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A comparative study between Patwardhan technique and push & pull method in women undergoing second stage of labor

Abstract

Introduction: Obstructed labor with the fetal head impacted in the pelvis is an obstetric complication that requires caesarean delivery with skilful handling in an organized manner to avoid serious maternal and neonatal morbidity. The present study was undertaken to compare the Patwardhan technique with push and pull methods and also to evaluate the safety of Patwardhan technique.

Material & methods: Study based on a total 90 pregnant women, of age 18 – 35 years with singleton pregnancy in second stage of labor with deeply impacted head, cases examined in labor room who gave consent and fulfilled inclusion criteria including inpatient admissions and referral randomly allocated in three groups 30 each.1. Patwardhan technique. 2. Push Technique 3. Pull technique.

Results: Age, gestational age and duration of labor of the subjects in three were similar. There was significantly less incidence of uterine incision extension to either side, board ligament hematoma, intra-operative blood loss and traumatic Postpartum hemorrhage in subjects undergoing Patwardhan's technique. With regards to neonatal outcome, wound infection, foetal injury and mean duration of hospital stay were significantly less in Patwardhan's technique. Birth weight and APGAR scores were similar in all groups.

Conclusion: There was less incidence of maternal and foetal morbidity in Patwardhan's technique which makes it a preferred choice for management during second stage of labor.

Keywords: second stage caesarean section, Patwardhan technique, foetal outcome, hospital stay, uterine extension

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Introduction

Caesarean deliveries done in second stage of labor account for one-fourth of all primary caesarean sections.[1] Obstructed labor incidence per hundred live births ranges from 2.36% to 18.3% in developing countries where as in developed countries it is 1.6% to 3.9%.[2] Incidence is more in developing countries as a result of unsupervised obstetric care at home and delayed referral. Obstructed labor is a clinical condition where in spite of good uterine contractions, the progressive descent of the presenting part is arrested due to mechanical obstruction.[3] This leads to undue prolongation of labor and associated morbidities, along with severe discomfort to the mother. Obstructed labor affects more than 6 million women worldwide. It accounts for 8% of the approximately 500,000 annual maternal deaths which occur mostly in low –resource countries.[4] Caesarean sections done in second stage of labor with impacted foetal heads are technically difficult. In these cases the lower uterine segment becomes stretched and oedematous. Potential maternal complications include extension of the uterine incision, uterine artery injury, broad ligament hematoma, bladder injury, excessive bleeding. Delay in extraction of baby can be associated with increased risk of birth asphyxia, neonatal intensive care unit (NICU) admission, and neonatal death. Out of various techniques, Pull, Push and Patwardhan technique are widely used in caesarean section. However, these methods are associated with Risk of maternal morbidity and foetal morbidity.[5,6] Patwardhan is shoulder first technique Patwardhan's shoulder first technique avoids entry of hand into pelvis and hence significantly reduces morbidity like uterine extension, uterine artery injury, traumatic PPH and also need for blood transfusions. In the pull technique the foetus in cephalic presentation is extracted through the uterine incision by the podalic pole and push technique is the oldest procedure to disengage the wedged foetal head was described during the early 1980s and suggests pushing the head by an assistant's hand introduced through the vagina. The objective of this study is 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 foetal outcome.

Material and methods

Study area: Asansol District Hospital, in department of Obstetrics and Gynaecology, West Bengal which is a teaching government hospital with a vast referral area.

Study design: Prospective observational study.

Study duration: The study was conducted over a period of one year from June, 2019 to May, 2020.

Study population: Females of age group 18 -35 years of age with singleton pregnancy, attending in labor department.

Sample size: 90 parturient were selected randomly who fulfilled the inclusion criteria.

Inclusion criteria

Women with full term singleton pregnancy with vertex presentation in obstructed labor with deeply impacted foetal head in pelvis.

Exclusion criteria

Included intrauterine foetal death, congenital anomaly, multiple pregnancies, ruptured uterus, previous caesarean section and fetal head more than two finger breadth palpable per abdomen.

Study procedure

This was a comparative study between Patwardhan method and Push and Pull method of delivery in deeply impacted foetal head during second stage caesarean section in singleton pregnancy. Ninety patients including admissions and referral were examined with second stage arrest and non-progress of labor examined in labor room. Patients who fulfilled inclusive criteria with written informed consent were prepared for emergency caesarean section and shifted to Operation Theater. Caesarean section was performed and classified in three groups of 30 patients each for study 1. Patwardhan Method. 2. Push method. 3. Pull method. Standard delivery care practices were followed in all patients. Maternal outcome were operative blood loss, uterine incision extension, haematoma formation, wound sepsis and length of hospital stay. Neonatal outcome included Apgar score at 1 & 5 minutes, admission rate in SNCU, foetal injury during delivery and foetal weight. All patients were informed regarding the procedures and written consent was taken. Ethical clearance was obtained from Institutional Ethical committee.

