

## Changing trends in the indications of obstetric hysterectomies in teaching rural hospital

Arun P. Moray<sup>1</sup>, Urmila A. Moray<sup>2\*</sup>, Vaishali M. Patil<sup>1</sup>, Grishma A. Moray<sup>2</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, Shri. Bhausaheb Hire Government Medical College, Dhule, Maharashtra, India

<sup>2</sup>Department of Obstetrics and Gynecology, JMF's ACPM Medical College, Dhule, Maharashtra, India

**Received:** 21 May 2018

**Accepted:** 26 June 2018

**\*Correspondence:**

Dr. Urmila A. Moray,

E-mail: [arunmoray@gmail.com](mailto:arunmoray@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** Obstetric hysterectomy (OH) still remains lifesaving procedure. OH still poses a major obstetrical morbidity in the developing world due to lack of human, infrastructural and monetary resources. Irrespective of attempts like good antenatal care and delivery planning in modern obstetrics to prevent major obstetric complications; unfortunately, OH needs to be performed at times even today. The aim of present study was to determine the changes in the indications of obstetric hysterectomy.

**Methods:** A retrospective review based on hospital data of all the patients' records subjected to OH from January 1994 to September 2001 (Gr. A) and from January 2006 to December 2015 (Gr. B) was done and analyzed for incidence and changing trends in the indications.

**Results:** The incidence of OH during two periods from January 1994 to September 2001 (Group A) and from January 2006 to December 2015 (Group B) in the Department of Obstetrics and Gynecology at Shri. Bhausaheb Hire Govt. Medical College, Dhule was 3.27/1000 and 0.97/1000 deliveries. Incidence is reduced by more than three folds. In both groups maximum patients were below 30 yrs of age and multipara. The commonest indications for OH in both groups were uterine rupture, uncontrolled Atonic PPH and placental causes. The incidence of uterine rupture as a cause for OH was reduced from 78.16% to 43.24%, while that of Atonic PPH has increased from 16.09% to 28.37% and placental causes has increased from 4.59% to 9.45%. Among the risk factors for OH, the incidence of prolonged or obstructed labour has reduced from 66.66% to 21.62% and that of malpresentations has reduced from 27.58 to 5.4%.

**Conclusions:** There is definite reduction in the incidence of OH, frequency of uterine rupture, obstructed labor and malpresentations in Gr. B due to timely referral, improved infrastructure and transportation facilities.

**Keywords:** Atonic PPH, Obstetric hysterectomy, Uterine rupture

### INTRODUCTION

Obstetric hysterectomy (OH) means surgical removal of uterus during ante partum, intra partum or postpartum period due to various obstetric complications. OH, still poses a major obstetrical morbidity in the developing world due to lack of human, infrastructural and monetary

resources. Irrespective of attempts like good antenatal care and delivery planning in modern obstetrics to prevent major obstetric complications; unfortunately, OH needs to be performed at times even today.

OH was developed as a heroic operation of necessity in an attempt to reduce the exceptional maternal mortality

rate of caesarean section which was around 100% in the beginning. The first OH was performed by Horatio R. Storer in 1868 for obstruction in birth canal by a uterine tumor, but patient died on the third post-operative day.<sup>1</sup> Eduardo Porro was the first to perform OH on a patient who survived it. Up to 1922, 25% of caesarean deliveries were performed as Porro's caesarean hysterectomies.

Patients requiring OH represent large proportion of critical patients coming to obstetrics units. Its management involves coordinated team work, anesthetic skills, promptness, round the clock blood transfusion services, good operative skills and post-operative critical management. The study of these cases gives opportunity to improve the above aspects as well as to extend the necessary preventive services to the needy. Majority of indications for OH are Atonic postpartum hemorrhage, ruptured uterus and placental disorders.

In the present study the patients undergoing OH at Shri. Bhausaheb Hire Govt. Medical College and Hospital, Dhule in two different period intervals were analysed to find out the changing trends in incidence and the indications.

