

# Complications of Instrumental Vaginal Delivery in Perimiparus Patients and Foetomaternal Outcome

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## ABSTRACT

**Objective:** To find out complications and foetomaternal outcome in the instrumental (forceps and vacuum) vaginal delivery of the primiparus patients.

**Study Design:** Observational study

**Place and Duration of Study:** This study was conducted at Gynecological Department of Liaquat University Hospital Hyderabad and Gynecological Department of Isra University Hospital Hyderabad from August 2012 to April 2013.

**Materials and Methods:** This study contained total 100 number of cases All the perimigravid womens were included in the study and after the admission all require able laboratory investigation were carried out. Forceps and vacuum were used in delivery and this choice between two options (forceps and vacuum) is usually been based on training and traditions. All the instrumental complications and affects on foetomarnal in parimiparus patients were noted during and after delivery and were documented on the attached Performa.

**Results:** Present study was contains 100 of the cases, forceps was applied on the 68% of the cases while vacuum assisted deliveries were done in 32% cases. In the forceps assisted deliveries from the maternal complications perineal tear and vaginal trauma were most common as 27% and 20% respectively, while maternal complications associated to vacuum were UTI, Perineal tear, Cervical tear, Vaginal trauma and Heavy bleeding were with percentage as, 06.0%, 06.0%, 05.0%, 04.0% and 12.0% respectively. Neonatal trauma and cephalic hematoma were most common and no deaths were recorded and in the vacuum assisted deliveries, and no deaths were recorded along with 12% neonatal trauma and 10% cephalic hematoma as in forceps deliveries.

**Conclusion:** In the conclusion of this study vacuum having less complication as compare to forceps deliveries but there is no highly difference so the operator should use the instrument according to situation.

**Key Words:** Primigravid, forceps and vacuum, complication.

## INTRODUCTION

Primiparous can be identifying as the women who conceived for the first time and also it is high risk group. Since, it is the start of a new life for a woman, this group regarded as a crucial group having need regular assistance in terms of Antenatal, natal and post natal care, and they should help of the this group during pregnancy, labour.<sup>1</sup> Assisted vaginal delivery is known as delivery through vaginally using any instrument for assistance of delivery. The vacuum and forceps are two main options according to the need for facilitate vaginal birth. In the instrumental vaginal delivery use of the vacuum or forceps for increase the forces along the pelvic curve. The vacuum applies for suction on the area of scalp fixed by the suction cup.<sup>2</sup> Forceps cradle the parietal and molar bones of the fetal skull and apply traction to these areas, as well as laterally displacing maternal tissue.<sup>2</sup> Uses of both vacuum and forceps simultaneously causes compression of the fetal head. Uses of the both instruments have been compared in many studies.<sup>3,4,5,6</sup> In the studies of Johansson and Menon<sup>3</sup> included 10 such studies from the Cochrane database in a meta analysis. Johanson and Menon found

that vacuum is more likely to fail as the instrument of delivery than forceps. Patients with vacuum delivery had less severe lacerations than those who had a forceps delivery as well as less perineal pain at 24 hours after delivery.<sup>3</sup> Many other studies reported no difference in urinary incontinence or anal sphincter dysfunction after five years whether vacuum or forceps were used for vaginal delivery.<sup>3,4</sup> Neonatal complications rate mostly similar in both instruments.<sup>3</sup> Cephalohematomas and retinal hemorrhages are most common in vacuum vaginal deliveries,<sup>3</sup> and external ocular injuries and facial nerve palsies are most common in the forceps deliveries.<sup>3</sup> Serious complications are rare for both forceps and vacuum deliveries but can lead to neonatal death.<sup>5,7</sup> In the retrospective study of primigravid women in California<sup>7</sup> found infants were no more likely to die before discharge when delivered by vacuum or forceps as compare to spontaneous vaginal birth. They were less likely to die if delivered vaginally than by Caesarean section. A neonate delivered by 2 operative interventions (i.e., Caesarean section following a failed vacuum attempt or forceps attempt, or vacuum and forceps birth) is more likely to have a serious injury than one delivered by any one of these

interventions alone.<sup>5</sup> Indeed, a positive correlation exists between the number of operative interventions in the second stage of labour and the likelihood of death or intracranial injury.<sup>7</sup> Other research has demonstrated similar results.<sup>8,9</sup> Purpose of this study to analyze the effects and complications of instrumental, (forceps and vacuum) vaginal delivery of the primiparus patients, at Liaquat university hospital Hyderabad sindh.

