International Journal of Advances in Medicine
Iyengar SP et al. Int J Adv Med. 2015 Nov;2(4):346-349
http://www.ijmedicine.com
pISSN 2349-3925 | eISSN 2349-3933
DOI: http://dx.doi.org/10.18203/2349-3933.ijam20151006

Research Article

A study of outlet forceps in modern era

Shreya Parthasarathy Iyengar*, Megha Snehal Patel

Department of Obstetrics and Gynecology, Smt. N.H.L Municipal Medical College, Sheth Vadilal Sarabhai Hospital, Ahmedabad, Gujarat, India

Received: 18 June 2015
Revised: 27 July 2015
Accepted: 19 August 2015

***Correspondence:**
Dr. Shreya Parthasarathy Iyengar,
E-mail: shreyadr126@gmail.com

ABSTRACT

Background: Aim of current study was to study the use of outlet forceps in modern obstetrics and find out its fetal and maternal outcomes.
Methods: Observational study of 50 cases of outlet forceps application over a period of 3 years and our institution from June 2012 to May 2015.
Results: Outlet forceps was more commonly used in primipara patient between 21-30 years in term babies in prolonged second stage of labor and in case of fetal and maternal distress with perineal infiltration of local analgesia with minimal NICU admissions of the babies and minimal maternal perineal injuries.
Conclusions: Prophylactic use of forceps is a safe alternative to cut short the second stage of labor. Using outlet forceps the overall rates of maternal and perinatal morbidity and mortality are negligible and comparable to normal delivery.

Keywords: Pregnancy, Outlet forceps, Fetal outcome, Maternal injuries

INTRODUCTION

The status of forceps in modern obstetrics is constantly under discussion within the specialty. Controversy is the proper effort for improvement in the results.

The old Sanskrit writings mention about the golden instruments "The forceps". In 1500 BC, a paired semicircular long instrument was used to hold utensils, which was also used to deliver a dead child. But the real art of forceps was born at the hands of the great Peter Chamberlane in 1600 AD.

For 300 years since its discovery Forceps has faced many odds but has survived till today to find a place in modern obstetrics. The use of forceps has improved maternal and fetal outcome with proper selection of patient, type of forceps and their application.

High forceps deliveries used in previous classification systems defined them as procedures performed when the head was not engaged. In the present classification system High forceps application is not included. According to ACOG (1994) and SGOG (2005) "High forceps deliveries are not recommended in modern obstetric practice".

Outlet forceps procedure with appropriate mediolateral episiotomy has been demonstrated to give fetal and maternal results equal to if not exceed the spontaneous vertex delivery.[1]

Aims and objectives

1) To study various indications of outlet forceps

2) To study incidence of outlet forceps

3) To study age and parity distribution among outlet forceps

4) To study maternal injuries and complications

5) To study fetal injuries and complications

6) To study types of anaesthesia or analgesia used in outlet forceps

7) To study current trends in uses outlet forceps

8) To study birth weight during use of outlet forceps

9) To study maternal mortality with outlet forceps

METHODS

A study of 50 cases of outlet forceps was carried out from June 2012 to May 2015 at our institution for a period of around 3 years.

All the patients were admitted indoor patients in our general hospital, the present study was carried out keeping in mind the age, parity, whether emergency or registered cases, duration of labor, type of forceps and maternal and fetal complication. The study was according to ACOG 2002 classification guidelines for outlet forceps.[2-4]

Exclusion criteria:

1) Gross cephalopelvic disproportion.

2) Station of head in relation to ischial spine ≤+2 with prolonged 2nd stage ≥2 hours in primipara. >1 hour in multigravida.

The study design was observational type.

RESULTS

Parity distribution: The incidence of outlet forceps was most common among primipara patients and incidence decreased as parity increased. In my study incidence was 0.728%. According to ACOG 2011 incidence was 0.8%.[5]

Table 1: Parity distribution.

	Cases	Percentage
Primipara	38	76%
Second para	07	14%
Third para	04	8%
Multipara	01	2%

Indications and outlet forceps: Outlet forceps was most commonly used to cut short second stage of labour and reduce fetal and maternal distress.

Table 2: Indications and outlet forceps.

Indications	No. of cases	Percentage	Johnson et al.[6]
Fetal distress	12	24%	47.1%
Prolonged 2nd stage	13	26%	14%
Maternal distress	8	16%	38.5%
Previous LSCS	1	2%	
Severe PIH	8	16%	
Eclampsia	1	2%	
Cardiac disease	2	4%	
Anemia	5	10%	
Asthma	1	2%	

Anesthesia and forceps: Most of the outlet forceps applications were done under simple perineal infilteration. This made the process simple and easy to perform.

Table 3: Anesthesia and forceps.

Type of anesthesia	No. of cases	Percentage
Spinal anesthesia	4	8%
Pudendal block	5	10%
Perineal infiltration	39	78%
General anesthesia	2	4%

Birth weight (kg) and outlet forceps: Most of the babies were found to be healthy between 2.6-3 kg.

Table 4: Birth weight (kg) and outlet forceps.

Weight in kg	No. of cases	Percentage
≤2	1	2%
2.1-2.5	12	24%
2.6-3.0	23	46%
3.1-3.5	14	28%

NICU admission and outlet forceps: 20% of the babies required resuscitation after birth and only 12% needed NICU admission. Yancey MK et al.,[7] the use of outlet forceps in patients with uncomplicated labor has no immediate side effects.