**METHODS**

This study was conducted in the Department of Obstetrics and Gynecology, Shri. Bhausaheb Hire Government Medical College and Hospital, Dhule, Maharashtra, India. This hospital caters mainly for the patients from tribal and rural areas. Study design was retrospective in nature where data was collected from labor ward and operation theatre records. The surgical removal of the uterus at the

time of planned or unplanned caesarean delivery or at exploratory laparotomy or in the immediate postpartum period was considered as obstetric hysterectomy (OH). All the patients' records subjected to OH from January 1994 to September 2001 (Group A) and from January 2006 to December 2015 (Group B) were collected and analyzed. The data collected and analyzed was total no. of deliveries, number of caesarean sections, no. of OH, age of mother, parity, indication for OH and associated co morbidities during above two period intervals. Study was approved by Institutional ethical committee.

**Statistical analysis**

Quantitative analysis of the data was done. Descriptive analysis which includes frequency distribution showing number and percentages were generated for each identified variable. Statistical tests like Chi Square and probability were applied when indicated and the occurrences were compared.

**RESULTS**

Statistically significant decline in the rate of obstetrical hysterectomies in recent past (2006-2015 i.e. Gr. B) as compared with the previous years (1994-2001 i.e. Gr. A) cumulatively and among women delivered vaginally. However, OH among women undergone caesarean deliveries was not significantly reduced. Higher proportion of OH among women more than 30 years of age was noted. The difference in the proportion was statistically non-significant. High proportion of OH among multiparous women was observed. The difference in the proportion was statistically significant.

**Table 1: Baseline information of OH conducted during the study period.**

| Parameter   | Jan 1994 to Sept 2001(Gr. A) | Jan 2006 to Dec 2015 (Gr. B) | Significance                |
|---|------------------------------|------------------------------|-----------------------------|
| Total no. of deliveries   | 26614                        | 76375                        | Chi Sq*. =65.43<br>p<0.0001 |
| Total no of obstetrical hysterectomies                              | 87                           | 74                           |                             |
| Incidence - per thousand deliveries                                 | 3.27/1000                    | 0.97/1000                    |                             |
| Total no. of vaginal deliveries                                     | 24065                        | 64906                        | Chi Sq*. =8.22<br>p=0.0041  |
| Total no. of OH in vaginally delivered patients                     | 19                           | 20                           |                             |
| Incidence of OH among vaginal deliveries- per thousand deliveries   | 0.79/1000                    | 0.31/1000                    |                             |
| Total no. of caesarean deliveries                                   | 2549                         | 11469                        | Chi Sq*. =2.85<br>p=0.091   |
| Total caesarean hysterectomies                                      | 10                           | 22                           |                             |
| Incidence of OH among caesarean deliveries- per thousand caesareans | 3.9/1000                     | 1.918/1000                   |                             |

\* Chi Square

As uterine rupture was indication for OH in 2/3<sup>rd</sup> cases of Gr. A, prolonged or obstructed labor and malpresentations were common associated risk factors than Gr. B. Over the years it was observed that uterine rupture as the cause for OH was reduced significantly in the recent past, while miscellaneous causes such as broad ligament hematoma, sepsis and ectopic pregnancy etc

were increased during recent years. It was noted that OH was significantly reduced among prolonged or obstructed labor and fetal malpresentations cases. Most cases among malpresentations were neglected cases of transverse lie with hand prolapsed. There is no significant change in preclampsia as a risk factor.

**Table 2: Age wise distribution in two groups.**

| Parameter                    | Jan 1994 to Sept 2001 (Gr. A), N=87 | Jan 2006 to Dec 2015 (Gr. B), N=74 | Significance |
|------------------------------|-------------------------------------|------------------------------------|--------------|
| <b>Age wise distribution</b> |                                     |                                    |              |
| < 30 yrs                     | 53(60.91%)                          | 47(63.51%)                         | Chi Sq=0.03  |
| >30 yrs                      | 34(39.08)                           | 27(36.49%)                         | p=0.862      |