**MATERIALS AND METHODS**

This observational and comparative study was contains total 100 of the case and was conducted at gynecological department of Liaquat university hospital Hyderabad and gynecological department of gynecology Isra university hospital Hyderabad, with the duration of 8 months from August 2012 to April 2013. All the perimigravida women with only vaginal deliveries were included in the study and all the cases with obstetric complications, pregnancy presentation with multifetals, women with multiparity and with other medically severe disorder and fetus with congenital abnormalities were excluded from the study. After the admission of patients physical examination was done as abdominal, vaginal examination, cervical dilatation and head presentation to pelvis assessment, blood pressure etc. All require able laboratory investigation were carried out. Forceps and vacuum were used in delivery and this choice between two options (forceps and vacuum) is usually been based on training and traditions. All the instrumental complications and affects on foetomarnal in parimiparus patients were noted during and after delivery and were documented on the attached Performa.

**RESULTS**

Present study was contains 100 of the cases, forceps was applied on the 68% of the cases while vacuum assisted deliveries were done in 32% cases figure 1. Results of our study shows that the majority of the cases was found in the age group of 21-25 and the second most common age group was the 26- 30 years of the age, cases of the present study were found equally from both rural and urban areas, 48% from rural areas and 52% from urban areas. Table.1. Socioeconomic status of the patients of this study, majority of the cases belongs with poor families with the percentage of 85% while 15% cases belong with middle class and upper class families. Table.1. Anemic patient were found in the majority in this study 65% while few patients were diagnosed with hypertension and diabetics. Table.1. During the lab investigation of this study HBV and HCV were found 15% and 31% respectively. Figure 2. In the forceps assisted deliveries from the maternal complications perineal tear and vaginal trauma were most common as 27% and 20% respectively along with heavy bleeding 19%, UTI 15% and cervical tear were

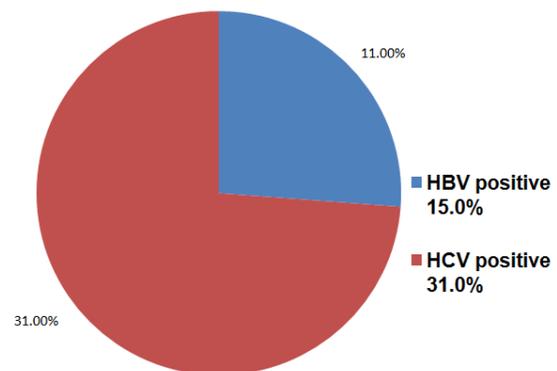
noted in 7% of the cases, while maternal complications associated to vacuum were UTI, Perineal tear, Cervical tear, Vaginal trauma and Heavy bleeding were with percentage as, 06.0%, 06.0%, 05.0%, 04.0% and 12.0% respectively. Table. 2.

**Table No.1: Baseline charecteristics of the patients (n=100)**

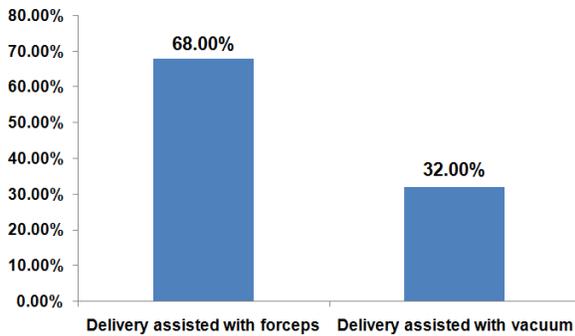
Characteristics	Frequency	%age
<b>Age groups</b>		
> 20	15	15.0%
21 – 25	38	38.0%
26 – 30	30	30.0%
< 30	17	17.0%
<b>Residential status</b>		
Rural	48	48.0%
Urban	52	52.0%
<b>Economic status</b>		
Poor	85	85.0%
Non poor	15	15.0%
<b>Others</b>		
Hypertensive	12	12.0%
Diabetics	04	04.0%
Anemic	65	65.0%