Table 5: NICU admission and outlet forceps.

	No. of cases	Percentage
NICU admission	6	12%
Neonatal resuscitation	10	20%

Birth injuries and outlet forceps: Impression marks of forceps applications was found in 8% of babies , abrasion in 6%, cephalhaematoma in 4% and early neonatal death was observed in only one case.

Table 6: Birth injuries and outlet forceps.

Birth injuries	No. of cases	Percentage	
Impression marks	4	8%	
Abrasion on face	3	6%	5% (Hagadan et al.)[8]
Cephalhematoma	2	4%	2% (Dell et al.)[9]
Early neonatal death	1	2%	

Maternal complications and forceps: Vaginal tears followed by need for extension of the episiotomy and urinary tract infection were significant complications the mother faced after outlet forcps application. Cheng et al.,[10] a prolonged second stage of labor is associated with increased morbidity. Dell et al maternal trauma is 49%.[11] Roberto Anglioli et al.,[12] maternal age, birth weight and use of episiotomy are risk factor for perineal lacerations in assisted vaginal deliveries.

Table 7: Maternal complications and forceps.

Complication	No. of cases	Percentage
Atonic PPH	1	2%
Secondary PPH	-	-
Episiotomy infection	2	4%
UTI	4	8%
Urinary incontinence	1	2%
Fecal incontinence	0	0
1st degree perineal tear	-	-
2nd degree perineal tear	3	6%
Vaginal tear	5	10%
Paraurethral tear	2	4%
Multiple tears	2	4%
Extended episiotomy	4	8%

DISCUSSION

Out of the 50 patients on whom the study was carried out using Wrigley's outlet forceps according to the ACOG classification 2002.

76% were primipara, 62% between the age of 21-30 years of age. Incidence in our institute is 0.73%. Most common indications for outlet forceps are fetal distress (22%), prolonged 2nd stage of labor (26%), maternal distress (16%). Prophylactically used in previous CS (2%), severe PIH and eclampsia (18%), heart disease (4%), anemia (10%), asthma (2%).

Majority of the forceps were applied after perineal infiltration with local analgesia (78%).

Majority of the babies were term 37 weeks (74%) and 2.6-3.0 kg (46%) and majority 64% had an APGAR score of 7-10. Only 6 babies needed neonatal admission while 10 needed neonatal resuscitation.

6% had perineal tear, 10% had vaginal tear and 4% had paraurethral and 8% extended episiotomy.

Prophylactic use of forceps is a safe alternative to cut short the second stage of labor. Using outlet forceps the overall rates of maternal and perinatal morbidity and mortality are negligible and comparable to normal delivery.

ACKNOWLEDGEMENTS

We would like to thank Dr. S. T. Malhan, the superintendent of Sheth VS General Hospital, Dr. Pankaj R. Patel, dean of Smt N.H.L Municipal Medical College to allow us to publish this paper. We are very thankful to all our patients for their kind co-operation.

Abbreviations

PPH - Post-partum hemorrhage
PIH - Pregnancy induced hypertension
UTI - Urinary tract infection
LSCS - Lower segment caesarian section
NICU - Neonatal intensive care unit
ACOG - American college of obstetricians and gynecologists

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Dennen PC. Outlet forceps procedure. In: Dennen PC, eds. Dennen's forceps deliveries, 3rd ed. F.A, New York: Davis Company; 1989: 188.
2. American College of Obstetrics and Gynecology. Operative vaginal delivery-clinical management guidelines for obstetrician and gynaecologists. Int J Gynaecol Obstet. 2001;74(1):69-76.
3. Prerequisites of Application, Society of Obstetrics and Gynecology of Canada. Clinical practice guidelines. Int J Obstet Gynecol. 2005;88:229-36.
4. RCOG. Operative vaginal delivery. Green top guideline No. 26, January 2011 (prerequisites for application, clinical guidelines). Available at: https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg26/.
5. ACOG medical teaching module 2011, forceps incidence in modern era.
6. Johnson JH, Figueroa R, Garry D, Elimian A, Maulik D. Indication of forceps, immediate maternal and neonatal effects of forceps and vacuum assisted deliveries. Obstet Gynecol. 2004 Mar;103(3):513-8.
7. Yancey MK, Herpolsheimer A, Jordan GD, Benson WL, Brady K. Maternal and neonatal effects of

outlet forceps delivery compared to vaginal deliveries in terms of pregnancies. Obstet Gynecol. 1991 Oct;78(4):646-50.
8. Hagadon-Feathy A, Yeomans ER, Hankins GDV. Scalp injuries. Obstet Gynecol. 1985;77:356.
9. Dell DL, Sightler SE, Plauche WC. Cephalhematoma injury. Obstet Gynecol. 1985;66:624.
10. Cheng YW, Hopkins LM, Caughey AB. How long is too long: Does a prolonged second stage of labor in nulliparous women affect maternal and neonatal outcomes? Am J Obstet Gynecol. 2004;191:933-8.
11. Dell DL. Maternal trauma due to forceps. Obstet Gynecol. 1985 (published data only).
12. Roberto Anglioli, Orlando, Guilherme Canturia, O'Sullivan. Severe perineal lacerations during vaginal delivery. Am J Obstet Gynecol. 2000;182:1083-5.

Cite this article as: Iyengar SP, Patel MS. A study of outlet forceps in modern era. Int J Adv Med 2015;2:346-9.