

# Vacuum Extraction vs. Forceps Delivery: Comparison of Maternal and Fetal Effects

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**Abstract:** 100 eligible women requiring assisted vaginal delivery (AVD) in the second stage of labour were randomised to deliver by vacuum extraction (VE) or Forceps Delivery (FD). All of those allocated to Forceps delivery (FD) actually delivered with the allocated instrument; however maternal trauma, use of analgesia and blood loss at delivery were significantly less in the group allocated to deliver by vacuum extraction (VE). VE however appears to predispose to an increase in neonatal jaundice and incidence of cephalhematoma. More serious neonatal morbidity was rare in both groups.

**Keywords:** Assisted Vaginal Delivery, Vacuum extraction, Forceps delivery

## 1. Introduction

Assisted vaginal delivery (AVD) is quite commonly conducted by obstetricians. The choice of the instrument lies between uses of vacuum extractor (VE) or obstetric forceps (OF). Myerscough delineates the basic dissimilarity in the mechanics of head extraction by VE and OF. The author explains that with VE, extraction of head is effected with scalp traction while with OF pulling force is applied at the base of the skull. The study was carried out to compare the maternal and neonatal outcomes of VE and FD.

## 2. Material and Methods

A prospective randomised study was carried out in the Department of Obstetrics and Gynaecology, Nalanda Medical College and Hospital, Patna from January 2017 to December 2017. 100 cases of singleton pregnancies with cephalic presentation and gestation of at least 37 completed weeks where instrumental assistance was required for delivery during the second stage of labour were randomly allocated to 2 subgroups of 50 each, Group A (50 cases) for VE and Group B (50 cases) for FD. Irrespective of the ultimate mode of delivery, for the purpose of analysis, the women remained in the group to which they were originally allocated. Maternal and fetal outcomes were judged at the end of the procedure and at the time of discharge.

## 3. Results

- 1) Basic characteristics were comparable in both the groups
- 2) Fetal distress was the commonest indication
- 3) FD took significantly lesser time (3.6 min for FD vs 5.3 min for VE)
- 4) VE was successful in 90% (45 cases) while FD was successful in 100% (50 cases)
- 5) Among the 5 unsuccessful VE, 1 delivered spontaneously and 4 delivered by forceps.
- 6) Local perineal infiltration alone was used for the majority of VE. Pudendal block with local infiltration was more commonly employed in FD.
- 7) Severe maternal soft tissue trauma (extension to fornix, third degree perineal tear, cervical tear and paraurethral

tear) was 40% in FD vs 10% in VE). Estimated blood loss in VE was significantly lesser than FD.

- 8) Cephalhematoma and neonatal jaundice was commoner in VE group.

Significant outcome	VE	FD
1. Time (min)	5.3	3.6
2. Success (%)	90	100
3. Requirement of analgesia	less	more
4. Maternal side effects	less	more
5. Fetal side effects	more	less

## 4. Discussion

VE is safer for the mother as compared to FD. It is more likely to fail than forceps though faulty technique, suction failure or cautious pull owing to fear of detachment might be responsible for the failure. Berkus et al have shown that relying on clinical parameters alone without ultrasound confirmation might lead to overdiagnosis of cephalhematoma.

## 5. Conclusion

Extrapolation of the data from the study reveals that there is a significant reduction in maternal injuries in VE. However, it has the potential to injure the babies more.

## References

- [1] Myerscough PR, Munro Kerr's operative obstetrics, 10<sup>th</sup> edition. London: Balliere Tindall; 1992
- [2] Berkus MD, Ramamurthy RS, O'Connor PS et al. Cohort study of silastic obstetric vacuum cup deliveries, unsuccessful vacuum extraction. *Obstet Gynecol* 1986;68(5): 662- 66