**Table 3: Parity wise distribution in two groups.**

| Parameter                       | Jan 1994 to Sept 2001 (Gr. A), N=87 | Jan 2006 to Dec 2015 (Gr. B), N=74 | Significance |
|---------------------------------|-------------------------------------|------------------------------------|--------------|
| <b>Parity wise distribution</b> |                                     |                                    |              |
| Primipara                       | 3(3.44%)                            | 12(83.78%)                         | Chi Sq=6.28  |
| Multipara                       | 84(96.56%)                          | 62(16.22%)                         | p=0.012      |

**Table 4: Indications for OH in two groups.**

| Indications for OH  | Jan 1994 to Sept 2001 (Gr.A), N=87 | Jan 2006 to Dec 2015 (Gr.B) N=74 | Significance                  |
|---|------------------------------------|----------------------------------|-------------------------------|
| Uterine rupture   | 68 (78.16%)                        | 32 (43.24%)                      | Chi Sq=19.26; p=0.0001        |
| Uncontrolled Atonic PPH   | 14 (16.09%)                        | 21 (28.37%)                      | Chi Sq=2.86; p=0.09           |
| Placental causes  | 4 (4.59%)                          | 4 (4.59%)                        | Chi Sq=2.43, p=0.12           |
| Placenta previa   | 2 (2.29%)                          | 3 (4.05%)                        |                               |
| Abruption   | 1 (1.14%)                          | 2 (2.7%)                         |                               |
| Morbidly adherent placenta                                      | 1 (1.14%)                          | 2 (2.7%)                         |                               |
| Perforation of uterus during voluntary termination of pregnancy | 0                                  | 4 (5.4%)                         | Cannot apply TOS <sup>#</sup> |
| Broad ligament hematoma   | 1 (1.14%)                          | 3 (4.05%)                        | Chi Sq=5.76, p=0.016          |
| Sepsis  | 1 (1.14%)                          | 2 (2.7%)                         |                               |
| Ectopic pregnancy   | 0                                  | 2 (2.7%)                         |                               |
| Vesicular mole  | 0                                  | 1 (1.35%)                        |                               |
| Uterine inversion   | 0                                  | 1 (1.35%)                        |                               |
| Cervical fibroid  | 0                                  | 1 (1.35%)                        |                               |

**Table 5: Risk factors associated in both groups.**

| Risk factor                       | Jan 1994 to Sept 2001 (Group A), N=87 | Jan 2006 to Dec 2015 (Group B) N=74 | Significance                                      |
|-----------------------------------|---------------------------------------|-------------------------------------|---|
| Multiparity                       | 84 (96.56%)                           | 62 (83.78%)                         | Chi Sq=6.28; p=0.012                              |
| Advanced maternal age (>30)       | 34 (39.08%)                           | 27 (36.48%)                         | Chi Sq=0.03; p=0.86                               |
| Prolonged or obstructed labor     | 58 (66.66%)                           | 16 (21.62%)                         | Chi Sq=30.88; p<0.0001                            |
| Previous scar on uterus           | 6 (6.89%)                             | 22 (29.72%)                         | Chi Sq=12.97; p=0.0003                            |
| Fetal malpresentations            | 24 (27.58%)                           | 4 (5.4%)                            | Chi Sq=12.19; p=0.0005                            |
| Transverse lie with hand prolapse | 22 (25.28%)                           | 3 (4.05%)                           |   |
| Face presentation                 | 1 (1.14%)                             | 1 (1.35%)                           |   |
| Breech presentation               | 1 (1.14%)                             | 0                                   |   |
| Preeclampsia                      | 15 (17.24%)                           | 13 (17.56%)                         | Chi Sq=0.02; p=0.89                               |
| Multiple pregnancy                | 2 (2.29%)                             | 1 (1.36%)                           | TOS cannot be applied as outcome was very scarce. |

**DISCUSSION**

From Table 6, it is obvious that the incidence of OH has reduced by more than three folds in Gr. B and this is statistically significant (p<0.0001).

Similar statistically significant decline in incidence of OH is seen in patients delivered vaginally.

