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# Original Article

# Comparison of maternal and fetal effects of forceps delivery and vacuum extraction

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#### ABSTRACT:

**Background:** Women worldwide require instrumental vaginal delivery every year. Obstetricians have vacuum extractor or obstetric forceps to choose from as instruments for assisted vaginal delivery. The present study was conducted to compare maternal and fetal effects of forceps delivery and vacuum extraction. **Materials & Methods:** 58 women in the second stage of labor requiring assisted vaginal delivery were divided into 2 groups of 29 each. In group I, ventouse was used and in group II, forceps were used. Parameters such as timeof application of the instrument, time of delivery, type ofinstrument used etc. was recorded. **Results:** In group I, ventouse was used and in group II, forceps were used. Each group had 29 patients. The mean gestational age (weeks) in group I was 39.0 and in group II was 38.2, birth weight (kg) was 2.8 and 2.7 in group I and II respectively. Indication for delivery was delayed second stage in 6 and 14, fetal distress in 20 and 10, delay plus distress in 2 and 3 and to shorten second stage in 1 and 2 in group I and II respectively. Mode of delivery was specified instrument in 26 and 29 and other (forceps) in 3 in group I and II respectively. The neonatal morbidity comprised of jaundice in 5 and 2, facial palsy in 0 and 1, cephalhematoma in 4 and 1 and mortality in 1 and 0 in group I and II respectively. The difference was significant (P<0.05). **Conclusion:** Ventouse methods found to be superior as compared to the use of forceps. **Key words:** Forceps, Ventouse, vacuum extractor

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#### **INTRODUCTION**

Women worldwide require instrumental vaginal delivery every year. Obstetricians have vacuum extractor or obstetric forceps to choose from as instruments for assisted vaginal delivery. Myerscough delineates the basic dissimilarity in the mechanics of head extraction by forceps and vacuum extractor.<sup>1</sup>

The metal-cup vacuum extractor is a mushroomshaped metal cup varying from 40 to 60 mm in diameter.<sup>2</sup> A centrally attached chain connects the cup to a detachable handle that is used to apply traction. A mechanical or electrical suction device is attached to the metal cup via a peripherally located vacuum port.<sup>3</sup>The advantages of metal-cup vacuum extraction over soft-cup extraction include a higher success rate and easier cup placement in the occipitoposterior (OP) position, especially when an OP cup is used. Unfortunately, the rigidity of metal cups can make application difficult and uncomfortable, and their use is associated with an increased risk of fetal scalp injuries.Metal-cup vacuum extractors are rarely used in the United States.<sup>4</sup>

Most of these randomized and nonrandomizedtrials comparing maternal and fetal effects ofvacuum extractor and forceps delivery agree upon thematernal benefits of vacuum extractor over forceps, namelyless maternal soft tissue trauma, decreased requirement ofregional or general anesthesia, and decreased blood loss.<sup>5,6</sup>The present study was conducted to compare maternal and fetal effects of forceps delivery and vacuum extraction.

## **MATERIALS & METHODS**

The present study comprised of 58 women in the second stage of laborrequiring assisted vaginal delivery. All enrolled patients gave their written consent.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 29 each. In group I, ventouse was used and in group II, forceps were used. Parameters such as timeof application of the instrument, time of delivery, type of instrument used, number of pulls, number of detachments in case of ventouse, and analgesia/anesthesia given, perineal tears, extension of the episiotomy, vaginal lacerations, cervical tears, or others. Maternal blood loss, Apgar score etc. was recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

# **RESULTS** Table I Distribution of patients

Groups	Group I	Group II
Method	Ventouse	Forceps
Number	29	29

Table I shows that in group I, ventouse was used and in group II, forceps were used. Each group had 29 patients.

 Table II Assessment of parameters

Parameters	Variables	Group I	Group II	P value
Gestational age (weeks)		39.0	38.2	0.92
Birth weight (kg)		2.8	2.7	0.91
Indication for	Delayed second stage	6	14	0.05
delivery	Fetal distress	20	10	
	Delay plus distress	2	3	
	To shorten second stage	1	2	
Mode of delivery	Specified instrument	26	29	0.05
	Other (forceps)	3	0	
	Other (ventouse)	0	0	
	Cesarean section	0	0	
	Spontaneous vaginal	0	0	

Table II, graph I shows thatmean gestational age (weeks) in group I was 39.0 and in group II was 38.2, birth weight (kg) was 2.8 and 2.7 in group I and II respectively. Indication for delivery was delayed second stage in 6 and 14, fetal distress in 20 and 10, delay plus distress in 2 and 3 and to shorten second stage in 1 and 2in group I and II respectively. Mode of delivery was specified instrument in 26 and 29 and other (forceps) in 3in group I and II respectively. The difference was significant (P < 0.05).



# **Graph I Assessment of parameters**

# Table III Neonatal morbidity

Variables	Group I	Group II	P value
Jaundice	5	2	0.05
Facial palsy	0	1	
Cephalhematoma	4	1	
Mortality	1	0	

Table III, graph II shows that neonatal morbidity comprised of jaundice in 5 and 2, facial palsy in 0 and 1, cephalhematoma in 4 and 1 and mortality in 1 and 0 in group I and II respectively. The difference was significant (P < 0.05).