Statistical analysis

Data was analysed using SPSS software version 17.0 for Windows. Quantitative data was presented as mean and standard deviation whereas qualitative data was presented as frequencies and proportions. Independent sample t-test was used to compared two groups with continuous data. Chi-square test was used to show association between two or more nominal variables. Statistical significance was considered when p-value was less than 0.05.

Results

Total number of 90 patients in labor who gave consent and fulfilled inclusion criteria were randomly allocated in three groups. In the present study, 16.7% patients were booked who underwent Patwardhan technique whereas 13.3% and 10% patients were booked with push and pull method respectively. Table 1 is showing the obstetric characteristics of the study groups. The indication of caesarean section were foetal tachycardia (11.1%), deep transverse arrest (41.11%), foetal bradycardia (28.89%) and meconium stained liquor (35.56%). Atonic PPH was observed in 2 (6.7%), 9 (30%) and 4 (13.3%) subjects undergoing Patwardhan's technique, push and pull method. Also, there was significantly less blood loss in Patwardhan's technique (500 ml) as compared to push (808.33 ml) and pull method (816 ml). Obstetric hysterectomy were performed in 6.7% subjects each in push and pull method.

Table 1 Demographic and obstetric characteristics of patients in study groups

Variable	Category	Patwardhan's	Push method	Pull method	P-value*
Age	Upto 20 years	8 (26.7%)	9 (30%)	11 (36.7%)	0.938
	21-25 years	13 (43.3%)	13 (43.3%)	12 (40%)	
	>25 years	9 (30%)	8 (26.7%)	7 (23.3%)	
Gestational age	<37 week	8 (26.7%)	7 (23.3%)	6 (20%)	0.884
	37-40 week	16 (53.3%)	15 (50%)	17 (56.7%)	
	>40 week	6 (20%)	8 (26.7%)	7 (23.3%)	
Duration of labor	<12 hours	2 (6.7%)	3 (10%)	3 (10%)	0.919
	12-24 hours	23 (76.7%)	20 (66.7%)	22 (73.3%)	
	>24 hours	5 (16.7%)	7 (23.3%)	5 (16.7%)	
Uterine incision extension	Yes	2 (6.7%)	25 (83.3%)	22 (73.3%)	0.0001
	No	28 (93.3%)	5 (16.7%)	8 (26.7%)	
Broad ligament haematoma	Yes	0	12 (40%)	6 (20%)	0.001
	No	30 (100%)	18 (60%)	24 (80%)	
Traumatic PPH	Yes	3 (10%)	12 (40%)	6 (20%)	0.02
	No	27 (90%)	18 (60%)	24 (80%)	

Table 2 depicts the neonatal complications among the three study groups. Birth weight was similar in the three study groups with 2.74 kg, 2.79 kg and 2.75 kg in Patwardhan techniques, push and pull method respectively (p=0.675). The average duration of stay was significantly less (p=0.027) among patient's undergoing Patwardhan technique (5.87 days) as compared to push (6.40 days) and pull method (6.77 days). APGAR score of the newborns were similar at 1 and 5 minutes respectively among the three study groups.

Table 2 Neonatal characteristics comparison between study groups

Variable	Category	Patwardhan's	Push method	Pull method	P-value*
Wound infection	Yes	0	8 (26.7%)	4 (13.3%)	0.01
	No	30 (100%)	22 (73.3%)	26 (86.7%)	
Birth asphyxia	Yes	7 (23.3%)	14 (46.7%)	10 (33.3%)	0.162
	No	23 (76.7%)	16 (53.3%)	20 (66.7%)	
SNCU admission	Yes	7 (23.3%)	14 (46.7%)	10 (33.3%)	0.162
	No	23 (76.7%)	16 (53.3%)	20 (66.7%)	
Foetal injury	Yes	0	1 (3.3%)	1 (3.3%)	0.021
	No	30 (100%)	29 (96.7%)	29 (96.7%)	

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Discussion

Caesarean sections done in second stage of labor with impacted fetal heads are associated with increased trauma to lower uterine segment and associated structures, as well as, increased haemorrhage and infections, delivery of impacted foetal heads are technically difficult and they are associated with an increased incidence of maternal and fetal morbidities. It was found that distribution of un-booked cases among Patwardhan technique, push and pull method were high. Incidence of un-booked patients were more because of traditional beliefs, illiteracy and practices, neglected obstetric care, poor utilization of available health services, and poor transport facilities. There was no statistical difference amongst the three study groups with respect to age, parity, gestational age and duration of labor. Thus selection bias was minimized. Regarding uterine incision extension, there was statistically significant between Patwardhan technique and other methods. Hol K et al.[7] and Kumari Archana et al.[8] found similar low incidence of uterine incision extension among patients undergoing Patwardhan technique.[7,8] The more incidence of extension of the uterine incision can be explained due to the excessive trauma to the already stretched and edematous lower uterine segment.

