ORIGINAL RESEARCH PAPER
Volume - 11 | Issue - 06 | June - 2022 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

FORCEPS – A FADING ART

Arts

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ABSTRACT

Modern obstetrics practice has witnessed an increase in the caesarean section rates everywhere. The incidence of instrumental deliveries varies between 2-5% in India. There is an urgent need to reintroduce instrumental delivery in India. **Methods:** A retrospective observational study was conducted at a secondary care level hospital. The aim of the present study was to assess the prevalence of forceps deliveries and its feto-maternal outcome among all the births occurring at Khan Bahadur Bhabha Municipal hospital, Kurla, in a period of 1 year from April 2021 to March 2022. All cephalic singleton pregnant mothers who underwent forceps delivery after 28 weeks, twin gestation was included while breech vaginal delivery was excluded. Demographic data, indication of forceps, maternal complications like episiotomy extension, PPH and neonatal outcome like NICU admissions, APGAR score were recorded. **Results:** The prevalence of forceps delivery in our study was 2.258%. The most common indication was maternal exhaustion (55%). Most of the mothers were primigravida in age group 20-30 years (83%). Regarding the neonatal outcome, 74% of the babies were having weight > 2.5 kgs. **Conclusions:** Maternal exhaustion is the most common indication; A skilled forceps delivery can expedite the delivery and prevent a second stage section.

KEYWORDS

Forceps, Low birth weight, Postpartum hemorrhage, Caesarean delivery.

INTRODUCTION

Instrumental deliveries are vaginal deliveries accomplished with the use of vacuum device or forceps. Instrumental deliveries are an important part of obstetric practice which enables the obstetrician to deliver vaginally and thereby reducing the caesarean rates. Modern obstetric practice has witnessed an increase in the caesarean section rates everywhere. RCOG recommends 10-15 % of deliveries to be conducted by instrumental deliveries. There are ways of preventing primary caesarean delivery and forceps delivery is one of them. ACOG and the Society for maternal fetal medicine address the concept of preventing the primary caesarean delivery.[1]

LITERATURE SURVEY

Operative vaginal delivery has been described since the Middle Ages. In the late 16th century, Chamberlain family invented an unusual device for the purpose of delivering children alive even during difficult labors. The hinged, spoon-like instrument would later be called forceps–but for the next several decades, they were known largely as "the secret."

They drove to births in closed or curtained carriages, and it is rumored that they carried "the secret" in an enormous, gold-covered box that required at least two people to carry it. It has also been recorded that patient was blind-folded and that everyone else was required to leave the room during the delivery. They even employed noisemakers and clappers to keep anyone from eave-dropping on the goings on through the adjoining door!

A family member, Hugh Chamberlain, eventually sold the secret for much needed funds–though the design had already been leaked; forceps appeared in various parts of the European continent and England.

Forceps were later developed over several centuries by leading obstetricians including Simpsons, Barnes, Kielland.

METHODS

Retrospective observational study for a period of 1 year from April 2021 to March 2022 in a secondary level care institute.

46 cases of outlet forceps delivery were studied for maternal and fetal outcomes including demographic variables, parity, perineal tears and episiotomy extensions, NICU admissions, birth injury and mortality.

INCLUSION CRITERIA

Cephalic presentation
Full term and preterm gestation Twin gestation

EXCLUSION CRITERIA

Breech presentation Random selection of women using each woman's unique medical record number, case files were obtained and data on demographic variables, indication of forceps delivery, maternal complication of forceps delivery like episiotomy extension, cervical tear, vaginal wall tear, PPH and neonatal outcome like early neonatal death, NICU admissions were recorded for all the cephalic singleton forceps deliveries. Forceps deliveries were performed using short curved outlet Wrigley's forceps. Criteria for application of outlet forceps were scalp visible at the introitus without separating labia, fetal skull has reached pelvic floor, Sagittal suture in anteroposterior diameter or right or left occiput anterior or posterior position. Fetal head at or on perineum. Rotation does not exceed 45 degrees.[2]

Indications of instrumental vaginal delivery were broadly based on 4 common indications.[3]

Prolonged second stage of labour (Defined as- In Nulliparous as lack of progress of labour for 3 hours with regional anesthesia or 2 hours without anesthesia. In multiparous as lack of progress of labour for 2 hours with regional anesthesia or 1 hours without anesthesia).

Fetal Distress (suspicion of immediate or potential fetal compromise) Elective shortening of second stage of labour (In maternal cardiovascular /neurological disorders). Maternal exhaustion (largely subjective and not well defined).

