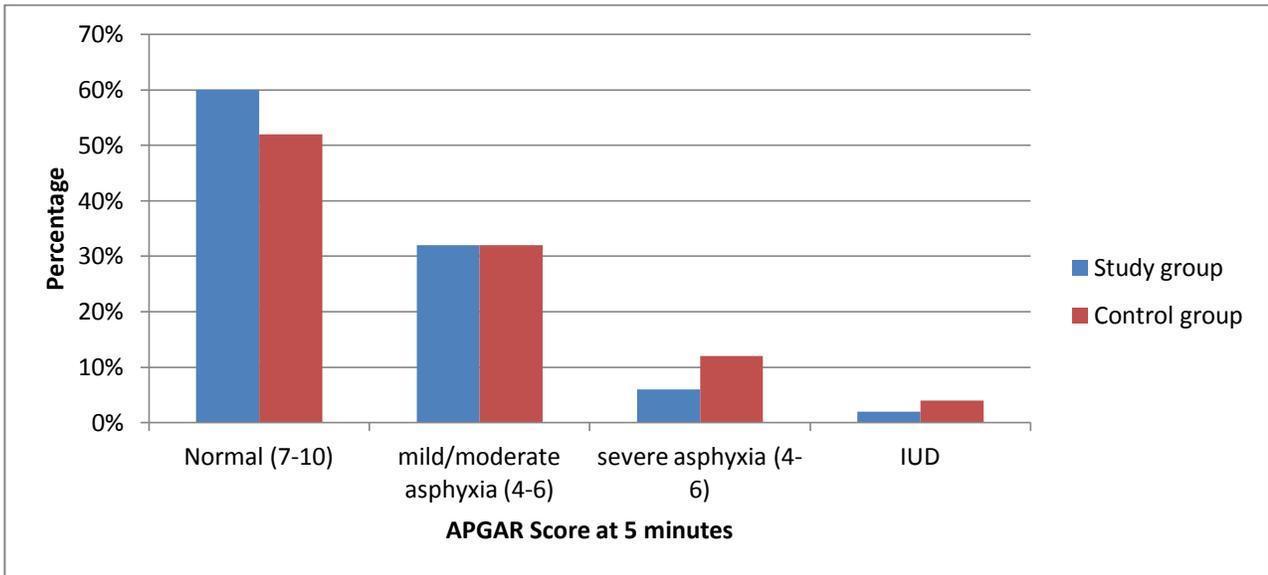


FIGURE 2- APGAR SCORE AT 5 MINUTES