Broad ligament haematoma was other complication found more frequently among push and pull method patients. Biswas et al.[9] and Qureshi et al.[10] conducted studies in which they found that Patwardhan technique was superior to conventional technique.[9,10] Traumatic PPH, Atonic PPH and mean blood loss were other complications which were found significantly less among patients with Patwardhan's technique. These findings were supported by Hol K et al,[7] Bansiwal et al.[9] and Lal et al.[12] in recent studies.[7,11,12] The mean duration of hospital stay was significantly less In women undergoing Patwardhan technique. This finding was statistically significant (p-value=0.027). Qureshi et al.[10] and Babre et al.[13] also reported similar findings.[10,13] Regarding neonatal outcome, fetal injuries were reported in Push and pull methods which were significantly higher than Patwardhan technique (p-value=0.021). In the present study, association of neonatal admission of intensive care unit and birth asphyxia were not statistically significant. Neonatal birth weight and APGAR scores were found to be similar in the study groups.

Conclusion

As the maternal and fetal complications are seen to be considerably less in Patwardhan's method than Push and Pull method, the present study concludes that Patwardhan's method for delivering baby in second stage caesarean section confers greater advantage. However, Patwardhan technique requires careful handling and patience throughout procedure. Patwardhan technique prevents uterine incision extension, broad ligament hematoma, lower uterine segment injuries, tear, lacerations, blood loss, need for obstetric hysterectomy as compared to Push method and Pull method in second stage caesarean section with deeply impacted foetal head and fragile stretched lower uterine segment. Its importance lies in absence of extension of uterine incision. No foetal benefits were found in the three groups. So overall maternal morbidity was less Patwardhan method as compared to Push method and Pull method. Limitations of the present study includes small sample size and being a single centre study. More studies are needed to validate the findings of the current study.

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None.

Conflicts of interest

The author declares there is no conflict of interest.

References

1. Freeman RK. *Evaluation of caesarean delivery*. The American College of Obstetricians and Gynaecologists Women's Health Care Physicians, 409, SW Washington, DC. 20090–6920. ACOG; 2000.
2. *Maternal Mortality update- UNFPA assistance of maternal mortality prevention activities: an overview 1998–1999*.
3. Dutta DC. *Textbook of Obstetrics*. Jaypee publishers. 7th edn: 2013.
4. World Health Organization (WHO). *The World Health Report, 2005: Make Every Mother and Child Count*. Geneva, Switzerland. 2005.
5. Patwardhan BD, Motashaw ND. Caesarean Section. *J Obstet Gynecol India*. 1957;8:1–15.
6. Khosla AH, Dahiya K, Sangwan K. Caesarean section in a wedged head. *Ind J Med Science*. 2003;57(50):187–191.
7. Hol K, Trivedi S, Jaiswal S, et al. Comparison of maternal and fetal morbidity between Patwardhan method of second stage lower segment caesarean section and conventional "push and pull" method. *Int J Reprod Contracept Obstet Gynecol*. 2019;8(11):4538–4542.
8. Kumari A. Reducing morbidity in second stage cesarean section by Patwardhan (shoulders first) method of delivery. *Int J Reprod Contracept Obstet Gynecol*. 2018;7(6):2208–11.
9. Biswas T, Jana N, Das SK. A comparative study of maternal and neonatal morbidities between Patwardhan technique and conventional method for caesarean delivery in second stage of labour. *Journal of medical science and clinical research* 2014;2(7):1804–1809.
10. Qureshi A, Shaheena. Comparative study between Patwardhan technique of delivery and traditional way of delivering babies by Pull or Push method. *International Journal of Science and Research*. 2017;6(3):1306–1308.
11. Bansiwal R, Anand HP, Jindal M. Safety of patwardhan technique in deeply engaged head. *Int J Reprod Contracept Obstet Gynecol*. 2016;5(5):1562–1565.
12. Lal M, Goyal P, Shamim S. Evaluation of Patwardhan Technique in Second Stage Caesarean Section. *Int Arch BioMed Clin Res*. 2018;4(1):47–49.
13. Babre VM, Bendre KR, Niyogi G. Review of caesarean sections at full dilatation. *Int J Reprod Contracept Obstet Gynecol*. 2017;6(6):2491–2493.