**Table No.2. Instrumental effects and Foetomaternal outcome**

Foetomaternal outcome and complications	Forceps %	Vacuum %
<b>Maternal</b>		
UTI	15.0%	06.0%
Perineal tear	27.0%	06.0%
Cervical tear	07.0%	05.0%
Vaginal trauma	20.0%	04.0%
Heavy bleeding	19.0%	12.0%
<b>Neonatal</b>		
Neonatal death	0%	0%
Neonatal trauma	17.0%	12.0%
Cephalic hematomas	11.0%	02.0%
Clavicle fracture	03.0%	01.0%
Brachial plexus injury	04.0%	01.0%
Jaundice	06.0%	02.0%



**Figure No. 1: Viriological presentation of the cases (n=100)**



**Figure No. 2: Instrumental frequency assisted for delivery (n=100)**

Neonatal trauma and cephalic hematoma were most common and no deaths was recorded according to the neonatal outcome in the forceps assisted vaginal deliveries, while in the vacuum assisted deliveries deaths were recorded 0% along with 12% neonatal trauma and 10% cephalic hematomas. Table. 2.

## DISCUSSION

This study was performed to determine the foetomaternal complications associated forceps and vacuum assisted vaginal delivery. Present study was contains 100 of the cases, forceps was applied on the 68% of the cases while vacuum assisted deliveries were done in 32% cases. In the study of Aliya islam, was found majority of the cases were assisted by forceps.<sup>10</sup>

A study from India (Punjab) reported that comparison of demographic variables of all the mothers delivered via both routes "caesarean and vaginal", 06.15%, 43.08%, 35.38% and 15.38% of mothers who had caesarean deliveries were in <20yrs, 21-25 yrs, 26-30 yrs and >30yrs of age group, while mothers who delivered vaginally had 17.14%, 42.86%, 25.71% and 14.28% for the same age groups respectively.<sup>11</sup> While this also showed majority of the cases found in the age group of 21-25 and the second most common age group was the 26- 30 years, cases of the present study were found equally from both rural and urban areas, 48% from rural areas and 52% from urban areas.

Socioeconomic status of the patients of this study, majority of the cases belongs with poor families with the percentage of 85% while 15% cases belong with middle class and upper class families. In the comparative study of Kawaljit Kaur et al, reported that mostly mothers belongs with socioeconomic status as 22.86%.<sup>11</sup>

Anemic patient were found in the majority in this study 65% while few patients were diagnosed with hypertension and diabetics. In the forceps assisted study of Gunvant Vaishnav et al, he found 17.39% of cases with anemia.<sup>12</sup>

In the study of Lashari A.K. et al reported that from 4170 obstetric patients, 250 (6%) were HBV carriers,

and 108 (2.6%) were HCV seropositive.<sup>13</sup> while in this study during the lab investigation of this study HBV and HCV were found 15% and 31% respectively.

Johanson and Menon<sup>14</sup> included<sup>15</sup> such studies from the Cochrane database in a meta-analysis. Johanson and Menon found that vacuum is more likely to fail as the instrument of delivery than forceps. Women randomized to the vacuum delivery groups, however, were less likely to require a Caesarean section.<sup>14</sup> The risk of maternal injury was greater in the forceps groups.<sup>14</sup> Women who had a vacuum delivery had less severe lacerations than those who had a forceps delivery as well as less perineal pain at 24 hours post-delivery.<sup>14</sup> Other studies demonstrated no difference in urinary incontinence or anal sphincter dysfunction after<sup>16</sup> years whether vacuum or forceps were used for operative vaginal birth.<sup>16</sup> Complication rates to the neonate were similar in both the forceps- and vacuum delivered groups.<sup>14</sup> Cephalohematomas and retinal hemorrhages are more common in vacuum deliveries.<sup>14</sup> External ocular injuries and facial nerve palsies are more common with forceps deliveries.<sup>14</sup> Serious complications are rare for both forceps and vacuum deliveries. In the present study forceps assisted deliveries from the maternal complications perineal tear and vaginal trauma were most common as 27% and 20% respectively along with heavy bleeding 19%, UTI 5% and cervical tear were noted in 7% of the cases, while maternal complications associated to vacuum were UTI, Perineal tear, Cervical tear, Vaginal trauma and Heavy bleeding were with percentage as, 06.0%, 06.0%, 05.0%, 04.0% and 12.0% respectively. Huma naz et al reported that maternal and neonatal complication in her comparative study of vacuum and forceps as, cervical tear 5% in vacuum and 6% in the forceps assisted deliveries while neonatal cephalic hematoma 6% and jaundice 8% in vacuum assisted deliveries even as cephalic hematoma 5% and jaundice 3% in forceps assisted deliveries.<sup>17</sup> Neonatal trauma and cephalic hematoma were most common and no deaths were recorded according to the neonatal outcome in the forceps assisted vaginal deliveries, while in the vacuum assisted deliveries deaths were recorded 0% along with 12% neonatal trauma and 10% cephalic hematomas. Study of Aliya islam reported that according to the forceps assisted deliveries neonatal jaundice 6%, cephalic hematoma 4% and neonatal deaths were only 2%.<sup>10</sup>