Table 1: Fetal Outcome Of Women Delivered By Forceps

Fetal Outcome	Forceps
Mother side	42(91.03%)
NICU	4(8.69%)

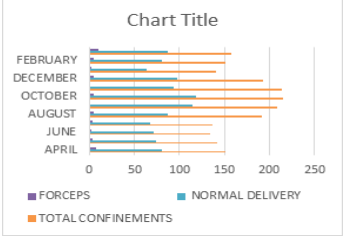

Figure 1: Month wise prevalence of forceps delivery

RESULTS

A total of 46 forceps deliveries out of 2037 deliveries occurred at K. B.

Bhabha Hospital, Kurla from a period of 1 year from April 2021 to March 2022. The prevalence rate is 2.258 %.

Table 2: Age Distribution Of Woman Who Delivered By Forceps.

Age in years	Forceps
<19	1(2.17%)
20-25	30(65.2%)
26-30	12(26.08%)
31-35	1(2.17%)
>35	2(4.34%)

Table 3: Indications Of Forceps Delivery.

Indication	Forceps
Maternal exhaustion/ poor maternal efforts	25(55%)
Fetal distress	18(40%)
To cut short second stage of labour	3(5%)

Table 4: Parity Status Of Women Delivered By Forceps Delivery.

PARITY	FORCEPS
Primigravida	38 (82.6%)
Multigravida	8 (17.3%)

Table 5: Maternal Complications And Morbidities Following Forceps Delivery.

Maternal complications	Incidence
Episiotomy extensions	4(8.69%)
Vaginal/Cervical lacerations	1(2.17%)
Vulval haematoma requiring exploration	1(2.17%)

Table 6: Birth weights of babies delivered by forceps.

Birth weights of babies	Forceps
</=2.5 kgs	26%
2.5-3 kgs	44%
>3 kgs	30%

DISCUSSION

The prevalence of forceps delivery in this study was 2.25 %, which is less than what is recommended by RCOG which is around 10-15 % i.e., 1 in 3 deliveries are to be conducted by either forceps or vacuum.

Most of the mothers who had forceps delivery, 430 (91%) belong to age group 20-30 years which is same in another studies Lamba A et al (40%), Shameel F et al (87%), Aliyu LD et al (62%) and Demissie K. Rhoads GG et al. [4,5,6]

Maternal exhaustion 25 (55%) was the most common indication followed by fetal distress 18(40%). This is contrary to the study done by Lamba A et al (54%), Nikolov A et al (78.1%) and Yeomans ER et al but is in similar to the study done by Shameel F et al where Fetal distress accounted for only11% cases and 70% were due to prolonged second stage. [4,7,8]

Most of the mothers who delivered by forceps delivery were primigravida (82.6%). This may be because of rigid perineum, minor degree of relative cephalopelvic disproportion in primigravida. It iconsistent with studies done by Lamba A et al (68%), Shameel F et al (57%), Aliyu LD et al (52%), Aktar S et al. [4,5,9,10]

Regarding the maternal outcome, the maternal injuries were noted in 13% of the cases and it was higher than study done by John LB et al except vulvovaginal hematoma (2.17 %) in the current study while it is 2.8% (Lamba A et al).[11] Traumatic PPH was most common complication noted in the present study.

Regarding neonatal outcome, out of 46 forceps deliveries, 4 babies (8.6%) went to NICU due to low APGAR scores (<7) at 5 mins.

Prevalence of forceps delivery was 26% for baby weight < 2.5 kg, suggesting that instrumental deliveries were more frequent in infants with higher birth weight and this finding is similar to study done by Lamba A et al and Wu Wen S et al. [4,12]

2 babies (4.3%) suffered minor birth injuries like forceps mark on parietal bone due to pressure of the forceps. The fetal complications and injuries can be avoided by correct application of the forceps. Hence a proper training is required for skilled forceps delivery to avoid such injuries.

CONCLUSION

In a low resource setting country like India where availability of caesarean deliveries is not always possible, use of assisted vaginal birth- forceps or vacuum delivery can be lifesaving.

In primary and secondary care level institutes where maintenance of the vacuum, power supply for functioning of vacuum cup is not always available, a skill in forceps delivery can come to the rescue.

A skilled forceps delivery will prevent many second stage sections. Hence a training in forceps delivery should be made mandatory.

Every obstetrician should learn the skill of forceps delivery and it should not be a dying art.

Ethics approval and necessary approval taken.

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