## **Graph II Neonatal morbidity**

# DISCUSSION

Although there is periodic and vocal demand to delete assisted vaginal delivery, clinical experience provides recurring evidence that leaving all to nature or the scalpel will not accomplish any goals.<sup>7</sup> As the health of the mother, baby and the emotional satisfaction of the family, the need for operative vaginal delivery cannot be overemphasized.8 Involvement in the care of the women in labour cannot being without consideration of the passage and the powers.<sup>9,10</sup> Today one might observe that we have a better insight into the dynamic mechanism of parturition which had eluded our predecessors, but this does not necessarily make the does not necessarily make the process of labour and vaginal birth less dangerous. As once said by an obstetrician "There are still those who think that the delivery of a woman is easy.<sup>11,12</sup>The present study was conducted to compare maternal and fetal effects of forceps delivery and vacuum extraction.

We found that in group I, ventouse was used and in group II, forceps were used. Each group had 29 patients.maternal and neonatal effects of assisted vaginal delivery by forceps and vacuum extraction. In a study by Shekhar et al<sup>13</sup> one hundredeligible women requiring assisted vaginal delivery in thesecond stage of labor were randomized to deliver by forceps delivery actually delivered with the allocated instrument (100 % deliveryrate in forceps

vs. 90 % in VE); however, maternal trauma(40 % in forceps vs. 10 % in VE, p<0.001), use ofanalgesia (p<0.001), and blood loss at delivery (234 mlin VE vs. 337 ml in forceps group, p<0.05) were significantlyless in the group allocated to deliver by vacuumextraction. Vacuum extraction, however, appears to predisposeto an increase in neonatal jaundice and incidence of cephalhematoma. More serious neonatal morbidity wasrare in both groups. We observed that mean gestational age (weeks) in group I was 39.0 and in group II was 38.2, birth weight (kg) was 2.8 and 2.7 in group I and II respectively. Indication for delivery was delayed second stage in 6 and 14, fetal distress in 20 and 10, delay plus distress in 2 and 3 and to shorten second stage in 1 and 2 in group I and II respectively. Mode of delivery was specified instrument in 26 and 29 and other (forceps) in 3 in group I and II respectively.Shihadeh et al<sup>14</sup>occipitoanterior position was seen in 82% of forceps and 77.3% of vacuum. Occipitoanterior positions were seen in 17.38% of vacuum and 17.33% of forceps.

We found that neonatal morbidity comprised of jaundice in 5 and 2, facial palsy in 0 and 1, cephalhematoma in 4 and 1 and mortality in 1 and 0 in group I and II respectively.Berkus et al<sup>15</sup> haveshown that relying on clinical parameters alone withoutultrasound confirmation might lead to overdiagnosis ofcephalhematoma. Prior studies report a varying incidenceofcephalhematoma with a

conclusion that its incidencedecreases as more experience is gained with ventouseextraction.

## CONCLUSION

Authors found that ventouse methods found to be superior as compared to the use of forceps.

#### REFERENCES

- 1. Myerscough PR. Munro Kerr's operative obstetrics. 10th ed.London: Balliere Tindall; 1992.
- 2. Lucas MJ. The role of vacuum extraction in modern obstetrics.Clin obstetGynecol 1994;37(4):794–805.
- 3. Ali UA, Norwitz Er. Vacuum assisted vaginal delivery. RevObstet Gynecol. 2009;2(1):5–17.
- Greis JB, Bieniarz J, Seommegna A. Comparison of maternal andfetal effects of vacuum extraction with forceps or caesareandeliveries. ObstetGynecol 1981;57(5):571–77.
- Vacca A, Grant A, Geoffrey W, et al. Porstmouth operativedelivery trial, a comparison ofvacuum extraction and forcepsdelivery. Br J ObstetGynecol1983;90:1107–12.
- Carter J, Gudgeon WC. Vacuum extraction and forceps deliveryin a district hospital. Aust NZ J ObstetGynecol1987;27:117–9.
- Johanson R, Pusey J, Livera N, et al. North Staffordshire/wiganassisted delivery trial. Br J ObstetGynecol1989;96:537–44.
- 8. Johanson RB, Rice C, Doyle M, et al. A randomized prospectivestudy comparing the new vacuum extractor

policy with forcepsdelivery. Br J ObstetGynaecol1993;100:524–30.

- Achanna S, Monga D. Outcome of forceps delivery versusvacuum extracton, a review of 200 cases. Singapore Med J 1994;35:605–8.
- Kovavisarach E, Varanuntakul T. Neonatal and maternal complicationsamong pregnant women delivered by vacuum extractionor forceps extraction. J Med Assoc Thai 1999;82(4):319–23.
- Arya LA, Jackson ND, Myers DL, et al. Risk of new onset urinaryincontinence after forceps and vacuum delivery in primiparouswomen. Am J ObstetGynecol2001;18596:1318–24.
- Kovavisarach E, Varanuntakul T. Neonatal and maternal complications among pregnant women delivered by vacuum extraction or forceps extraction. J Med Assoc Thai 1999;82(4):319–23.
- 13. Shekhar S, Rana N, Jaswal RS. A prospective randomized study comparing maternal and fetal effects of forceps delivery and vacuum extraction. The Journal of Obstetrics and Gynecology of India. 2013 Apr;63(2):116-9.
- 14. Shihadeh, Al-Najdawi W. Forceps andvacuum extraction; a comparison ofmaternal and neonatal morbidity. Eastmediterr health J., 2001; 7: 106-14.
- Berkus MD, Ramamurthy RS, O'Connor PS, et al. Cohort studyof silastic obstetric vacuum cup deliveries, unsuccessful vacuumextraction. ObstetGynecol 1986;68(5):662–66.