The incidence of OH at our institute is comparable with that of various series worldwide with definitive decline in the incidence over the years.

This reduction in incidence is mainly due to reduction in frequency of number of uterine rupture cases from 78.16% in Gr. A to 43.24% in Gr. B as shown in Table 7.

**Table 6: Incidence of OH in various series worldwide.**

| Series                                 | Incidence per 1000 | Series                                     | Incidence per 1000 |
|--|--------------------|--|--------------------|
| Zelop et al <sup>2</sup>               | 1.55               | Vazquez et al <sup>6</sup>                 | 8                  |
| Kant et al <sup>3</sup>                | 2.6                | Siddiq et al <sup>7</sup>                  | 5.6                |
| Gupta et al <sup>4</sup>               | 2.6                | Sharma et al <sup>8</sup>                  | 5.4                |
| Kanwar et al <sup>5</sup>              | 3.2                | Kanhere et al <sup>9</sup>                 | 2.8                |
| Present series Gr. A, Jan 94-Sept 2001 | 3.27               | Present series Gr. B, Jan 2006 to Dec 2015 | 0.97               |

**Table 7: Indication wise comparison of various series of OH.**

| Indication                         | Clark et al <sup>10</sup> |    | Stanco et al <sup>11</sup> |    | Zelop et al <sup>2</sup> |    | Parmar et al <sup>12</sup> |   | Present series Gr. A |       | Present series Gr.B |       |
|------------------------------------|---------------------------|----|----------------------------|----|--------------------------|----|----------------------------|---|----------------------|-------|---------------------|-------|
|                                    | N=70                      | %  | N=123                      | %  | N=117                    | %  | N=37                       | % | N=87                 | %     | N=74                | %     |
| Placenta accreta                   | 21                        | 30 | 55                         | 45 | 75                       | 64 | 3                          | - | 2                    | 2.29  | 3                   | 4.05  |
| Uterine Atony                      | 30                        | 43 | 25                         | 20 | 25                       | 21 | 3                          | - | 14                   | 16.09 | 21                  | 28.37 |
| Bleeding / Ut. perforation/ others | -                         | -  | 19                         | 16 | -                        | 3  | 12                         | - | 0                    | -     | 4                   | -     |
| Uterine rupture                    | 9                         | 13 | 14                         | 11 | 10                       | 9  | 19                         | - | 68                   | 78.16 | 32                  | 43.24 |
| Fibroids with bleeding             | 3                         | 4  | 3                          | 2  | 2                        | 2  | -                          | - | -                    | -     | 1                   | 1.35  |
| Uterine infection                  | -                         | -  | 1                          | 1  | 3                        | 3  | -                          | - | 1                    | 1.14  | 2                   | 2.7   |
| Uterine Scar rupture               | 7                         | 10 | -                          | -  | 2                        | 2  | -                          | - | 6                    | 6.89  | 22                  | 29.72 |

From Table 4 it is obvious that the no. of cases of prolonged or obstructed labour is reduced from 66.66% to 28.62% in Gr. B. Similarly, number of cases of fetal malpresentations as risk factor for obstructed or prolonged labour leading to uterine rupture have significantly reduced from 27.58% in Gr. A to 5.4% in Gr. B ( $p=0.0005$ ). This all suggests improvement in detection of high risk cases at peripheral primary health care centers and timely referral avoiding the delay. The lack of transport facilities or delay in availing them used to be main reason for delay in receiving timely management at tertiary care center. Due to provision of on call ambulance services under national rural health mission, transportation has become easy and hassle free. This is main reason for reduction in delayed transfer and indirectly reducing no. of cases of uterine rupture, prolonged or obstructed labor. Similarly, government initiatives like training of medical officers and auxiliary nurse midwives through basic essential obstetric care (BEmOC) and skilled attendant at birth (SAB) has helped in identifying high risk cases ante partum and intra partum with timely referral.