## CONCLUSION

In the conclusion of this study vacuum having less complication as compare to forceps deliveries but there is no highly difference so the operator should use the instrument according to situation.

## REFERENCES

1. World Health Organization. The prevalence of anaemia in woman. A tabulation of available information. Geneva: WHO;1992
2. Cunningham FG, Gant NF, Leveno KJ, Gilstrap LC, Hauth JC, Wenstrom KD. Williams Obstetrics. New York: McGraw-Hill; 2001.
3. Johanson RB, Heycock E, Carter J, Sultan AH, Walklate K, Jones PW. Maternal and child health after assisted vaginal delivery: five-year follow up of a randomized controlled study comparing forceps and ventouse. Br J Obstet Gynaecol 1999; 106(6):544-9.
4. Johanson RB, Menon V. Vacuum extraction vs. forceps for assisted vaginal delivery (Cochrane Review). The Cochrane Library, Issue 1 2003. Oxford: Update Software.
5. Towner, Castro M, Eby-Wilkens F, Gilbert W. Effect of mode of delivery in nulliparous women on neonatal intracranial injury. N Engl J Med 1999; 341(2):1709-14.
6. Wen S, Liu S, Kramer M, Maroux S, Ohlsson, Sauve R, et al. Comparison of maternal and infant outcomes between vacuum extraction and forceps deliveries. Am J Epidemiol 2001;153(2):103-7.
7. Obstetrical Care Review Committee. Eighth annual report of the Obstetrical Care Review Committee for the Office of the Chief Coroner for Ontario. January-December 2001.
8. Gardella C, Taylor M, Benedetti T, Hitti J, Critchlow C. The effect of sequential use of vacuum and forceps for assisted vaginal delivery on neonatal and maternal outcomes. Am J Obstet Gynecol 2001;185: 896-902.
9. Sadan O, Ginath S, Gomel A, Abramov D, Rotmensch S, Boaz M, et al. What to do after a failed attempt of vacuum delivery? Eur J Obstet Gynecol Reprod Biol 2003;107(2):151-5.
10. Islam A, Khan AH, Murtaza JN. Vacuum extraction and forceps deliveries; comparison of maternal and neonatal complications. Professional Med J 2008; 15(1): 87-90.
11. Kaur J, Singh S, Kaur K. Current trend of caesarean sections and vaginal births. Adv Appl Sci Res 2013;4(4):196-202
12. Vaishnav G, Vaishnav J. Outlet Forceps in Modern Era, a Dangerous Instrument or an Art of Obstetrics? Med Sci 2012;1(3):171-6
13. Lashari AK. et al. Frequency of hepatitis b and c carrier state in obstetric and Gynecological patients at Teaching Hospital Khairpur 2012;19(2):61-63.
14. Johanson RB, Menon V. Vacuum extraction vs. forceps for assisted vaginal delivery (Cochrane Review). The Cochrane Library, Issue 1 2003. Oxford: Update Software.
15. Johanson RB, Heycock E, Carter J, Sultan AH, Walklate K, Jones PW. Maternal and child health after assisted vaginal delivery: five-year follow up of a randomized controlled study comparing forceps and ventouse. Br J Obstet Gynaecol 1999; 106(6):544-9.
16. Obstetrical Care Review Committee. Eighth annual report of the Obstetrical Care Review Committee for the Office of the Chief Coroner for Ontario. January-December 2001.
17. Naz H, Sarosh M, Parveen S, Sultana A. Fetomaternal morbidity associated with vacuum versus forceps delivery. Pak J Surg 2012;28(2): 126-129.

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