Improvement in the infrastructure at tertiary care hospital with development of High Dependency Units, well equipped operation theatres, improved blood bank facilities with availability of blood components and availability of higher antibiotics has improved the standards of the critical obstetric care. In Gr. B, the frequency of uncontrolled PPH, placental causes and previous scar on uterus has increased as compared to Gr.

A. Rupture uterus is still the leading indication for OH in Gr. B. This suggests increased incidence of caesarean deliveries over the period leading to more cases of abnormal placentation and scar rupture during VBAC. Even though there is reduction in the incidence of OH in Gr. B, it is still more than that of developed countries. Hence there is further need to improve infrastructure and provide qualified manpower in peripheral hospitals so that definitive management of high risk cases is made available at First Referral Units rather than referring them to tertiary health care facilities.

## CONCLUSION

Over the years the incidence of OH has statistically reduced with significant reduction in incidence of uterine rupture and prolonged or obstructed labor. The incidence of rupture uterus has increased in scarred uterus, while reduced in vaginal deliveries. There is no reduction in preeclampsia as risk factor. There is increase in the incidence of uncontrolled PPH and placental causes leading to OH. OH is a lifesaving procedure but decision should be prompt and performed by an experienced surgeon. Every obstetrician should be trained to perform this procedure.

## ACKNOWLEDGMENTS

Authors would like to thank Dr. Satishkumar S. Gupta, Dr. Vijay Bhagat and Labour room - OT sister in charge, for their support during study.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Larry C, Gilstrap III F, Cunningham G, Van dorten JP. *Obstetric Hysterectomy. operative obstetrics, 2<sup>nd</sup> edition.* New York: Mc Graw Hill. 1995:275-91.
2. Zelop CM, Harlow BL, Frigoletto FD, Safon LE, Saltzman DH. Emergency obstetrical hysterectomy. *Am J Obstet Gynecol.* 1993;168(5):1443-8.
3. Kant A, Wadhwani K. Emergency obstetric hysterectomy: *J Obstet Gynecol India.* 2005;55:32-4.
4. Gupta S, Dave A, Bandi G et al. Obstetric hysterectomy in modern day obstetrics. *J Obstet Gynecol India.* 2001;51:91-3.
5. Kanwar M, Sood PL, Gupta KB, et al. Emergency hysterectomy in obstetrics. *J Obstet Gynecol India.* 2003;53:350-2.
6. Vázquez JA, Rivera GV, Hernández Higareda S, Páez FG, Vega CC, Segura AP. Obstetric hysterectomy. Incidence, indications and complications. *Gynecol Obstetrics Mexico.* 2008;76(03):156-60.
7. Siddiq N, Ghazi AS, Jabbar SH, Ali TE. Emergency Obstetrical hysterectomy (EOH): A life saving procedure in obstetrics. *Pak J Surg.* 2007;23:217-9.
8. Sharma R, Shaheen JP. Peripartum Hysterectomy: A review of 70 cases. *J South Asian Federat Obstetr Gynecol.* 2009;1(2):19-21.
9. Kanhere A, Sapkal R. Obstetric hysterectomy: aretrospective study at a tertiary care centre. *Int J Reprod Contracept Obstetr Gynecol.* 2016;2(4):562-5.
10. Clark SL, Yeh SY, Phelan JP, Bruce S, Paul RH. Emergency hysterectomy for obstetric hemorrhage. *Obstetr Gynecol.* 1984;64(3):376-80.
11. Stanco LM, Schrimmer DB, Paul RH, Mishell DR, Jr. Emergency Obstetrical Hysterectomy and associated risk factors. *Am J Obstetr Gynecol.* 1993;168(3):870-83.
12. Parmar KD, Goswami D, Kavita M, and Jain M. Obstetric Hysterectomy: Retrospective analytical study at PDU Medical College, Rajkot Parmar Prakash. *Int J Biomed Adv Res.* 2014;05(05):253-4.

**Cite this article as:** Moray AP, Moray UA, Patil VM, Moray GA. Changing trends in the indications of obstetric hysterectomies in teaching rural hospital. *Int J Reprod Contracept Obstet Gynecol* 2018;7:3184-8.